# AEI Consultants

December 4, 2018

## PHASE I ENVIRONMENTAL SITE ASSESSMENT

**Property Information:**
2592 Lakeville Highway
Petaluma, Sonoma County, California 94954

**Project Information:**
AEI Project No. 396580
Client Reference Name: Baywood

**Prepared For:**
Baywood LLC
414 Aviation Boulevard
Santa Rosa, California 95403

**Prepared By:**
AEI Consultants
2500 Camino Diablo, Suite 100
Walnut Creek, California 94597-3940

Environmental Due Diligence

Building Assessments

Site Investigation & Remediation

Energy Performance & Benchmarking

Industrial Hygiene

Construction Risk Management

Zoning Analysis Reports & ALTA Surveys

AEI Consultants

December 4, 2018

Patrick Imbimbo
Baywood LLC
414 Aviation Boulevard
Santa Rosa, California 95403

**Subject:** **Phase I Environmental Site Assessment**
2592 Lakeville Highway
Petaluma, California 94954
AEI Project No. 396580
Client Reference Name: Baywood

Dear Patrick Imbimbo:

AEI Consultants is pleased to provide the *Phase I Environmental Site Assessment* of the above referenced property. This assessment was authorized and performed in accordance with the scope of services engaged.

We appreciate the opportunity to provide services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (925) 746-6004 or pmcintyre@aeiconsultants.com.

Sincerely,

Peter McIntyre, PG
Executive Vice President, Site Mitigation Services
AEI Consultants

# PROJECT SUMMARY

**2592 Lakeville Highway, Petaluma, Sonoma County, California 94954**
**AEI Project No. 396580**

| Report Section | | REC | CREC | HREC | OEC | Recommended Action |
|---|---|---|---|---|---|---|
| 1.0 | Introduction | | | | | None |
| 2.0 | Site and Vicinity Description | | | | | None |
| 3.0 | Historical Review of Site and Vicinity | ✔ | | | | Refer to Sections 4.0 and 6.0 |
| 4.0 | Regulatory Agency Records Review | ✔ | | | | Continue negotiations and planning for remediation with the SCDEH and other parties until final resolution |
| 5.0 | Regulatory Database Records Review | ✔ | | | | Refer to Sections 4.0 and 6.0 |
| 6.0 | Interviews and User Provided Information | ✔ | | | | Continue negotiations and planning for remediation with the SCDEH and other parties until final resolution |
| 7.0 | Site Reconnaissance | ✔ | | | ✔ | Continue negotiations and planning for remediation with the SCDEH and other parties until final resolution |
| 8.1 | Asbestos-Containing Building Materials | | | | | None |
| 8.2 | Lead-Based Paint | | | | | None |
| 8.3 | Radon | | | | | None |
| 8.4 | Mold/Indoor Air Quality Issues | | | | | None |

# TABLE OF CONTENTS


**EXECUTIVE SUMMARY . . . . . 5**
Findings . . . . . 7
Conclusions, Opinions, and Recommendations . . . . . 8
**1.0 INTRODUCTION . . . . . 10**
1.1 Scope of Work . . . . . 10
1.2 Additional Services . . . . . 10
1.3 Significant Assumptions . . . . . 10
1.4 Limitations . . . . . 11
1.5 Limiting Conditions/Deviations . . . . . 12
1.6 Data Failure and Data Gaps . . . . . 12
1.7 Reliance . . . . . 13
**2.0 SITE AND VICINITY DESCRIPTION . . . . . 14**
2.1 Site Location and Description . . . . . 14
2.2 On-Site Utilities . . . . . 14
2.3 Site and Vicinity Characteristics . . . . . 15
2.4 Physical Setting . . . . . 15
**3.0 HISTORICAL REVIEW OF SITE AND VICINITY . . . . . 17**
3.1 Aerial Photographs . . . . . 18
3.2 Sanborn Fire Insurance Maps . . . . . 19
3.3 City Directories . . . . . 20
3.4 Historical Topographic Maps . . . . . 20
3.5 Chain of Title . . . . . 21
**4.0 REGULATORY AGENCY RECORDS REVIEW . . . . . 22**
4.1 Local Environmental Health Department and/or State Environmental Agency . . . . . 22
4.2 Fire Department . . . . . 30
4.3 Building Department . . . . . 31
4.4 Planning Department . . . . . 32
4.5 Assessor's Office . . . . . 32
4.6 Other Agencies Searched . . . . . 33
4.7 Oil and Gas Wells . . . . . 34
4.8 Oil and Gas Pipelines . . . . . 34
4.9 State Environmental Superliens . . . . . 34
4.10 State Property Transfer Laws . . . . . 34
**5.0 REGULATORY DATABASE RECORDS REVIEW . . . . . 35**
5.1 Records Summary . . . . . 35
5.2 Vapor Migration . . . . . 40
**6.0 INTERVIEWS AND USER PROVIDED INFORMATION . . . . . 41**
6.1 Interviews . . . . . 41
6.2 User Provided Information . . . . . 43
6.3 Previous Reports and Other Provided Documentation . . . . . 44
6.4 Environmental Lien Search . . . . . 53
**7.0 SITE RECONNAISSANCE . . . . . 54**
7.1 Subject Property Reconnaissance Findings . . . . . 55
7.2 Adjacent Property Reconnaissance Findings . . . . . 56
**8.0 NON-ASTM SERVICES . . . . . 58**
8.1 Asbestos-Containing Building Materials . . . . . 58

8.2 Lead-Based Paint . . . . . 58
8.3 Radon . . . . . 58
8.4 Mold/Indoor Air Quality Issues . . . . . 58
**9.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONALS . . . . . 59**
**10.0 REFERENCES . . . . . 60**

# TABLE OF APPENDICES

APPENDIX A: FIGURES
APPENDIX B: PROPERTY PHOTOGRAPHS
APPENDIX C: REGULATORY DATABASE
APPENDIX D: HISTORICAL SOURCES
APPENDIX E: REGULATORY AGENCY RECORDS
APPENDIX F: PREVIOUS REPORTS
APPENDIX G: OTHER SUPPORTING DOCUMENTATION
APPENDIX H: QUALIFICATIONS
APPENDIX I: LIST OF COMMONLY USED ABBREVIATIONS

# EXECUTIVE SUMMARY

AEI Consultants (AEI) was retained by Baywood LLC to conduct a Phase I ESA in conformance with AEI's contract and the scope and limitations of ASTM Standard Practice E1527-13 and the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) for the property located at 2592 Lakeville Highway, Petaluma, Sonoma County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Sections 1.4, 1.5, and 1.6 of this report.

Pertinent subject property information is noted below:

| **PROPERTY INFORMATION** | |
|---|---|
| **Site Address(es)** | 2592 Lakeville Highway, Petaluma, Sonoma County, California 94954 |
| **Property ID (APN or Block/Lot)** | 005-060-041 and 005-060-042 |
| **Location** | South of Lakeville Highway and southeast of Casa Grande Road |
| **Property Type** | Vacant Land |
| **SITE AND BUILDING INFORMATION** | |
| **Approximate Site Acreage/Source** | 13.0/Sonoma County Assessor |
| **Number of Buildings** | N/A |
| **Building Construction Date(s)** | N/A |
| **Building Square Footage (SF)/Source** | N/A |
| **Number of Floors/Stories** | N/A |
| **Basement or Subgrade Area(s)** | None identified |
| **Number of Units** | N/A |
| **Additional Improvements** | Motor home and a concrete driveway leading to the property from Casa Grande Road. No permanent structures were observed. In addition, the property has a large mound of miscellaneous construction debris (which originated off-site) and a smaller pile of Class II Aggregate (concrete and asphalt) located on the central portion of the property |
| **On-site Occupant(s)** | Vacant land with a caretaker occupying the mobile home part-time |
| **Current On-site Operations/Use** | Vacant land used for part-time residential activities conducted by the caretaker, storage of stockpiled soil and debris, sampling/groundwater monitoring events for future residential redevelopment purposes |
| **Current Use of Hazardous Substances** | None identified |
| **REGULATORY INFORMATION** | |
| **Regulatory Database Listing(s)** | SEMS-ARCHIVE, ENVIROSTOR, LUST (2), CPS-SLIC, SWF/LF, RGA LUST (3), SWEEPS UST, HIST UST (2), CA FID UST, HIST CORTESE, CERS (2), HAZNET (2), FINDS |

A chronological summary of historical subject property information is as follows:

| Date Range | Subject Property Description and Use (Historical Addresses) | Source(s) |
|---|---|---|
| 1914-1940 | Unknown use; however historical topographic maps depict a submerged marsh of the Petaluma River on the southern portion, a dirt/unimproved road leading to a structure on the northeastern portion of the subject property, and a railroad track along the northern portion of the property | Historical topographic maps |
| 1942-1989 | Royal Tallow and Soap Company (RTSC) (2592 Lakeville Highway) Additionally, landfill material/activities associated with the southwest adjacent property appear to extend onto the western portion of the subject property | Aerial photographs, city directories, historical topographic maps, interviews, and agency records |
| 1989-2008 | Vacant tallow facility (2592 Lakeville Highway) | Aerial photographs, city directories, interviews, and agency records |
| 2008-Present | Vacant land | Aerial photographs, city directories, interviews, agency records, and site observation |

The immediately surrounding properties consist of the following:

| Direction | Tenant/Use (Address) | Regulatory Database Listing(s) |
|---|---|---|
| **Northwest** | Casa Grande Road followed by:<br>Skoff Trucking (1 Casa Grande Road) | LUST, AST (2), UST, SWEEPS UST, ENF, HIST CORTESE, HIST UST, CA FID UST, CERS (2), CERS HAZ WASTE, CERS TANKS |
| **North** | Azure at Lakeville Square Apartments (1400 Technology Lane) | None identified |
| **Northeast** | Moresco Distributing Co (1450 Technology Lane) | None identified |
| **South** | Vacant marsh land with a public access trail running through it, followed by the Petaluma River (no address available) | None identified |
| **Southwest** | Rocky Memorial Dog Park, formerly Casa Grande Landfill (2204 Casa Grande Road) | ENVIROSTOR, SWF/LF, Financial Assurance |
| **West** | Casa Grande Road followed by:<br>Michal Paul Co. Construction Company (1200 Casa Grande Road) | None identified |

If the surrounding properties are listed in the regulatory database, please refer to Section 5.1 for discussion.

**FINDINGS**

Recognized Environmental Condition (REC) is defined by the ASTM Standard Practice E1527-13 as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

- The subject property was formerly occupied by the Royal Tallow & Soap Company (RTSC), a light-industrial facility, operating from at least from 1942 to 1989. The facility was equipped with two USTs containing unleaded gasoline, an auto repair shop, clarifier, wastewater sump, septic system and leach field, and waste water disposal ponds. Even though operations ceased in 1989, the structures and associated features remained on the property until all were demolished and/or removed by 2008. In addition to the former light-industrial occupant, historical aerial photographs depict the southwest adjacent landfill extending onto the western portion of the property from at least 1942 to 1982. To determine the extent of the environmental impact from the former RTSC as well as the adjacent landfill, multiple subsurface investigations have been conducted at the subject property from 2014 to 2018, and these investigations have confirmed multiple RECs, as follows:

    - **Fill material from off site, stockpiled on the northern portion of the subject property since at least 2014:** TPH-d, TPH-mo, dieldrin, and phenol above ESLs for residential development
    - **Former waste water ponds:** The metals arsenic, cadmium, cobalt, copper, nickel, vanadium, and zinc above the ESL in groundwater samples from the waste water pond areas
    - **Former septic system and associated leach fields:** TPH-g, TPH-d, TPH-mo, BTEX, and Naphthalene, and the metals barium, cobalt, copper, mercury, and nickel, all above their ESLs in groundwater samples collected from the former septic tank and leach field area
    - **Former sump that was located in the southern portion of the main rendering plant:** nickel and vanadium above the ESL in the groundwater sample collected in the vicinity of the sump
    - **Former auto maintenance area:** Lead above the ESL of 80 mg/kg (shallow and deep soil screening level for residential development); Benzene was detected at 39 µg/L in the groundwater, above the Groundwater Screening Levels for non-drinking water sources
    - **Former 1,000-gallon UST and 2,000-gallon UST, removed from the subject property on June 30, 1990:** TPH-g, TPH-d, TPH-mo, benzene, ethylbenzene, and xylenes above their ESLs in soil samples; TPH-g, TPH-d, TPH-mo, benzene, ethylbenzene, toluene, and xylenes above the ESL in the groundwater; ethylbenzene, xylenes, tetrachloroethene (PCE), and TPH-g above their ESLs in soil gas
    - **Mound of construction debris (approximately 20 feet high) located on**

**the central portion of the subject property:** unknown characterization, no sampling data

- **Landfill materials from the southwest adjacent historical landfill that may have been placed onto the subject property:** lead concentrations exceeding both residential and industrial ESL's

Controlled Recognized Environmental Condition (CREC) is defined by the ASTM Standard Practice E1527-13 as a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.

- AEI did not identify evidence of CRECs during the course of this assessment.

Historical Recognized Environmental Condition (HREC) is defined by the ASTM Standard Practice E1527-13 as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

- AEI did not identify evidence of HRECs during the course of this assessment.

Other Environmental Considerations (OEC) warrant discussion, but do not qualify as RECs as defined by the ASTM Standard Practice E1527-13. These include, but are not limited to, de minimis conditions and/or environmental considerations such as the presence of ACMs, LBP, radon, mold, and lead in drinking water, which can affect the liabilities and financial obligations of the client, the health and safety of site occupants, and the value and marketability of the subject property.

- According to the USGS topographic map, the western and southern portions of the subject property are part of the National Wetland Inventory. However, at the time of this assessment, no standing water was observed and no hazardous materials or petroleum products were observed in the vicinity of these wetland areas. Therefore, these areas are not expected to represent a significant environmental concern for the purpose of this assessment. However, AEI understands that the subject property is slated for redevelopment, and therefore AEI recommends that the appropriate regulatory agency should be contacted to determine whether a Wetlands Delineation report and/or mitigation is required in order to develop in these areas.

## CONCLUSIONS, OPINIONS, AND RECOMMENDATIONS

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) of 2592 Lakeville Highway, Petaluma, Sonoma County, California, the *subject property*. Any exceptions to, or deletions from, this practice are described in Sections 1.4, 1.5, and 1.6 of this report.

AEI did not identify evidence of RECs or CRECs in connection with the property except for those previously identified in the Findings section. AEI understands that the subject property is slated

for residential redevelopment, and that cleanup of the subject property to appropriate standards is being pursued. Based on information obtained for this report, it appears that the RECs concerning the former USTs, landfill materials and stockpiled fill material are being addressed through site assessment and remediation planning with potentially responsible party(s) and/ or regulatory authorities, including SCDEH. At this time, AEI recommends that these ongoing activities continue until remedial action plan(s) have been approved, implemented, and verified such that regulatory closure is granted for the planned development / use of the property.

Plans for the remaining RECs have yet to be developed/implemented. AEI recommends incorporating these issues into existing cleanup plans or otherwise seeking regulatory review to ensure conditions are acceptable for the planned development / use of the property.

# 1.0 INTRODUCTION

This report documents the methods and findings of the Phase I ESA performed in conformance with AEI's contract and scope and limitations of ASTM Standard Practice E1527-13 and the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) for the property located at 2592 Lakeville Highway, Petaluma, Sonoma County, California (Appendix A: Figures and Appendix B: Property Photographs).

## 1.1 SCOPE OF WORK

The purpose of the Phase I ESA is to assist the client in identifying potential RECs, in accordance with ASTM E1527-13, associated with the presence of any hazardous substances or petroleum products, their use, storage, and disposal at and in the vicinity of the subject property. Property assessment activities focused on: 1) a review of federal, state, tribal, and local databases that identify and describe underground fuel tank sites, leaking underground fuel tank sites, hazardous waste generation sites, and hazardous waste storage and disposal facility sites within the ASTM approximate minimum search distance; 2) a property and surrounding site reconnaissance, and interviews with the past and present owners and current occupants and operators to identify potential environmental contamination; and 3) a review of historical sources to help ascertain previous land use at the site and in the surrounding area.

## 1.2 ADDITIONAL SERVICES

Other Environmental Considerations such as ACMs, LBP, lead in drinking water, radon, mold, and wetlands can result in business environmental risks for property owners which may disrupt current or planned operations or cash flow and are generally beyond the scope of a Phase I assessment as defined by ASTM E1527-13. Based upon the agreed-on scope of services this ESA did not include subsurface or other invasive assessments, business environmental risks, or other services not specifically identified and discussed herein.

## 1.3 SIGNIFICANT ASSUMPTIONS

The following assumptions are made by AEI in this report. AEI relied on information derived from secondary sources including governmental agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, and personal interviews. AEI has reviewed and evaluated the thoroughness and reliability of the information derived from secondary sources including government agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, or personal interviews. It appears that all information obtained from outside sources and reviewed for this assessment is thorough and reliable. However, AEI cannot guarantee the thoroughness or reliability of this information.

Groundwater flow, unless otherwise specified by on-site well data or well data from the subject property or nearby sites, is inferred from contour information depicted on the USGS topographic maps. AEI assumes the property has been correctly and accurately identified by the client, designated representative of the client, property contact, property owner, and property owner's representatives.

## 1.4 LIMITATIONS

Property conditions, as well as local, state, tribal, and federal regulations can change significantly over time. Therefore, the recommendations and conclusions presented as a result of this assessment apply strictly to the environmental regulations and property conditions existing at the time the assessment was performed. Available information has been analyzed using currently accepted assessment techniques and it is believed that the inferences made are reasonably representative of the property. AEI makes no warranty, expressed or implied, except that the services have been performed in accordance with generally accepted environmental property assessment practices applicable at the time and location of the assessment.

Considerations identified by ASTM as beyond the scope of a Phase I ESA that may affect business environmental risk at a given property include the following: ACMs, radon, LBP, lead in drinking water, wetlands, regulatory compliance, cultural and historical resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, mold, and high voltage lines. These environmental issues or conditions may warrant assessment based on the type of the property transaction; however, they are considered non-scope issues under ASTM Standard Practice E1527-13.

If requested by the client, these non-scope issues are discussed herein. Otherwise, the purpose of this assessment is solely to satisfy one of the requirements for qualification of the innocent landowner defense, contiguous property owner or bona fide prospective purchaser under CERCLA. ASTM Standard Practice E1527-13 and the United States EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) constitute the "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in:

1. 42 U.S.C. § 9601(35)(B), referenced in the ASTM Standard Practice E1527-13.
2. Sections 101(35)(B) (ii) and (iii) of CERCLA and referenced in the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312).
3. 42 U.S.C. § 9601(40) and 42 U.S.C. § 9607(q).

The Phase I ESA is not, and should not be construed as, a warranty or guarantee about the presence or absence of environmental contaminants that may affect the property. Neither is the assessment intended to assure clear title to the property in question. The sole purpose of assessment into property title records is to ascertain a historical basis of prior land use. All findings, conclusions, and recommendations stated in this report are based upon facts, circumstances, and industry-accepted procedures for such services as they existed at the time this report was prepared (i.e., federal, state, and local laws, rules, regulations, market conditions, economic conditions, political climate, and other applicable matters). All findings, conclusions, and recommendations stated in this report are based on the data and information provided, current subject property use, and observations and conditions that existed on the date and time of the property reconnaissance.

Responses received from local, state, or federal agencies or other secondary sources of information after the issuance of this report may change certain facts, findings, conclusions, or circumstances to the report. A change in any fact, circumstance, or industry-accepted procedure upon which this report was based may adversely affect the findings, conclusions, and recommendations expressed in this report.

AEI's limited radon screening, if included, is intended to provide a preliminary screening to evaluate the potential presence of elevated radon concentrations at the site. The proposed scope is not intended to define the full extent of the presence of radon at the subject property. As such, the results should be used for lending purposes only. The recommendations and conclusions presented as a result of the limited preliminary radon screening apply strictly to the property conditions existing at the time the sampling was performed. The sample analytical results are only valid for the time, place, and condition of the site at the time of collection and AEI does not warrant that the results will be repeatable or are representative of past or future conditions.

### 1.5 LIMITING CONDITIONS/DEVIATIONS

The performance of this Phase I ESA was limited by the following:

- While additional assessments may have been conducted on the subject property, these documents must be provided for AEI's review in order for the information to be summarized/included in this Phase I ESA. Please refer to Section 6.3 for a summary of previous reports and other documentation provided to AEI during this assessment.
- The User did not complete the ASTM User Questionnaire or provide the User information to AEI. AEI assumes that qualification for the LLPs is being established by the User in documentation outside of this assessment.
- Due to the size of the subject property, AEI performed a reconnaissance of the property utilizing a field technique of traversing the site in an attempt to provide an overlapping field of view. Due to the size of the property and the vegetation present on site, isolated areas of the site may have not been accessible for direct observation during AEI's field reconnaissance. Based on the quality of information received from the regulatory database, historical sources, and previous reports, this limitation is not expected to significantly alter the findings of this assessment.
- During on-site reconnaissance, AEI was not granted access into the trailer located on the northern portion of the property. According to Mr. Patrick Imbimbo of Baywood, the trailer is only used by the subject property caretaker for residential activities. Based on this information, this limitation is not expected to significantly alter the findings of this assessment.

### 1.6 DATA FAILURE AND DATA GAPS

According to ASTM E1527-13, data gaps occur when the Environmental Professional is unable to obtain information required by the Standard, despite good faith efforts to gather such information. Pursuant to ASTM E1527-13, only significant data gaps, defined as those that affect the ability of the Environmental Professional to identify RECs, need to be documented.

Data failure is one type of data gap. According to ASTM E1527-13, data failure occurs when all of the standard historical sources that are reasonably ascertainable and likely to be useful have been reviewed and yet the objectives have not been met. Pursuant to ASTM E1527-13, historical sources are required to document property use back to the property's first developed use or back to 1940, whichever is earlier, or periods of five years or greater.

### 1.6.1 DATA FAILURE

The following data failure was identified during the course of this assessment:

| | |
|---|---|
| **Data Failure** | The earliest historical resource obtained during this assessment was an historical topographic map from 1914 indicating that the subject property was developed with a small structure and a dirt road. The subject property is depicted as developed with a small structure and a dirt road in historical topographic maps from 1914 to 1940. In the 1942 aerial photograph, the subject property is developed with the RTSC facility. Tenancy of the subject property is unknown from 1914 to 1940. The lack of historical sources dating back to first developed use and information regarding historical tenancy between 1914 to 1940 represents an historical data source failure. However, based on the quality of information obtained from other sources, including multiple subsurface investigations conducted at the subject property, this data failure is not expected to significantly alter the findings of this assessment. |
| **Information/Sources Consulted** | City directories, Sanborn fire insurance maps, aerial photographs, historical topographic maps, agency records, previous reports, interviews |

### 1.6.2 DATA GAPS

AEI did not identify significant data gaps which affected our ability to identify RECs.

## 1.7 RELIANCE

All reports, both verbal and written, are for the benefit of Baywood LLC. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors, or assigns. Reliance is provided in accordance with AEI's contract and Standard Terms and Conditions executed by Baywood LLC on October 19, 2018. The limitation of liability defined in the Terms and Conditions is the aggregate limit of AEI's liability to the client and all relying parties.

# 2.0 SITE AND VICINITY DESCRIPTION

## 2.1 SITE LOCATION AND DESCRIPTION

| PROPERTY INFORMATION | |
|---|---|
| **Site Address(es)** | 2592 Lakeville Highway, Petaluma, Sonoma County, California 94954 |
| **Property ID (APN or Block/Lot)** | 005-060-041 and 005-060-042 |
| **Location** | South of Lakeville Highway and southeast of Casa Grande Road |
| **Property Type** | Vacant Land |
| **SITE AND BUILDING INFORMATION** | |
| **Approximate Site Acreage/Source** | 13.0/Sonoma County Assessor |
| **Number of Buildings** | N/A |
| **Building Construction Date(s)** | N/A |
| **Building Square Footage (SF)/Source** | N/A |
| **Number of Floors/Stories** | N/A |
| **Basement or Subgrade Area(s)** | None identified |
| **Number of Units** | N/A |
| **Additional Improvements** | Motor home and a concrete driveway leading to the property from Casa Grande Road. No permanent structures were observed. In addition, the property has a large mound of miscellaneous construction debris (which originated off-site) and a smaller pile of Class II Aggregate (concrete and asphalt) located on the central portion of the property |
| **On-site Occupant(s)** | Vacant land with a caretaker occupying the mobile home part-time |
| **Current On-site Operations/Use** | Vacant land used for part-time residential activities conducted by the caretaker, storage of stockpiled soil and debris, sampling/groundwater monitoring events for future residential redevelopment purposes |
| **Current Use of Hazardous Substances** | None identified |
| **REGULATORY INFORMATION** | |
| **Regulatory Database Listing(s)** | SEMS-ARCHIVE, ENVIROSTOR, LUST (2), CPS-SLIC, SWF/LF, RGA LUST (3), SWEEPS UST, HIST UST (2), CA FID UST, HIST CORTESE, CERS (2), HAZNET (2), FINDS |

## 2.2 ON-SITE UTILITIES

| Utility | Source/System Information |
|---|---|
| **Heating System** | Natural gas (limited) |
| **Cooling System** | Electricity (limited) |
| **Potable Water** | City of Petaluma |
| **Sewage Disposal/Treatment** | Not connected |

Utility source/system information listed in the table above is provided by Mr. Patrick Imbimbo, unless otherwise noted above.

## 2.3 SITE AND VICINITY CHARACTERISTICS

The subject property is located in a mixed commercial and residential area of Petaluma, California. The immediately surrounding properties consist of the following:

| Direction | Tenant/Use (Address) | Regulatory Database Listing(s) |
|---|---|---|
| **Northwest** | Casa Grande Road followed by:<br>Skoff Trucking (1 Casa Grande Road) | LUST, AST (2), UST, SWEEPS UST, ENF, HIST CORTESE, HIST UST, CA FID UST, CERS (2), CERS HAZ WASTE, CERS TANKS |
| **North** | Azure at Lakeville Square Apartments (1400 Technology Lane) | None identified |
| **Northeast** | Moresco Distributing Co (1450 Technology Lane) | None identified |
| **South** | Vacant marsh land with a public access trail running through it, followed by the Petaluma River (no address available) | None identified |
| **Southwest** | Rocky Memorial Dog Park, formerly Casa Grande Landfill (2204 Casa Grande Road) | ENVIROSTOR, SWF/LF, Financial Assurance |
| **West** | Casa Grande Road followed by:<br>Michal Paul Co. Construction Company (1200 Casa Grande Road) | None identified |

If the surrounding properties are listed in the regulatory database, please refer to Section 5.1 for discussion.

## 2.4 PHYSICAL SETTING

| | |
|---|---|
| **Geologic Unit: Description/Source** | Artificial fill material and alluvium overlying fine-grained marine and freshwater marsh deposits/Phase II Subsurface Investigation performed at the subject property |
| **Soil Series: Description/Source** | Clayey silt underlain by a silty sand layer, which is underlain by a hard plastic clay/Phase II Subsurface Investigation performed at the subject property |
| **Groundwater Flow Direction/Source** | West-southwest/Phase II Subsurface Investigation performed at the subject property |
| **Estimated Depth to Groundwater/ Source** | 3 to 8 feet bgs/Phase II Subsurface Investigation performed at the subject property |
| **Surface waters on the subject property or adjacent sites** | Drainage stream leading to the Petaluma River is adjacent to the west and southwest of the subject property. According to the Phase I Environmental Assessment conducted in 2014, Mr. Imbimbo stated the water in the stream flows underground from Highway 120, surfaces just west of the subject property, and then flows to the Petaluma River. |
| **Additional notes** | According to the Phase I Environmental Assessment conducted in 2014, Mr. Imbimbo explained that the western portion of the subject property is part of the National Wetland Inventory. This was confirmed in the regulatory database vicinity map, which shows that the southern portion of the property is also considered to be a wetland. Please refer to Section 7.1 for further discussion. |

Note: Groundwater flow direction can be influenced locally and regionally by the presence of local wetland features, surface topography, recharge and discharge areas, horizontal and vertical inconsistencies in the types and location of subsurface soils, and proximity to water pumping wells. Depth and gradient of the water table can change seasonally in response to variation in precipitation and recharge, and over

time, in response to urban development such as storm water controls, impervious surfaces, pumping wells, cleanup activities, dewatering, seawater intrusion barrier projects near the coast, and other factors.

# 3.0 HISTORICAL REVIEW OF SITE AND VICINITY

Reasonably ascertainable standard historical sources as outlined in ASTM Standard E1527-13 were used to determine previous uses and occupancies of the subject property that are likely to have led to RECs in connection with the subject property. A chronological summary of historical data found, including but not limited to aerial photographs, historical city directories, Sanborn fire insurance maps, and agency records, is as follows:

| Date Range | Subject Property Description and Use (Historical Addresses) | Source(s) |
|---|---|---|
| 1914-1940 | Unknown use; however historical topographic maps depict a submerged marsh of the Petaluma River on the southern portion, a dirt/unimproved road leading to a structure on the northeastern portion of the subject property, and a railroad track along the northern portion of the property | Historical topographic maps |
| 1942-1989 | Royal Tallow and Soap Company (RTSC) (2592 Lakeville Highway) Additionally, landfill material/activities associated with the southwest adjacent property appear to extend onto the western portion of the subject property | Aerial photographs, city directories, historical topographic maps, interviews, and agency records |
| 1989-2008 | Vacant tallow facility (2592 Lakeville Highway) | Aerial photographs, city directories, interviews, and agency records |
| 2008-Present | Vacant land | Aerial photographs, city directories, interviews, agency records, and site observation |

Based on a review of historical sources, the following historical/additional addresses were associated with the subject property: 0 Casa Grande Road, 2044 Casa Grande Road, and 2044 Lakeville Highway. These addresses were also researched as part of this assessment.

Please refer to Sections 4.1 and 6.3 for further discussion of the environmental concerns associated with the former use of the subject property by the RTSC and the southwest adjacent landfill.

If available, copies of historical sources are provided in the report appendices.

### 3.1 AERIAL PHOTOGRAPHS

AEI reviewed aerial photographs of the subject property and surrounding area. A search was made of the ERIS collection of aerial photographs. Aerial photographs were reviewed for the following years:

| Year(s) | Subject Property Description | Adjacent Site Descriptions |
|---|---|---|
| 1942 | Developed with the RTSC buildings. Most buildings are concentrated on the eastern part of the subject property with ancillary structures present on the north. Landfill material/activities associated with the southwest adjacent property appear to extend onto the western portion of the subject property | **Northwest**: Roadway followed by one of the existing structures and what appears to be cleared, disturbed land<br>**North:** Agricultural land<br>**Northeast:** Agricultural land<br>**South:** Vacant land/agricultural land<br>**Southwest:** Possibly developed with the landfill, no structures are visible<br>**West:** Roadway followed by disturbed land possibly association with the southwest adjacent property |
| 1952 | No significant changes except additional buildings and smaller ancillary structures are present | **Northwest**: No significant changes<br>**North:** No significant changes<br>**Northeast:** No significant changes<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** No significant changes |
| 1968 | Developed with the RTSC Facility. The structures are clustered on the northwestern portion of the property with a large structure towards the southeastern portion of the property. Two large detention ponds are located on the southern portion of the property. One possible detention pond is on the western side of the subject property | **Northwest:** No significant changes<br>**North:** No significant changes<br>**Northeast:** No significant changes<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** No significant changes |
| 1973 | No significant changes except an additional large detention pond is located on the southern portion of the property. | **Northwest:** No significant changes except additional buildings associated with the current trucking business are present<br>**North:** No significant changes<br>**Northeast:** No significant changes<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** No significant changes |
| 1982 | No significant changes | **Northwest:** No significant changes except trucking storage is present<br>**North:** No significant changes<br>**Northeast:** No significant changes<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** Roadway followed by the existing commercial building |

| Year(s) | Subject Property Description | Adjacent Site Descriptions |
|---|---|---|
| 1993 | Developed with the RTSC structures. Buildings are clustered on the northeastern portion of the property. The large building on the southeastern portion of the property is gone, as are the detention ponds | **Northwest:** No significant changes<br>**North:** No significant changes<br>**Northeast:** Cleared and graded vacant land<br>**South:** No significant changes<br>**Southwest**: No significant changes<br>**West:** No significant changes |
| 2004 | No significant changes | **Northwest:** No significant changes<br>**North:** Developed with the existing apartment buildings<br>**Northeast:** Developed with the existing commercial/industrial building and associated parking<br>**South:** No significant changes<br>**Southwest:** Developed with the existing dog park<br>**West:** No significant changes |
| 2005, 2006 | No significant changes except a small pond is located on the southern portion of the property | **Northwest:** No significant changes<br>**North:** Developed with the existing apartment buildings<br>**Northeast:** Developed with the existing commercial/industrial building<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** No significant changes |
| 2009, 2010, 2012, 2014, 2016 | All structures are gone from the property. Large piles of debris are clustered on the central portion of the property. A small pond is located on the southern portion of the property | **Northwest:** No significant changes<br>**North:** No significant changes<br>**Northeast:** No significant changes<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** No significant changes |

Based on the review of aerial photographs, RTSC operated on the subject property from at least 1942 to 2006. Please refer to Sections 4.1 and 6.3 for further discussion of the environmental concerns associated with this facility.

### 3.2 SANBORN FIRE INSURANCE MAPS

Sanborn Fire Insurance maps were developed in the late 1800s and early 1900s for use as an assessment tool for fire insurance rates in urbanized areas. A search was made of the EDR collection of Sanborn Fire Insurance maps.

Sanborn map coverage was not available for the subject property.

## 3.3 CITY DIRECTORIES

A search of historical city directories was conducted for the subject property at the AEI's private collection of Haines Criss Cross Directories. The following table summarizes the results of the city directory search.

| Year(s) | Address - Occupant Listed |
|---|---|
| 1972, 1976, 1981, 1986 | 2592 Lakeville Highway - Royal Tallow & Soap, Terrinilini [sic.] Pete |
| 1991, 1996, 2001 | 2592 Lakeville Highway - Terrinilini [sic.] Pete |
| 2006 | 2592 Lakeville Highway - Address not listed in research source |

*If listed above, XXXX indicates that the address is valid but there is no occupancy information available.*

Based on the review of historic city directories, the subject property was occupied by the Royal Tallow and Soap facility from at least 1972 to 1986. Please refer to Section 4.1 for further discussion of the environmental concerns associated with this facility.

## 3.4 HISTORICAL TOPOGRAPHIC MAPS

A search of historical topographic maps was conducted for the subject property utilizing Historicaerials.com. Topographic maps were reviewed for the following years:

| Year(s) | Subject Property Description | Adjacent Site Descriptions |
|---|---|---|
| 1914, 1924, 1940 | The southern portion of the property appears to be a submerged marsh of the Petaluma River. A dirt/unimproved road leads to a structure on the northeastern portion of the subject property. A railroad track runs along the northern portion of the property. The area around the subject property is labeled as "Newtown" | **Northwest:** Dirt road, followed by vacant land<br>**North:** Railroad tracks, followed by vacant land<br>**Northeast:** Railroad tracks, followed by vacant land<br>**South:** Submerged marshes followed by the Petaluma River<br>**Southwest:** Submerged marshes followed by the Petaluma River<br>**West:** Railroad tracks and a road, followed by vacant land |
| 1955, 1962 | Developed with four large structures and one smaller structure on the northern portion of the property with a light duty road leading to them. A land grant, mining claim, donation land claim, or tract line runs through the property (it is not clear which of these this is) | **Northwest:** Light duty road, followed by two structures<br>**North:** Railroad tracks, followed by vacant land<br>**Northeast:** Railroad tracks, followed by vacant land<br>**South:** Vacant land, followed by the Petaluma River<br>**Southwest:** Developed with one structure (landfill not identified)<br>**West:** Railroad tracks and a road, followed by vacant land |

| Year(s) | Subject Property Description | Adjacent Site Descriptions |
|---|---|---|
| 1969 | Developed with three additional buildings on the northern portion of the property. Two ponds are also depicted on the southern portion of the property | **Northwest:** Light duty road, followed by three structures<br>**North:** Railroad tracks, followed by vacant land<br>**Northeast:** Railroad tracks, followed by vacant land<br>**South:** Vacant land, followed by the Petaluma River<br>**Southwest:** Developed with one structure (landfill not identified)<br>**West:** Railroad tracks and a road, followed by vacant land |
| 1975 | No significant changes, except one additional pond is depicted | No significant changes |
| 1980 | No significant changes, except the railroad tracks end at the light duty road and don't travel adjacent to the subject property any longer | No significant changes |

Based on the review of topographic maps, a railroad line ran along the northern boundary of the subject property from at least 1914 until at least 1980. In addition, a map on file with the GeoTracker website for the subject property notes that the northern portion of the property was formerly the Northwestern Pacific Railroad Right of Way. According to Mr. Patrick Imbimbo of Baywood, this area was developed with a railroad spur which was removed by Baywood sometime around 2008. It is possible that shipments were delivered to the subject property via this spur. In addition, railroad spurs represent potential environmental concerns due to the historical application of oils containing polychlorinated biphenyls (PCBs), herbicides, and arsenic for pest and weed control, as well as the potential presence of creosote on the rail ties, and the historical common practice of using coal cinders for track fill material. However, it is likely that any potential herbicide concentrations have degraded over time, as the railroad spur is no longer on-site and had not been used since at least 1986. Although any potential PCB or arsenic concentrations resulting from the railroad spur would likely be confined to the near subsurface sediments, AEI understands that the subject property is slated for residential redevelopment. A subsurface investigation was conducted in 2014 to determine the environmental impact of the railroad spur on the subject property. Please refer to Section 6.3 for further discussion of the findings.

### 3.5 CHAIN OF TITLE

In accordance with our approved scope of services, a chain of title search was not performed as part of this assessment.

# 4.0 REGULATORY AGENCY RECORDS REVIEW

Local and state agencies, such as environmental health departments, fire prevention bureaus, and building and planning departments are contacted to identify any current or previous reports of hazardous substance use, storage, and/or unauthorized releases that may have impacted the subject property. In addition, information pertaining to AULs, defined as legal or physical restrictions, or limitations on the use of, or access to, a site or facility, is requested.

## 4.1 LOCAL ENVIRONMENTAL HEALTH DEPARTMENT AND/OR STATE ENVIRONMENTAL AGENCY

| Agency | Date Contacted | Method of Contact | Name & Title of Contact | Agency Response |
|---|---|---|---|---|
| Sonoma County Environmental Health Division (SCEHD) | October 28, 2018 | Fax | Ms. Paula Kramer | Records discussed below |

*Records Summary*

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| 01/09/1986 | Royal Tallow and Soap Company (RTSC) | Application for Permit to Operate USTs | Not approved based on a number of documents and UST leak detection documentation missing |
| 02/22/1989 | RTSC | Correspondence | States that the RTSC operated on-site until 1986 |
| 03/30/1989 | RTSC | UST Permit Application | 2,000-gallon UST was installed in 1973 or 1979 (both dates listed) and has never stored other chemicals. The 1,000-gallon tank is listed as over 31 years old |
| 06/30/1989 | RTSC | UST Field Inspection Report | Inspection related to UST removal –notes that holes were visible in both tanks. Backfill was contaminated and free product observed in water in pit. Three domestic wells noted on the east side of the property, however none are used |
| 07/14/1989 | RTSC | Initial Laboratory Analysis Results | A maximum of 820 ppm of total petroleum hydrocarbons as gasoline (TPHg) was found, as well as a maximum of 110 ppm of BTEX in soil |
| 10/30/2000 | RTSC | Response to Workplan | States that the truck scale on the subject property extended greater than five feet before removal. By removing this scale, soil hazards do not need to be documented between the 4.5 and 10 feet interval |
| 06/11/2001 | Former RTSC | Soil Excavation and Exploratory Soil Borings | SCEHD did not have the entire report on file, but did have a map of the borings and excavation area. Noted that high levels of TPHg were found in the borings underneath the former truck storage and maintenance building, however soil in this area were not excavated, and data was missing from one of the borings |

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| 2003-2004 | Former RTSC | Case Closure Documents | See below for discussion |
| 06/15/2004 | Former RTSC | Monitoring Well Decommissioning | Five monitoring wells were decommissioned in May of 2004 |
| 9/2/2014 | Former RTSC | Phase II Subsurface Investigation | Refer to Section 6.3 for further discussion |
| 12/9/2015 | Former RTSC | Correspondence with the Sonoma County Environmental Health Department (SCEHD) | The letters are addressed to Darling International Inc. and Baywood, LLC stating the previous LUST case closed at this site in 2004 is being reopened. This case is being reopened based on the analytical results provided in AEI's 2014 Phase II Subsurface Investigation showing high concentrations of gas and benzene in the soil, groundwater, and soil-vapor. The SCEHD requests a work plan to address the contamination at the site |
| 11/17/2016 | Former Darling International Inc Property | Drilling permit | Soil-vapor well permit for ten monitoring wells |
| 4/18/2017 | Darling International Inc | Correspondence with the Sonoma County Environmental Health Department (SCEHD) | The document states the SCEHD reviewed ERM's November and December 2016 soil vapor investigation at he subject property. The report concluded ESLs for future residential development were exceeded and remedial approaches should be evaluated as the next step forward. While the health department agreed with implementing remedial activities, they stated the sampling data must be evaluated based on the California State Low Threat Closure Policy (LTCP) and an updated report must be provided |
| 8/2017 | Former Darling International Inc Property | Additional Site Characterization Work Plan | Report prepared by ERM-West, Inc. documenting the work plan to perform soil-vapor, soil, and groundwater sampling at the site scheduled for October 2017. The report states four groundwater monitoring wells and four Membrane Interface Hydraulic Profiling (MiHPT) borings will be installed at hte subject property, as well as representative soil samples will be collected. Please see next records described below for sampling results |
| 10/6/2017 | Former Darling International Inc Property | Drilling permit | Well permit for four groundwater monitoring wells utilized for dissolved phase contaminants of concern delineation |

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| 2/2018 | Former Darling International Inc Property | Additional Site Characterization Summary Report | Report prepared by ERM-West, Inc. documenting soil-vapor, soil, and groundwater sampling results collected in October and November 2017. The findings state the following:<br><br>Three soil sample locations contained THP-G and two soil sample locations contained benzene concentrations that exceeded the LTCP Volatilization to Outdoor Air Soil Criteria. Additionally, one temporary groundwater monitoring well location contained a benzene concentration that exceeded the LTCP Dissolved-Phase benzene concentration in groundwater. Under these conditions, observed chemical concentrations at the site do not meet unrestricted residential LTCP risk thresholds. The report states a second round of monitoring will be conducted in February 2018 (the findings from this monitoring event are discussed in the record below).<br><br>The report concludes evaluation of remedial alternatives, which may be considered to address the observed conditions at the site, is recommended as the next step toward site re-closure |

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| 3/1/2018 | Former Darling International Inc Property | Addendum – Additional Site Characterization Summary Report | Report prepared by ERM-West, Inc. documenting groundwater sampling results collected in February 2018. The findings state the following:<br><br>Benzene:<br><br>• Detected in one of the four locations at concentrations greater than the LTCP concentration in Groundwater criteria of 1,000 micrograms per liter (µg/L)<br>• Benzene detected in each groundwater monitoring well location at concentrations greater than the SF Bay RWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 1.1 µg/L<br>• Benzene temporal variations were generally stable between November 2017 and February 2018 at all temporary monitoring wells with an exception of GW-4 where it increased from 43 µg/L (November 2017) to 130 µg/L (February 2018)<br><br>Toluene:<br><br>• No screening level for toluene is identified in the LTCP, however, toluene was detected in all four groundwater samples<br>• None of the toluene detections exceeded the SF Bay RWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 3,600 µg/L<br>• Toluene temporal variations were generally stable between November 2017 and February 2018<br><br>Ethylbenzene:<br><br>• No screening level for ethylbenzene is identified in the LTCP in Groundwater; however, ethylbenzene was detected in all four groundwater samples;<br>• Detected in each groundwater monitoring well location at |

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| | | | concentrations greater than the SF Bay RWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 13 µg/L<br>• Ethylbenzene temporal variations were generally stable between November 2017 and February 2018<br><br>Total Xylenes:<br><br>• No screening level for total xylenes is identified in the LTCP in Groundwater; however, total xylenes were detected in all four groundwater samples<br>• Detected in one groundwater monitoring well location (GW-1) at concentrations greater than the SF Bay RWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 1,300 µg/L<br>• Total xylenes temporal variations were generally stable between November 2017 and February 2018<br><br>Naphthalene:<br><br>• No screening level for naphthalene is identified in the LTCP in Groundwater; however, naphthalene was detected in all four groundwater samples<br>• Detected in two groundwater monitoring well locations (GW-1 and GW-2) at concentrations greater than the SF Bay RWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 20 µg/L<br>• Naphthalene temporal variations were generally stable between November 2017 and February 2018. Naphthalene concentrations at temporary monitoring well location GW-3 decreased such that it no longer exceeded the SF Bay RWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 20 µg/L |

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| | | | Methyl Tert-Butyl Ether (MTBE):<br><br>• Not detected in any of the four groundwater monitoring well locations. All non-detect values are less than the LTCP Groundwater Specific Criteria for Dissolved-Phase MTBE (1,000 µg/L)<br>• There were no temporal variations of MTBE as all samples continued to report as non-detected (<1.0 µg/L)<br><br>TPH-G:<br><br>• No screening level for TPH-G is identified in the LTCP in groundwater; however, TPH-G was detected in all four groundwater samples<br>• No screening level for TPH-G is identified in the SF Bay RWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater; however, TPH-G was detected in all four groundwater samples<br>• TPH-G temporal variations were generally stable and/or decreasing between November 2017 and February 2018<br><br>The report concludes, observed chemical concentrations at the site continue to not meet unrestricted residential LTCP risk thresholds and Darling International Inc will evaluate three viable remedial alternatives as part of preparation of Feasibility Study/ Corrective Action Plan. No additional groundwater monitoring activities are planned |

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| 4/3/2018 | Darling International Inc | Correspondence with the Sonoma County Environmental Health Department (SCEHD) | The document states the SCEHD reviewed ERM's November and December 2016 soil vapor investigation at the subject property. The health department stated the site conditions do not meet the screening criteria relevant to the low threat closure policy relative to soil-vapor, direct contact and groundwater. The health department requests the responsible party to prepare a feasibility / corrective action (FS/CAP) plan for the subject site and make the following directives:<br>- Submit an FS/CAP by June 15, 2018 which must include a cost evaluation of at least three viable remedial alternatives to address site conditions with a proposed timeline<br>- Biannual Monitoring of groundwater wells is hereby required for identified constituents of concern for newly installed groundwater monitoring wells |
| 8/15/2018 | Darling International Inc | Correspondence with the Sonoma County Environmental Health Department (SCEHD) | The health department requests the responsible party to prepare a FS/CAP addendum which must include:<br>- Excavation Performance Criteria, specifically establishing the maximum remaining concentrations for identified constituents of concern for removal activities laterally and vertically at the site. Analytical results as such will set the limits of the excavation in practice, noting a maximum / worst case excavation area has been proposed under remedial alternative 3 of the current submitted plan. The amendment should also address operational criteria of the excavation, with the expectation that the work will start at the most contaminated portion of the site relative to the former USTs and work its way out until the performance criteria has been met, ideally before the worst case scenario has been met.<br>- The amendment will evaluate a contingency plan relative to a deed covenant should remedial activities fail to meet LTCP criteria, or in the alternative, should the remedial action be successful, a soil and groundwater management plan will be required in its place |
| 8/30/2018 | Former Darling International Inc Property | Well Abandonment Workplan | Report prepared by ERM-West, Inc. documenting the well abandonment work plan for the four groundwater monitoring wells (GW-1, GW-2, GW-3, and GW-4) located on the subject property |

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| 9/5/2018 | Former Darling International Inc Property | Feasibility Study and Corrective Action Plan Addendum | Addendum states the Feasibility Study and Corrective Action Plan (FS/CAP; ERM, June 2018) will also include:<br>• Identification of Excavation Performance Criteria for the selected remedial alternative (i.e., Remedial Alternative 3)<br>• Inclusion of a contingency plan (i.e., deed covenant) and discussion related to utilization of a soil and groundwater management plan (SGMP)<br>• Presentation of an ex situ thermal soil treatment technology being evaluated as an alternative to traditional off-site disposal of impacted soils |
| 9/7/2018 | Former Darling International Inc Property | Drilling permit | Well destruction permit for four groundwater monitoring wells formerly utilized for dissolved phase contaminants of concern delineation |

Based on information available in the Case Closure Summary and Remedial Action Completion Certificate (also on file on the GeoTracker website), one 1,000-gallon UST and one 2,000-gallon UST, both containing regular unleaded gasoline, were removed from the subject property on June 30, 1990. 2,400 cubic yards of soil were treated on-site and used for back-fill. 2,900 parts per million (ppm) of total petroleum hydrocarbons as gas (TPHg), 19.17 ppm benzene, 151 ppm toluene, 303 ppm xylenes, and 61.7 ppm ethylbenzene were found in soil. In addition, 125 ppm TPHg, 21.8 ppm benzene, 16 ppm toluene, 9.52 ppm xylene, 2.2 ppm ethylbenzene, and 0.0067 ppm 1,2-Dichloroethane (1,2-DCA) were found in groundwater. Upon site closure, all contaminants in groundwater were below laboratory reporting limits except 0.0016 ppm of 1,2-DCA. However, significant soil contamination remained on-site upon closure, including 438 ppm of TPHg, 10.4 ppm xylene, and 8.25 ppm ethylbenzene. Although residual contamination was left in place, the case received regulatory closure in 2004.

During a subsurface investigation conducted by AEI Consultants in 2014, petroleum constituents were detected in the majority of the soil, soil gas, and groundwater samples from this former UST area, as summarized below:

- TPH-g, TPH-d, TPH-mo, benzene, ethylbenzene, and xylenes were detected above their ESLs in soil samples collected from the former UST area.
- TPH-g, TPH-d, TPH-mo, benzene, ethylbenzene, toluene, and xylenes were detected above the ESL in the groundwater samples collected from the former UST area.
- The compounds benzene, ethylbenzene, xylenes, tetrachloroethene (PCE), and TPH-g were detected above their ESLs in the soil gas sample collected from boring G-3.

Due to elevated contamination reported in the soil, groundwater, and soil-vapor in the vicinity

of the former USTs, the Sonoma County Department of Environmental Health re-opened the previously closed LUST case associated with the USTs on December 9, 2015.

Since Baywood, LLC, is planning to redevelop the site for residential purposes, several subsurface investigations and ongoing monitoring activities have been conducted at the subject property by ERM-West Inc characterizing the contamination present at the site since 2015. The most recent report was published in March 2018, titled *Addendum – Additional Site Characterization Summary Report.* This report concluded that the site conditions do not meet the screening criteria relevant to the low threat closure policy (LTCP) relative to soil-vapor, direct contact and groundwater. Thus, the SCDEH requested a Feasibility Study and Corrective Action Plan (FS/CAP) in order to address the contamination present at the subject property. According to Mr. Patrick Imbimbo, a FS/CAP has been submitted to the SCDEH and is currently in the approval process. Based on this information, the open LUST case constitutes a REC. AEI understands that the subject property is slated for residential redevelopment, and that cleanup of the subject property to appropriate standards is being pursued. AEI also understands that negotiations and planning for remediation is ongoing with the SCDEH and other parties. AEI recommends that these activities continue until final resolution.

In addition to the documents described in the table above, AEI also reviewed a map of the former RTSC facility on file with the SCEHD. The map shows the location of the former USTs, a railroad spur located on the very northern portion of the property, former septic system and leach fields, wastewater sump, and waste disposal ponds. Please refer to Section 6.3 for further discussion of the environmental concerns associated with these former features.

### 4.2 FIRE DEPARTMENT

| Agency | Date Contacted | Method of Contact | Name & Title of Contact | Agency Response |
|---|---|---|---|---|
| Petaluma Fire Department (PFD) | October 28, 2018 | Fax | N/A | Response pending, however information discussed below was obtained from the 2014 Phase I Environmental Site Assessment |

*Records Summary*

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| 10/10/1975 | N/A | Site Design and Review | Review for a proposed de-boning facility to be located adjacent to the subject property. States that holding ponds on the southeast portion of the property supplied water for the subject property operations and fire protection |
| 06/31/1989 | Royal Tallow and Soap Company (RTSC) | UST Maintenance Application | Application for the removal of two USTs, one 1,000-gallon and one 2,000-gallon |

| Date | Occupant | Document Type | Document Notes/Violations |
|---|---|---|---|
| 10/15/1990 | Former RTSC | Site Investigation | Requires a work plan to be submitted for additional remediation at the site including groundwater monitoring and the disposal of contaminated soil before the rainy season |
| 06/12/1991 | N/A | Lakeville Highway Road Widening | States the petroleum hydrocarbon contamination exists at the subject property, but it is not near enough to the highway to affect the roadway widening project |

The 2014 Phase I Report states, based on the 1975 report for the adjacent facility, the ponds that were visible in aerial photographs were used for holding water for use by the RTSC facility. Interviews with the former plan superintendant Mr. Pete Terribilini and past investigations on the subject property indicate that these ponds were used for waste water storage. Please refer to Section 6.3 for further discussion pertaining to the environmental significance of the waste water ponds.

Please refer to Section 4.1 for further discussion of the former USTs on the subject property.

### 4.3 BUILDING DEPARTMENT

| Agency | Date Contacted | Method of Contact | Name & Title of Contact | Agency Response |
|---|---|---|---|---|
| Petaluma Building Department (PBD) | October 28, 2018 | Online Request | Ms. Samantha Pascoe | Records discussed below |

*Records Summary*

| Year(s) | Owner/Applicant | Description of Permit and Building Use |
|---|---|---|
| 2003 | Darling Delaware Company Inc. | Notice and Order per the Abatement of Dangerous Buildings. States that there is a single family residence on the property and the abandoned tallow plant and barns. Determined that the buildings need to be demolished – the buildings must be vacated in 60 days |
| 2003 | 2044 Casa Grande Road | Complaint from a citizen that a structure on the property line is disintegrating and falling onto the fence, there are hazardous materials on-site that need to be removed and cleaned up, the main building is not secure and is an attractive nuisance, children are accessing the property and buildings |
| 2003 | Darling Delaware Company Inc. | Letter that states that in 2001, a permit was applied for to demolish a truck garage and remove contaminated soil from underneath it. The inspection was never completed and the city is concerned that the area is an eyesore to the newly constructed apartment buildings |
| 2008 | Daniel O Davis Inc. | Asbestos removal demolition plan with the Bay Area Air Quality Management District |

| Year(s) | Owner/Applicant | Description of Permit and Building Use |
|---|---|---|
| 2008 | Lands of Baywood, LLC | Permit to demolish and remove commercial facility building, to clean dirt, and to clear the property of miscellaneous debris |
| 2008 | RTSC (0 Casa Grande AKA 2044 Lakeville Highway) | Stockpiling permit |
| 2009 | Lands of Baywood, LLC | Letter asking if the demolition work has been completed because no building inspection was arranged |

Based on the review of PBD documents, the RTSC buildings remained on the subject property until 2008 when they were demolished. Please refer to Section 4.1 for further discussion of the environmental concerns associated with the former RTSC facility.

Additionally, a report published in 1995 included information pertaining to the closure of the former landfill associated with the southwest adjacent property. The document states the property was developed as a public Class III landfill and burn site from the 1940s to the 1960. The landfill was closed to the public in 1960 and has been utilized for disposal of construction debris, street sweepings and cleanings, and yard waste since that time. The land fill stopped receiving all wastes circa 1995. The work proposed in the 1995 document included placement of final cover system, removal of debris from adjacent wetlands (presumably the wetlands located on the subject property), and revegetation of the site. Please refer to Sections 5.1 and 6.3 for further discussion of the former landfill use of the southwest adjacent property.

### 4.4 PLANNING DEPARTMENT

| Agency | Date Contacted | Method of Contact | Name & Title of Contact | Agency Response |
|---|---|---|---|---|
| Petaluma Planning Department (PPD) | October 28, 2018 | Telephone | N/A | No evidence indicating the existence of AULs on file for the subject property |

### 4.5 ASSESSOR'S OFFICE

| Agency | Date Contacted | Method of Contact | Name & Title of Contact | Agency Response |
|---|---|---|---|---|
| Sonoma County Assessor's Office | October 28, 2018 | Website | N/A | Information obtained is discussed below |

*Records Summary*

| | |
|---|---|
| **APN** | 005-060-041 and 005-060-042 |
| **Acreage** | 13.0 acres |
| **Construction Date** | N/A |
| **Building Square Footage** | N/A |
| **Current Owner** | Not provided |

| | |
|---|---|
| **Additional Information** | According to the Phase I Environmental Assessment conducted in 2014, the subject property was formerly under the APN 0050-060-130 and no information about the first date of development was available from the Sonoma County Assessor's Office.<br><br>Additionally, Mr. Derek Pampe of DeNova Homes, stated the southern portion of parcel 005-060-042 is considered a legal waterway and is slated to be handed over to the State of California. This portion of the property was not included within the boundaries of the subject property due to being outside the area considered for development. However, it is assessed as part of the south adjacent property. |

## 4.6 OTHER AGENCIES SEARCHED

| Agency | Date Contacted | Method of Contact | Name & Title of Contact | Agency Response |
|---|---|---|---|---|
| CA State Water Resources Control Board (SWRCB) GeoTracker | October 28, 2018 | Website | N/A | The subject property is identified as a LUST and ENVIROSTOR site in association with the former occupant, RTSC; please refer to Section 4.1 for further discussion |
| CA Department of Toxic Substances Control (DTSC) Hazardous Waste Tracking System (HWTS) | October 28, 2018 | Website | N/A | Records discussed below |
| CA DTSC Envirostor | October 28, 2018 | Website | N/A | The subject property was identified as an ENVIROSTOR site in the regulatory database, however no records were on file on this website; refer to the SWRCB GeoTracker website above |
| Bay Area Air Quality Management District (BAAQMD) | October 28, 2018 | Website | Ms. Rochelle Reed | Records discussed below |

*California DTSC HWTS Database Summary*

| Occupant | Year(s) | Hazardous Waste Generated | Amount (Tons) |
|---|---|---|---|
| Royal Tallow and Soap | 1989 | Registered EPA ID; however no records on file | N/A |
| Darling International Inc | 2000 | Other inorganic solid waste | 2.25 |
| Darling International Inc | 2000 | Hydrocarbon solvents | 0.05 |
| Darling International Inc | 2000 | Unspecified solvent mixture | 0.005 |
| Darling International Inc | 2000 | Waste oil and mixed oil | 0.5014 |
| Darling International Inc | 2000 | Oil/water separation sludge | 9.174 |
| Darling International Inc | 2000 | Unspecified oil-containing waste | 0.9 |
| Darling International Inc | 2000 | Off-spec, aged, or surplus organics | 1.31 |
| Darling International Inc | 2000 | Laboratory waste chemicals | 0.19 |
| Darling International Inc | 2000 | Asbestos-containing waste | 1.6856 |
| Darling International Inc | 2000 | Other inorganic solid waste | 0.01 |
| Darling International Inc | 2001 | Asbestos-containing waste | 0.4214 |

Please refer to Sections 4.1 and 6.3 for further discussion pertaining to the environmental significance of the hazardous wastes generated at the subject property.

*Bay Area Air Quality Management District (BAAQMD) Summary*

According to Ms. Rochelle Reed, records on file with the BAAQMD include, a permit was issued for a retro rendering plant for RTSC in 1984 and an unknown permit with an Authority to Construct permit was issued in 1978 to 1979. The files indicate the plant was closed in 1986. Based on the lack of evidence of violations associated with these records, they are not expected to represent a significant environmental concern.

## 4.7 Oil and Gas Wells

| Agency | Date Referenced | Resource | Oil or gas wells located within 500 feet of the subject property |
|---|---|---|---|
| State of California Department of Conservation, Division of Oil, Gas & Geothermal Resources (CA DOGGR) | October 28, 2018 | CA DOGGR Map | No |

## 4.8 Oil and Gas Pipelines

| Agency | Date Referenced | Resource | Pipelines located within 500 feet of the subject property |
|---|---|---|---|
| National Pipeline Mapping System (NPMS) | October 28, 2018 | NPMS Public Map Viewer | No |

## 4.9 State Environmental Superliens

In accordance with our approved scope of services, AEI did not assess whether the subject property is subject to any state environmental superliens.

## 4.10 State Property Transfer Laws

In accordance with our approved scope of services, AEI did not assess whether the subject property is subject to any state property transfer laws.

# 5.0 REGULATORY DATABASE RECORDS REVIEW

AEI contracted EDR to conduct a search of publicly available information from federal, state, tribal, and local databases containing known and suspected sites of environmental contamination and sites of potential environmental significance. Data gathered during the current regulatory database search is compiled by EDR into one regulatory database report. Location information for listed sites is designated using geocoded information provided by federal, state, or local agencies and commonly used mapping databases with the exception of "Orphan" sites. Due to poor or inadequate address information, Orphan sites are identified but not geocoded/mapped by EDR, rather, information is provided based upon vicinity zip codes, city name, and state. The number of listed sites identified within the approximate minimum search distance from the federal and state environmental records database listings specified in ASTM Standard E1527-13 is summarized in Section 5.1, along with the total number of Orphan sites. A copy of the regulatory database report, which includes detailed descriptions of the databases noted below, is included in Appendix C of this report.

In determining if a listed site is a potential environmental concern to the subject property, AEI generally applies the following criteria to classify the site as lower potential environmental concern: 1) the site only holds an operating permit (which does not imply a release), 2) the site's distance from, and/or topographic position relative to, the subject property, and/or 3) the site has recently been granted "No Further Action" by the appropriate regulatory agency.

Regulatory database listings associated with the subject property, adjacent site(s) and/or nearby sites of concern that were determined to warrant additional discussion are identified and further discussed in Section 5.1.

## 5.1 RECORDS SUMMARY

| Database | Search Distance (Miles) | Listings Within Search Distance | Subject Property | Adjacent Site(s) | Other Nearby Sites of Concern |
|---|---|---|---|---|---|
| NPL | 1.0 | 0 | | | |
| DELISTED NPL | 0.5 | 0 | | | ✔ |
| SEMS/CERCLIS | 0.5 | 1 | | | ✔ |
| SEMS-ARCHIVE/CERCLIS NFRAP | 0.5 | 1 | ✔ | | |
| RCRA CORRACTS | 1.0 | 0 | | | |
| RCRA-TSDF | 0.5 | 0 | | | |
| RCRA LQG, SQG, CESQGs, NLR | SP/ADJ | 0 | | | |
| US ENG CONTROLS | SP | 0 | | | |
| US INST CONTROLS | SP | 0 | | | |
| ERNS | SP | 0 | | | |
| STATE/TRIBAL HWS | 1.0 | 7 | ✔ | ✔ | |
| STATE/TRIBAL SWLF | 0.5 | 3 | ✔ | ✔ | |
| STATE/TRIBAL REGISTERED STORAGE TANKS | SP/ADJ | 3 | | ✔ | |

| Database | Search Distance (Miles) | Listings Within Search Distance | Subject Property | Adjacent Site(s) | Other Nearby Sites of Concern |
|---|---|---|---|---|---|
| STATE/TRIBAL LUST | 0.5 | 16 | ✔ | ✔ | ✔ |
| STATE/TRIBAL EC and IC | SP | 0 | | | |
| STATE/TRIBAL VCP | 0.5 | 0 | | | |
| STATE/TRIBAL BROWNFIELD | 0.5 | 0 | | | |
| ORPHAN | N/A | 0 | | | |
| ADDITIONAL ENVIRONMENTAL RECORD SOURCES | SP/ADJ | 23 | ✔ | ✔ | |

| | |
|---|---|
| **Facility Name** | Royal Tallow and Soap Company (RTSC also Darling Delaware Royal Tallow and Darling International Inc.) |
| **Address** | 2592 Lakeville Highway |
| **Distance & Direction** | Subject Property |
| **Hydrologic Position** | N/A |
| **Databases Listed** | SEMS-ARCHIVE, ENVIROSTOR, LUST (2), CPS-SLIC, SWF/LF, RGA LUST (3), SWEEPS UST, HIST UST (2), CA FID UST, HIST CORTESE, CERS (2), HAZNET (2), FINDS |
| **Comments** | The subject property was occupied by the RTSC facility from at least 1955 to 1986. Please refer to Sections 4.1 and 6.3 for further discussion of the environmental concerns associated with this facility. |

| | |
|---|---|
| **Facility Name** | SKOFF TRUCKING / MARTY SKOFF TRUCKING |
| **Address** | 1 Casa Grande Road |
| **Distance & Direction** | Adjacent to the northwest |
| **Hydrologic Position** | Cross-gradient |
| **Databases Listed** | LUST, AST (2), UST, SWEEPS UST, ENF, HIST CORTESE, HIST UST, CA FID UST, CERS (2), CERS HAZ WASTE, CERS TANKS |

| | |
|---|---|
| **Comments** | This site is currently occupied by Skoff Trucking and is used as a truck maintenance and storage facility. AEI reviewed records on file with the GeoTracker website for this site. In 1986, one 1,000-gallon waste oil tank was removed from the site and in 1990 one 500-gallon UST was removed as well. Five monitoring wells were installed on-site from 1990-1991. In 1994, two 1,000-gallon gasoline USTs were removed from the site. In 1998, three 12,000-gallon USTs were removed from the site as well. Both total petroleum hydrocarbons of gas and diesel (TPHg and TPHd) were found in soil after the 1998 UST removal. In 1999, two more gasoline USTs were discovered at the site and removed.<br><br>In 2000, a water supply well south of the site was found to be contaminated with TPHg and toluene. This well was destroyed, and soil borings were advanced on the site and two additional monitoring wells installed. Quarterly monitoring of these wells has occurred since 1999. Additional soil excavation at the southern portion of the site was also performed in 2006. This included the removal and disposal of approximately 990 tons of impacted soil.<br><br>In addition, in January of 2014, a soil vapor investigation was conducted on the site. No petroleum hydrocarbons constituents were found above laboratory reporting limits in the soil vapor tested. The report concluded that any residual hydrocarbon contamination represents a low risk for vapor intrusion.<br><br>In the most recent groundwater monitoring report from November 7, 2013, the monitoring well closest to the subject property on Casa Grande Road (MW 14 – approximately 35 feet northwest of the subject property), less than 50 micrograms per liter (µg/L) of TPHg and TPHd, and less than 0.5 µg/L of benzene, toluene, ethylbenzene, and total xylenes (BTEX) was found.<br><br>The site was issued regulatory closure by the Sonoma County Department of Health - Environmental Health Division on May 30, 2014 stating no further action related to the petroleum release at the site was warranted.<br><br>Based on the regulatory closure status, the direction of groundwater flow, and the low levels of contamination found near the subject property, this site is not expected to present a significant environmental concern. |

| | |
|---|---|
| **Facility Name** | Casa Grande Landfill |
| **Address** | West end of Casa Grande Road (2204 Casa Grande Road) |
| **Distance & Direction** | Adjacent to the west |
| **Hydrologic Position** | Down-gradient |
| **Databases Listed** | ENVIROSTOR, SWF/LF, Financial Assurance |

| | |
|---|---|
| **Comments** | This site was formerly used as a landfill from an unknown date until its closure in 1993. According to information in the regulatory database, up to 16 cubic yards per day of construction/demolition materials and green materials were disposed of at this site. During off-site reconnaissance, AEI observed signs warning that glass was present in the surface stream dividing the subject property from this site, and also observed shards of glass in the surface soils at this site. This site is currently used at the Rocky Memorial Dog Park which is owned and operated by the City of Petaluma.<br><br>Please refer to Section 6.3 for further discussion pertaining to the environmental impact of this former adjacent landfill on the subject property. |

| | |
|---|---|
| **Facility Name** | PETALUMA POULTRY PROCESSORS |
| **Address** | 2700 Lakeville Highway |
| **Distance & Direction** | Approximately 0.15 mile to the northeast |
| **Hydrologic Position** | Up-gradient |
| **Databases Listed** | LUST (2), NPDES, HIST CORTESE, HIST UST, ENF, WDS, CERS |
| **Comments** | AEI reviewed records on file for this site with the SCEHD. Based on these records, there were formerly one 10,000-gallon diesel UST, one 10,000-gallon gasoline UST, and two 550-gallon gasoline USTs on the southern portion of this site. On June 27, 1988, while these tanks were being removed, a leak was discovered. According to the UST Unauthorized Release Report, excavation of contaminated soil was planned. The closure document was not available for review with the SCEHD, however based on information in the regulatory database, the site was granted closure on March 6, 1996 and only soil was impacted at the site. Based on the relative distance from the subject property, the media affected, and the regulatory status, this site is not expected to present a significant environmental concern. |

| | |
|---|---|
| **Facility Name** | Beacon #3703 (Former) |
| **Address** | 2601 Lakeville Highway |
| **Distance & Direction** | Approximately 0.20 mile to the north-northeast |
| **Hydrologic Position** | Up-gradient |
| **Databases Listed** | LUST (2), HIST CORTESE, CERS, UST, SWEEPS UST, CA FID UST |

| | |
|---|---|
| **Comments** | AEI reviewed records on file for this site on the GeoTracker website. A gas station has operated at this site since the 1970s. In 1987, three 10,000-gallon gasoline USTs and one 12,000-gallon diesel UST were removed from the site. In 2000, piping of the second generation of tanks was removed and some contamination was found. 60 cubic yards of soil was removed. From 2004 to 2008, ozone sparging was conducted on-site, and high vacuum dual phase extraction was also conducted off and on from 1999 to 2010. In 2012, the second generation of tanks was removed, and soil contamination was found. However, no leaks had ever been documented from these tanks, so the contamination was attributed to the original tanks removed in 1987. All of this additional contamination was excavated. Quarterly groundwater monitoring was conducted from 1999 to 2012. In the most recent groundwater monitoring report from March 14, 2012, the monitoring well closest to the subject property (MW-6 approximately 0.19 mile north of the subject property), was less than 50 µg/L of TPHg and TPHD, and less than 0.5 µg/L of Benzene and MTBE. The site was granted closure on November 15, 2013. Based on the regulatory status of the site, the relative distance from the subject property, and the low levels of contamination found in the monitoring well closest to the subject property, this site is not expected to present a significant environmental concern. |

| | |
|---|---|
| **Facility Name** | SOLA OPTICAL USA, INC. |
| **Address** | 3600 Lakeville Highway |
| **Distance & Direction** | Approximately 0.56 mile to the northeast |
| **Hydrologic Position** | Up-gradient |
| **Databases Listed** | Delisted NPL, SEMS, RCRA-SQG, US ENG CONTROL, US INST CONTROL, ROD, HAZNET, PRP, FINDS |
| **Comments** | AEI reviewed record for this site on the US EPA's website. Based on this information, this site has been used to manufacture optical lenses since 1978. In 1982, acetone was identified in an on-site well. In addition, Sola found volatile organic compound (VOC) contamination in soil adjacent to six underground solvent storage tanks. The USTs were removed in 1985 and subsequent investigations found that groundwater was contaminated with trichloroethane (TCA) and methylene chloride. A city well nearby was found to also be contaminated with low levels of TCA. Since 1988, groundwater extraction was conducted on-site. In 2001, the facility shut down and the property was sold. In 2007, an EPA review was conducted which included the use of institutional controls to protect human health at the site. These include land use restrictions and a ban on wells at the site. In 2013, the EPA determined that all clean-up goals had been met at the site and the site was subsequently removed from the NPL. Based on this information, the regulatory status of the site and the relative distance from the subject property, this site is not expected to present a significant environmental concern at this time. |

| | |
|---|---|
| **Facility Name** | PETALUMA PRECEDENT |
| **Address** | 781 Baywood Drive |
| **Distance & Direction** | Approximately 0.26 mile to the west |
| **Hydrologic Position** | Cross-gradient |

| | |
|---|---|
| **Databases Listed** | SEMS |
| **Comments** | Based on information available in the database, this site is not on the NPL and is a removal only site (no investigation is necessary). The clean-up of the site was completed on July 16, 2011. No mention of the contaminants of concern were available in the database or on the US EPA's website. However, based on the relative distance from the subject property, the direction of groundwater flow, the lack of additional listings, and the fact that the clean-up has been completed, this site is not expected to present a significant environmental concern. |

## 5.2 VAPOR MIGRATION

AEI reviewed reasonably ascertainable information for the subject and nearby properties, including a regulatory database, files for nearby release sites, and/or historical documentation, to determine if potential vapor-phase migration concerns may be present which could impact the subject property.

Potential vapor migration concerns for the subject property are discussed in Sections 4.1 and 6.3.

# 6.0 INTERVIEWS AND USER PROVIDED INFORMATION

## 6.1 INTERVIEWS

Pursuant to ASTM E1527-13, the following interviews were performed during this assessment in order to obtain information indicating RECs in connection with the subject property.

### 6.1.1 OWNER AND KEY SITE MANAGER

| Relation to Property | Name | Date Interviewed | Method of Contact | Year First Associated w/ Property | Notes |
|---|---|---|---|---|---|
| Owner/Owner Representative | N/A | N/A | N/A | N/A | Contact information not provided; refer to Section 1.5 |
| Key Site Manager | Mr. Patrick Imbimbo | November 8, 2018 | Telephone | 2004 | Interviewed; see Interview Summary table below |

*Interview Summary*

| Question | Owner (Representative) Response/ Comment | Key Site Manager Response/Comment |
|---|---|---|
| Do you have any knowledge of USTs, clarifiers or oil/water separators, sumps, or other subsurface features? | N/A | Yes; former USTs, separators, and sumps were associated with the operations of the RTSC; please refer to Section 4.1 for further discussion |
| Do you have any knowledge of previous environmental investigations conducted on site? | N/A | Yes; please refer to Section 6.3 for further discussion |
| Do you have any knowledge of current or past industrial operations and/or other operations which would involve the use of hazardous substances and/or petroleum products? | N/A | Yes; please refer to Section 4.1 for further discussion |
| Are you aware of any known plans for site redevelopment or change in site use? | N/A | Yes; slated for residential redevelopment |

| Question | Owner (Representative) Response/ Comment | Key Site Manager Response/Comment |
|---|---|---|
| Are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property? | N/A | Yes; please refer to Sections 4.1 and 6.3 for further discussion |
| Are you aware of any pending, threatened or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property? | N/A | Yes; please refer to Sections 4.1 and 6.3 for further discussion |
| Are you aware of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products? | N/A | Yes; please refer to Sections 4.1 and 6.3 for further discussion |
| Are you aware of any incidents of flooding, leaks, or other water intrusion, and/or complaints related to indoor air quality? | N/A | No permanent structures located on the subject property |

| Question | Owner (Representative) Response/ Comment | Key Site Manager Response/Comment |
|---|---|---|
| Additional information provided: | N/A | Mr. Patrick Imbimbo stated the subject property is essentially in the same condition as it was during a prior Phase I ESA in 2014.<br><br>In addition, he stated the following:<br><br>Sonoma county Environmental Health Department reopened the UST case and a work plan is in the process of being drawn up. He said the City of Petaluma is in process of approving removal of the stockpiled soil and approving the former owners to clean up the waste associated with the reopened UST case. Please refer to Sections 4.1 and 6.3 for further discussion.<br><br>Mr. Imbimbo stated, an old municipal dump adjacent to southwest, was determined to extend within the current subject property boundaries. He said that section was deeded to owners of RTSC (former occupants) and lead contamination was found on this portion of the property. Baywood, LLC is currently in negotiation with the Darling International and the City of Petaluma to get it cleaned up. However, he stated no remedial activities have been conducted thus far beyond soil sampling. Please refer to Section 6.3 for further discussion. |

### 6.1.2 Past Owners, Operators, and Occupants

AEI did not attempt to interview past owners, operators, and occupants of the subject property because information from these sources would likely be duplicative of information already obtained from other sources, including the interviews conducted during previous investigations.

### 6.1.3 Interview with Others

Information obtained during interviews with local government officials is incorporated into the appropriate segments of this report.

## 6.2 User Provided Information

User provided information is intended to help identify the possibility of RECs in connection with the subject property. According to ASTM E1527-13 and the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), certain items should be researched by the prospective landowner or grantee, and the results of such inquiries may be provided to the Environmental Professional. The responsibility for qualifying for LLPs by conducting the inquiries ultimately rests with the User, and providing the information to the Environmental Professional would be prudent if such information is available.

The User did not complete the ASTM User Questionnaire or provide the User information to AEI.

AEI assumes that qualification for the LLPs is being established by the User in documentation outside of this assessment.

| Question | Response/ Comment |
|---|---|
| **1. Environmental liens that are filed or recorded against the property (40 CFR 312.25)**<br><br>Did a search of recorded land title records (or judicial records where appropriate) identify any environmental liens filed or recorded against the property under federal, tribal, state or local law? | Information not provided |
| **2. Activity and use limitations that are in place on the property or that have been filed or recorded against the property (40 CFR 312.26(a)(1)(v) and vi)).**<br><br>Did a search of recorded land title records (or judicial records where appropriate) identify any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state or local law? | Information not provided |
| **3. Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).**<br><br>Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? | Information not provided |
| **4. Relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29).**<br><br>Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property? | Information not provided |
| **5. Commonly known or reasonably ascertainable information about the property (40 CFR 312.30).**<br><br>Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example:<br>(a) Do you know the past uses of the property?<br>(b) Do you know of specific chemicals that are present or once were present at the property?<br>(c) Do you know of spills or other chemical releases that have taken place at the property?<br>(d) Do you know of any environmental cleanups that have taken place at the property? | Information not provided |
| **6. The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).**<br><br>Based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property? | Information not provided |

### 6.3 Previous Reports and Other Provided Documentation

Documentation was provided to AEI by Mr. Patrick Imbimbo and Ms. Christina Kennedy during

this assessment. A summary of this information follows:

*Clean Closure Plan (2592 Lakeville Road, Petaluma, CA 94954),* prepared by CKG Environmental, Inc. (February 8, 2016)

Following the 2014 Phase II Subsurface Investigation prepared by AEI Consultants, CKG Environmental assessed whether the elevated concentrations of analytes in the vicinity of the former wastewater pond was an isolated anomaly or was the result of a more widespread impact. *According to the Debris Layering Investigation Report* and *Report of Potholing Exploration and Soil Sampling* prepared by CKG Environmental, Inc. in 2016, elevated concentrations of lead was detected in the site soils, and the area of impacted soils was roughly defined. CKG collected four soil samples with an excavator in February 2015. One sample was collected at the original location of the wastewater pond. The three other samples were collected 10 feet away to the north, southeast, and southwest. The soil samples were collected from a depth of 2.5 feet below ground surface, contained debris materials, and contained metal concentrations greater than the San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for residential land use.

To evaluate the location and extent of potential past debris disposal, CKG reviewed historical aerial photographs from 1942 through 2012. Based on the aerial photography it appears that a landfill operated on the southwest adjacent property (currently a dog park) from possibly as early as 1942 through at least 1982. During the early 1950s the landfill activity was close to the boundary between the two properties and it appears that some fill material may have been placed onto the subject property. This is believed to be the City of Petaluma's Casa Grande Landfill, which was closed by the city in 1994. Based on the sampling results and aerial photographs, CKG recommended collecting additional samples to confirm that fill from the former adjacent landfill was the source of the detected analytes, and to assess the lateral and vertical extent of impact. In April and October 2015, CKG conducted pothole exploration programs in an area that extends outward from the former wastewater pond and encompasses the western side of the subject property. The maximum planned depth of excavation was 10 feet below ground surface, although samples were collected at depths of one foot, two, or 2.5 feet, and immediately beneath the apparent fill typically three feet below ground surface. The maximum depth of the debris fill encountered during the exploration was approximately five feet. If no debris was observed in a pothole, samples were not collected and the area was presumed to be free of elevated metals at that location.

Soil samples were analyzed for CAM 17 metals, RCRA Metals, VOCs, SVOCs, PCBs, TPH-g, TPH-d, and TPH-mo. 42 of the 79 discrete samples and four of ten composited samples contained lead concentrations exceeding both residential and industrial ESL's of 80 and 320 mg/kg, respectively. Based on the aerial distribution of metals illustrated on the site map included in the appendices, it is apparent that approximately 95% of impacted materials exceed both the residential and industrial ESL. No VOCs, SVOCs, or PCBs were detected above laboratory reporting limits in the composite samples analyzed. Only low-level concentrations of petroleum hydrocarbons were detected and they were less than residential and industrial ESLs. Based on the investigation results, the primary constituent of concern (COC) is lead. The elevated lead concentrations occur exclusively within the debris materials, and the report states lead has not leached into the soils below the debris layer. Field observations indicate that the debris occurs typically at a depth of 2.5 feet below ground surface and is approximately two feet thick,

although it varies in depth and thickness throughout the impacted area. CKG also completed a geophysical survey to better define the limits of the debris, completed a soil vapor investigation to assess the potential for landfill gas; and collected a grab groundwater sample to assess the potential that groundwater was impacted with metals. Geophysics showed that the debris probably extends beneath the concrete stockpile and potentially beneath the road. The landfill gas survey did not detect landfill gas at the site, and no soluble metals were detected in the groundwater.

The ultimate goal for the property is to obtain clean closure by removing the waste materials, such as the lead-impacted soils, rather than leaving them in place, as may be the case with a landfill closure. Clean closure is defined to be complete when waste materials have been removed and residual remaining contaminant concentrations are at or less than background concentrations or cleanup levels established by the regulatory oversight agency. The report concludes that in order to obtain clean closure, the volume of debris layer soil to be removed is approximately 6,000 cubic yards.

According to Mr. Patrick Imbimbo, Baywood, Inc is currently in negotiation with Darling International and the City of Petaluma to remove the contaminated soil and debris to obtain clean closure status. However, no work has been done thus far. Based on this information, the elevated lead concentrations and former landfill debris present on the western portion of the subject property represent a REC. AEI understands that the subject property is slated for residential redevelopment, and that cleanup of the subject property to appropriate standards is being pursued. AEI also understands that negotiations and planning for remediation is ongoing with the SCDEH and other parties. AEI recommends that these activities continue until final resolution.

A copy of the reports are included in the appendices.

*Phase II Subsurface Investigation (2592 Lakeville Road, Petaluma, CA 94954),* prepared by AEI Consultants (September 2, 2014)

To determine the environmental impact of the former railroad spur, identified as a REC in the 2014 Phase I ESA, three soil borings (RS-1 through RS-3) were advanced on June 23, 2014, along the former railroad spur on the northern portion of the subject property. The soil samples were analyzed for the following: TPH Multi-range, Organo-chlorine Pesticides and PCBs, Semi-Volatile Organic Compounds (SVOCs), Chlorinated Herbicides, PAHs/PNAs, and CAM 17 Metals. The findings stated all soil constituents collected in the vicinity of the former railroad spur were either below the analytical reporting limits, their respective ESLs, or within a range of expected naturally occurring concentrations. Based on this information the former railroad spur is no longer considered a REC and does not represent a significant environmental concern.

To determine the environmental impact of the stockpiled soil on the northern portion of the subject property identified as a REC in the 2014 Phase I ESA, a total of 26 soil samples were collected from the western stockpile located along the northern portion of the subject property to characterize the material for potential use as on-site fill. The samples were analyzed for TPH Multi-range, Organo-chlorine Pesticides OP Pesticides, Semi-Volatile Organic Compounds (SVOCs), Chlorinated Herbicides, PAHs/PNAs, and CAM 17 Metals. All analyzed constituents in soil were either below the analytical reporting limits, within established background levels based

on the Bradford 1996 study [0.6 to 11 mg/kg (arsenic), 14.3 to 107.9 mg/kg (lead), and 9 to 509 mg/kg (nickel)], or below their respective ESLs in the soil stockpile samples with the exception of the following:

- TPH-d was detected at 280 mg/kg (SP-12 at 11 feet). This sample is above the ESL of 100 mg/kg (shallow soil screening level for residential development) or 110 mg/kg (deep soil screening level for residential development)
- TPH-mo was detected above the ESL for shallow soil in six samples from the stockpiled soil. TPH-mo was detected ranging from 130 to 440 mg/kg in these samples. The ESL is 100 mg/kg for shallow soil screening level for residential development.
- The OC pesticide dieldrin was detected at 0.0042 mg/kg (SP-10 at 3.5 feet). This sample is above the ESL of 0.0023 mg/kg (shallow and deep soil screening level for residential development)
- The SVOC phenol was detected in a number of samples from the stockpiled soil ranging from 0.34 to 3.1 mg/kg; however, none of these detections exceeded the non-drinking water based soil ESL of 3.9 mg/kg.
- The lead concentration measured in the sample from SP-6 at 8.5 feet and the nickel concentration measured in the sample from SP-10 at 3.5 feet were elevated when compared to other samples collected from the soil stockpile, and both of these values exceeded the ESL for shallow soil screening level for residential development.
- Arsenic was detected above the ESL of 0.39 milligrams per kilogram (mg/kg) in all of the soil samples collected from the stockpiled soils. However, the concentrations all fall within the range of naturally occurring background concentrations for California soils, the upper bound of which is 11 mg/kg.

To determine the environmental impact of the former waste water ponds associated with RTSC facility operations, identified as a REC in the 2014 Phase I ESA, the following investigations were performed: on June 17, 2014, six borings were advanced in the area of the waste water ponds (PA-1 through PA-4, PB-1, and PB-2) for the collection of soil and groundwater samples. Six soil samples and two groundwater samples (PA-3 and PB-1) were analyzed for TPH Multi-range, VOCs, and CAM 17 Metals. All analyzed constituents in soil and groundwater were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in the vicinity of the waste water ponds with the exception of the following:

- TPH-mo was detected at 280 mg/kg (PA-3, which was completed within the northern waste water pond area). This sample is above the ESL of 100 mg/kg (shallow soil screening level for residential development) or 500 mg/kg (deep soil screening level for residential development)
- Arsenic and lead were also detected above their ESLs in the soil sample from PA-3, in the northern waste water pond area, however arsenic concentrations all fall within the range of naturally occurring background concentrations for California soils, the upper bound of which is 11 mg/kg
- The metals arsenic, cadmium, cobalt, copper, nickel, vanadium, and zinc were detected above the ESL in groundwater samples collected from the waste water pond areas.

To determine the environmental impact of the former septic system and leach fields associated with RTSC facility operations, identified as a REC in the 2014 Phase I ESA, the following investigations were performed: On June 19, 2014, three borings were advanced in the area of the septic tank (ST-1) and septic tank leach field (LF-1 and LF-2) for the collection of soil and groundwater samples. Three soil samples and three groundwater samples were analyzed for TPH Multi-range, VOCs, and CAM 17 Metals. All constituents were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in soil samples collected from the septic tank and leach field areas. However, TPH-g, TPH-d, TPH-mo, BTEX, and Naphthalene were detected above their ESLs in groundwater samples collected from the former septic tank and leach field. The metals barium, cobalt, copper, mercury, and nickel were also detected above their ESLs in groundwater samples collected from the septic tank and leach field.

To determine the environmental impact of the former sump associated with RTSC facility operations, identified as a REC in the 2014 Phase I ESA, the following investigations were performed: On June 19, 2014, one boring was advanced in the area of the process sump (SMP-1) for the collection of soil and groundwater samples. One soil sample and one groundwater sample (SMP-1) were analyzed for TPH Multi-range, VOCs, and CAM 17 Metals. All analyzed constituents in soil and groundwater were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in the vicinity of the sump with the exception of the metals nickel and vanadium which were detected above the ESL in the groundwater sample collected in the vicinity of the sump.

To determine the environmental impact of the former auto maintenance area associated with RTSC facility operations, identified as a REC in the 2014 Phase I ESA, the following investigations were performed: On June 17, 2014, three direct-push borings were advanced within the area of the former auto maintenance area (AM-1 through AM-3) for the collection of soil and groundwater samples. Three soil samples and three groundwater samples were analyzed for TPH Multi-range and VOCs. All analyzed constituents in soil, soil vapor, and groundwater were either below the analytical reporting limits or below the referenced ESLs in the vicinity of the former auto maintenance area with the exception of the following:

- TPH-g was detected at 610 mg/kg (AM-1, which was completed near the southeast corner of the former auto maintenance area). This sample is above the ESL of 100 mg/kg (shallow soil screening level for residential development) or 500 mg/kg (deep soil screening level for residential development)
- TPH-d was detected at 140 mg/kg (AM-1, which was completed near the southeast corner of the former auto maintenance area). This sample is above the ESL of 100 mg/kg (shallow soil screening level for residential development) or 110mg/kg (deep soil screening level for residential development)
- TPH-g, TPH-d, TPH-mo, Benzene, Ethylbenzene, Total Xylenes, and Naphthalene were detected above their ESLs in groundwater samples beneath the former auto maintenance area with the most elevated concentrations in the vicinity of AM-1 in the southeastern portion of the former auto maintenance area.

In addition, to determine the environmental impact of the former rendering plant associated with RTSC facility operations, identified as a REC in the 2014 Phase I ESA, the following investigations

were performed: On June 19, 2014, three direct-push borings (BLDG-1 through BLDG-3) were advanced within the footprint of the former RTSC facility buildings for the collection of soil and groundwater samples. Three soil samples and three groundwater were analyzed for TPH Multi-range and CAM 17 Metals. All analyzed constituents in soil, soil vapor, and groundwater were either below the analytical reporting limits or below the referenced ESLs in the vicinity of the former facility building footprint with the exception of the following:

- Lead was detected at 220 mg/kg in soil (BLDG-1, which was completed within in the western portion of the former building footprint). This sample is above the ESL of 80 mg/kg (shallow and deep soil screening level for residential development)
- Benzene was detected at 39 µg/L in the groundwater (BLDG-3). This sample is above the Groundwater Screening Levels for non-drinking water source of 27 µg/L

To determine the environmental impact of the former USTs associated with the RTSC facility operations, identified as a CREC in the 2014 Phase I ESA, soil, soil gas, and groundwater samples were collected from this area, and the results are summarized below:

- TPH-g, TPH-d, TPH-mo, benzene, ethylbenzene, and xylenes were detected above their ESLs in soil samples collected from the former UST area.
- TPH-g, TPH-d, TPH-mo, benzene, ethylbenzene, toluene, and xylenes were detected above the ESL in the groundwater samples collected from the former UST area.
- The compounds benzene, ethylbenzene, xylenes, tetrachloroethene (PCE), and TPH-g were detected above their ESLs in the soil gas sample collected from boring G-3.

Based on the sampling results, the Sonoma County Department of Environmental Health re-opened the previously closed LUST case associated with the USTs. Please refer to Section 4.1 for further discussion.

Based on the sampling results from the 2014 Phase II Report, the presence of the stockpiled soil, as well as the elevated levels of contamination in the vicinity of the former auto maintenance and rendering plant area, wastewater ponds, septic system and leach fields, and wastewater sump represents a REC. AEI understands that the subject property is slated for residential redevelopment, and that cleanup of the subject property to appropriate standards is being pursued. AEI also understands that negotiations and planning for remediation is ongoing with the SCDEH and other parties. AEI recommends that these activities continue until final resolution.

A copy of the report is included in the appendices.

*Phase I Environmental Site Assessment (2592 Lakeville Road, Petaluma, CA 94954),* prepared by AEI Consultants (March 24, 2014)

This report describes the subject property generally consistent with current conditions. During the 2014 assessment AEI interviewed a representative of the owner, Mr. Derek Pampe, of De Nova Homes. Mr. Pampe explained to AEI that the subject property is listed as a closed LUST site from a leaking gasoline UST which was removed from the subject property. Mr. Pampe also explained that the subject property was involved in a lawsuit over the clean-up of the site before

it was purchased by Baywood from Darling International (owner of the RTSC). Please refer to Section 4.1 for further discussion.

The report identified the following Recognized Environmental Conditions (RECs):

- According to historical sources, a railroad line ran along the northern boundary of the subject property from at least 1914 until at least 1980. In addition, a map on file with the Sonoma County Environmental Health Division (SCEHD) from 2000 notes that the northern portion of the property was formerly the Northwestern Pacific Railroad Right of Way. According to Mr. Patrick Imbimbo of Baywood, this area was developed with a railroad spur which was removed by Baywood sometime around 2008. Railroad spurs represent potential environmental concerns due to the historical practice of application of oils that may have contained polychlorinated biphenyls (PCBs), herbicides, and arsenic for pest and weed control, as well as the potential presence of creosote on the rail ties, and the historical common practice of using coal cinders for track fill material. This report recommends the soil sampling to assess whether the subject property has been significantly impacted in connection with the historical railroad spur on the north portion of the property.
- Based on an interview with a former RTSC facility, Mr. Pete Terribilini, the subject property used a septic system and waste water disposal ponds to dispose of waste water on-site. Although the majority of the contaminants in this wastewater were likely organic in nature, it is possible that hazardous materials used as part of the rendering process or used on machinery could have been present in the waste water. In addition, based on a map on file with the SCEHD, two septic tanks were located east adjacent to the main rendering plant, and the leach field extended to the southwest. Since the buildings have been demolished, it is unclear whether the septic system was solely used for restroom purposes, or if other water was discharged into the system. In addition, due to the long industrial nature of the property use and the lack of regulatory oversight it is possible that hazardous materials could have entered the septic system and other waste water ponds. Based on this information, the wastewater discharge from the former facility through the wastewater ponds and the septic system represent an environmental concern. This report recommends further investigation in the area of the septic leach field, former septic tanks, wastewater clarifier, and wastewater disposal ponds to determine if a release to the subsurface has occurred.
- During remediation of the soils on the subject property in the area of the former USTs (please see Controlled Recognized Environmental Condition Section below) soil borings were advanced and samples were taken from the area of the former truck garage and maintenance building which indicated high levels of TPHg in soil in this area. However, it does not appear that the soils in this area were excavated, and it is likely that contamination remains in place. Based on this information, this report recommends additional investigation into the soils in the area of the former garage and maintenance building.
- Fill material from off site has been stockpiled on the northern portion of the subject property. The stockpiled material appeared to be approximately ten to 12 feet high. Mr. Imbimbo explained that the soil was deemed as "clean" before it was deposited on the subject property, and there are plans to use the material as fill before redevelopment of the property. However, no information was provided to AEI as to the origin of the

material and no soil testing data was available to verify that there are no contaminants in the material. There is the potential that contamination from off-site sources may be present in this material. This report recommends sampling of the fill material prior to use on the subject property to determine if contamination from off-site is present.

- A large mound (approximately 20 feet high) of construction debris is located on the central portion of the subject property. According to Mr. Imbimbo, this debris has been stored on the subject property by the Soil Land Company from various off-site construction sites. According to Mr. Imbimbo, until approximately one year ago, Soil Land was crushing the material on site and turning it into Class II Aggregate to be reused off-site. Just south of this mound, there is another smaller mound of this Class II Aggregate left over from the crushing operations (composed of cement and concrete). There is a potential that asbestos and/or other potentially hazardous or regulated materials are present in this material. The report recommends sampling of this material and proper off-site disposal.

The report identified the following Controlled Recognized Environmental Conditions (CREC):

- Based on information available in the Case Closure Summary and Remedial Action Completion Certificate (also on file on the GeoTracker website), one 1,000-gallon UST and one 2,000-gallon UST, both containing regular unleaded gasoline, were removed from the subject property on June 30, 1990. 2,400 cubic yards of soil were treated on-site and used for back-fill. 2,900 parts per million (ppm) of total petroleum hydrocarbons as gas (TPHg), 19.17 ppm benzene, 151 ppm toluene, 303 ppm xylenes, and 61.7 ppm ethylbenzene were found in soil. In addition, 125 ppm TPHg, 21.8 ppm benzene, 16 ppm toluene, 9.52 ppm xylene, 2.2 ppm ethylbenzene, and 0.0067 ppm 1,2-Dichloroethane (1,2-DCA) were found in groundwater. Upon site closure, all contaminants in groundwater were below laboratory reporting limits except 0.0016 ppm of 1,2-DCA. However, significant soil contamination remained on-site upon closure, including 438 ppm of TPHg, 10.4 ppm xylene, and 8.25 ppm ethylbenzene. In addition, soil and groundwater were not tested for TPH diesel (TPHd), oil and grease, or heavy metals, and soil was not tested for the presence of 1,2-DCA. As a stipulation of site closure, the SCEHD stated that future site development should address the residual soil contamination, including proper handling and disposal. In addition, the SCEHD would require that a Site Safety Plan be developed and implemented before any future redevelopment. Based on this information, the release from the former USTs represents a controlled recognized environmental condition. It is AEI's understanding that the subject property is slated for residential redevelopment. Thus, this report recommends investigation to assess current conditions associated with this release. In addition, this report also recommends contacting the SCEHD and completing the necessary Site Safety Plan and any other required documentation.

The report identified the following Non-ASTM Considerations:

- The western portion of the subject property is part of the National Wetland Inventory. This was confirmed in the regulatory database vicinity map, which shows that the southern portion of the property is also considered to be a wetland. No hazardous materials or petroleum products were observed on the standing water or these wetland

areas. Therefore, these areas are not expected to represent a significant environmental concern. However, AEI understands that the subject property is slotted for redevelopment. This report recommends contacting the local planning and/or building departments to determine whether a Wetlands Delineation report is required and if mitigation is required in order to develop in these areas.

In addition, this report also discussed documentation provided to AEI by De Nova Homes during the assessment, which include the following:

- *Royal Tallow and Soap Company Underground Storage Tank Site Characterization Report Petaluma, California, prepared by Environment and Ecology, Inc. (August 17, 1990)*

The report states that one or both of the two RTSC USTs leaked before their removal in 1989. As a result of the discovery of the release, 21 soil samples were taken and five monitoring wells were installed on-site. TPH and BTEX were found in the soil samples, and TPH and benzene were found in groundwater. This led to further investigation on the subject property which are discussed in Section 4.1. In addition, this report indicated that a soil gas survey was conducted on-site as well. However the results from this survey were not provided, and it does not appear that investigation into potential vapor contamination was conducted on the subject property. Please refer to Section 5.2 for further discussion.

- *Expert Report of Dwight R. Hoening, part of Darling International, Inc. v. Baywood Partners, Inc. (March 2, 2007)*

This expert opinion chronicles the history of site remediation, clean-up, investigations, and regulatory actions at the subject property. Based on this summary, in 1986, the RTSC facility ceased operation. In 1989 (case closure documents states that it was in 1990) two USTs were removed from the subject property, and a subsequent investigation (please see above) indicated that both groundwater and soil were contaminated with TPHg. The report goes on to explain that further reports from 1993 and 1995 explored the possibilities of using bioremediation at the site and using an extraction and treat system to clean contaminated groundwater. However, the report states that none of these remediation systems were actually implemented on the subject property. The report then goes on to say that no actual remediation besides groundwater monitoring was conducted on-site until 2002 when 2,390 cubic yards of contaminated soil were excavated, treated, and then reused on the subject property. The soil was cleaned-up to not exceed 0.39 mg/kg of TPHg and benzene. Next, the report highlights that at the time of writing in 2007, asbestos and other remaining contained hazardous materials remained on-site. It is AEI's understanding that all of these materials were removed and disposed as part of building demolition in 2008.

- *Baywood Partners Inc.'s Trial Exhibits – Expert Opinion of Jeffrey Zelikson, part of Darling International, Inc. v. Baywood Partners, Inc. (Case 3:05-cu-03758-EMC, Filed April 5, 2007)*

This expert opinion was solicited to determine if Darling International, Inc fulfilled it remediation of the subject property. This states that in 1986, Darling International was required by the

Regional Board to perform sampling of the soil beneath the former waste water ponds (previously discussed above). However, from discussion in this document, it appears that Darling International revised their closure plan and the ponds were granted closure by the Regional Board without sampling being performed. This expert opinion also summarizes the two USTs which leaked on the subject property. Please refer above for further discussion of these USTs.

A copy of the report is included in the appendices.

### 6.4 ENVIRONMENTAL LIEN SEARCH

In accordance with our approved scope of services, an environmental lien search was not performed as part of this assessment.

# 7.0 SITE RECONNAISSANCE

| | |
|---|---|
| **Site Reconnaissance Date** | November 8, 2018 |
| **AEI Site Assessor(s)** | Kathryn Smith |
| **Property Escort(s)/ Relationship(s) to Property** | No property escort provided |
| **Units/Areas Observed** | Due to the size of the subject property, AEI performed a reconnaissance of the property utilizing a field technique of traversing the site in an attempt to provide an overlapping field of view |
| **Area(s) not accessed and reason(s)** | Due to the size of the property and the vegetation present on site, isolated areas of the site may have not been accessible for direct observation during AEI's field reconnaissance.<br><br>During on-site reconnaissance, AEI was not granted access into the trailer located on the northern portion of the property. According to Mr. Patrick Imbimbo of Baywood, the trailer is only used by the subject property caretaker for residential activities<br><br>Refer to Section 1.5 for discussion of limiting condition(s). |
| **Other Physical Constraints** | None |

*Reconnaissance Findings Summary*

| Feature | Observed on Subject Property (see Section 7.1) | Observed on Adjacent Property (see Section 7.2) |
|---|---|---|
| Regulated Hazardous Substances/Wastes and/or Petroleum Products in Connection with Property Use | | ✔ |
| Aboveground/Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs/USTs) | | |
| Hazardous Substance and Petroleum Product Containers Not in Connection with Property Use | | |
| Unidentified Substance Containers | ✔ | |
| Electrical or Mechanical Equipment Likely to Contain Fluids | | ✔ |
| Interior Stains or Corrosion | | |
| Strong, Pungent, or Noxious Odors | | |
| Pools of Liquid | | |
| Drains, Sumps, and Clarifiers | | ✔ |
| Pits, Ponds, and Lagoons | | ✔ |
| Stained Soil or Pavement | | |
| Stressed Vegetation | | |
| Solid Waste Disposal or Evidence of Fill Materials | ✔ | ✔ |
| Waste Water Discharges | | |
| Wells | ✔ | |
| Septic Systems | | |
| Biomedical Wastes | | |
| Other | ✔ | |

### 7.1 SUBJECT PROPERTY RECONNAISSANCE FINDINGS

During the site reconnaissance, AEI observed the items listed in the above Reconnaissance Findings Summary table, which are further discussed below.

#### 7.1.1 UNIDENTIFIED SUBSTANCE CONTAINERS

| Substance/Waste (size/ quantity) | Container Condition | Location | Secondary Containment | Staining/Spills |
|---|---|---|---|---|
| Mostly empty with a small quantity of unidentifiable brown sludge appearing at the bottom (100-gallon drum/1) | Damaged/ degraded plastic container | Southern portion of the property | None identified | None identified |

One approximately 100-gallon container was observed on the southern portion of the subject property. The container appeared to be empty and no odor was identified around the container, however brown sludge could be seen collected at the bottom of the container. According to Mr. Imbimbo, the container was left behind by a sheep herder, but he was not aware of its contents. Based on the fact that the container appeared to be empty and no staining was identified, the presence of the container is not expected to present a significant environmental concern. However, as a best management practice, the container should be removed from the subject property and properly disposed of off-site.

#### 7.1.2 SOLID WASTE DISPOSAL OR EVIDENCE OF FILL MATERIALS

According to Mr. Imbimbo, fill material from off site has been stockpiled on the northern portion of the subject property. The stockpiled material appeared to be approximately ten to 12 feet high. Mr. Imbimbo explained that the soil was deemed as "clean" before it was deposited on the subject property, and there are plans to use the material as fill before redevelopment of the property. However, no information was provided to AEI as to the origin of the material and no soil testing data was available to verify that there are no contaminants in the material. There is the potential that contamination from off-site may be present in this material. The stockpiled soil was sampled during the 2014 Phase II Subsurface Investigation; please refer to Section 6.3 for further discussion.

A large mound (approximately 20 feet high) of construction debris is located on the central portion of the subject property. According to Mr. Imbimbo, this debris has been stored on the subject property by the Soil Land Company from various off-site construction sites. According to Mr. Imbimbo, until approximately one year ago, Soil Land was crushing the material on site and turning it into Class II Aggregate to be reused off-site. Just south of this mound, there is another smaller mound of this Class II Aggregate left over from the crushing operations (composed of cement and concrete). There is a potential that asbestos and/or other potentially hazardous or regulated materials are present in this material. AEI recommends sampling of this material and proper off-site disposal.

#### 7.1.3 WELLS

Two small groundwater monitoring wells were observed, one on the western portion of the subject property and one on the northeastern portion. These wells are presumed to be associated with the various subsurface investigations conducted at the subject property. No hazardous

materials or petroleum products were observed in the area of the wells. Based on this information, the presence of the wells is not expected to present a significant environmental concern. However, AEI recommends the proper maintenance of the wells and when they are either no longer used or prior to redevelopment activities, the wells should be properly decommissioned under appropriate permit.

### 7.1.4 OTHER

According to the USGS topographic map, the western and southern portions of the subject property are part of the National Wetland Inventory. However, at the time of this assessment, no standing water was observed and no hazardous materials or petroleum products were observed in the vicinity of these wetland areas. Therefore, these areas are not expected to represent a significant environmental concern for the purpose of this assessment. However, AEI understands that the subject property is slated for redevelopment, and therefore AEI recommends that the appropriate regulatory agency should be contacted to determine whether a Wetlands Delineation report and/or mitigation is required in order to develop in these areas.

## 7.2 ADJACENT PROPERTY RECONNAISSANCE FINDINGS

During the site reconnaissance, AEI observed the items listed in the above Reconnaissance Findings Summary table, which are further discussed below.

### 7.2.1 REGULATED HAZARDOUS SUBSTANCES/WASTES AND/OR PETROLEUM PRODUCTS IN CONNECTION WITH PROPERTY USE

The adjacent site to the northwest, Skoff Trucking, conducts auto repair on site. Based on the nature of use, AEI presumes that various quantities of hazardous materials are stored onsite. This site was previously discussed in Section 5.1 of this report.

### 7.2.2 ELECTRICAL OR MECHANICAL EQUIPMENT LIKELY TO CONTAIN FLUIDS

Toxic PCBs were commonly used historically in electrical equipment such as transformers, fluorescent lamp ballasts, and capacitors. According to United States EPA regulation 40 CFR, Part 761, there are three categories for classifying such equipment: <50 ppm of PCBs is considered "Non-PCB"; between 50 and 500 ppm is considered "PCB-Contaminated"; and >500 ppm is considered "PCB-Containing". Pursuant to 15 U.S.C. 2605(e)(2)(A), the manufacture, process, or distribution in commerce or use of any polychlorinated biphenyl in any manner other than in a totally enclosed manner was prohibited after January 1, 1977.

*Transformers*

The management of potential PCB-containing transformers is the responsibility of the local utility or the transformer owner. Actual material samples need to be collected to determine if transformers are PCB-containing.

Several pole-mounted and pad-mounted transformers were observed on the adjacent sites during the site reconnaissance. No spills, staining, or leaks were observed on or around the transformers. Based on the good condition of the equipment, the transformers are not expected to represent a significant environmental concern.

### 7.2.3 Drains, Sumps, and Clarifiers

Several storm drains were observed in the parking areas of the adjacent properties and adjacent roadways. AEI did not observe evidence of hazardous substances or petroleum products in the vicinity of the drains. Based on the use of the drains solely for storm water runoff, the presence of the drains is not expected to represent a significant environmental concern.

### 7.2.4 Pits, Ponds, and Lagoons

A pond is located adjacent to the south of the subject property. According to Mr. Imbimbo, the pond was created when the City of Petaluma built the walking trail south of the subject property, which damned the area. Based on the nature of the pond it is not expected to represent a significant environmental concern.

A drainage stream runs along the western boundary of the subject property. According to Mr. Imbimbo, the water in the stream flows underground from Highway 120, surfaces just west of the subject property, and then flows to the Petaluma River. Based on the nature of the stream for storm water runoff, it is not expected to represent a significant environmental concern.

### 7.2.5 Solid Waste Disposal or Evidence of Fill Materials

The adjacent site to the west was formerly the Casa Grande Landfill operated by the City of Petaluma. This site was previously discussed in Section 5.1 of this report.

# 8.0 NON-ASTM SERVICES

## 8.1 ASBESTOS-CONTAINING BUILDING MATERIALS

The subject property is currently vacant land or lacks structures. Consequently, no building components containing suspect asbestos containing materials were identified during the site inspection.

## 8.2 LEAD-BASED PAINT

The subject property is currently vacant land or lacks structures. Consequently, AEI did not observe building components likely to contain suspect LBP during the site reconnaissance.

## 8.3 RADON

Radon is a naturally-occurring, odorless, and invisible gas. Natural radon levels vary and are closely related to geologic formations. Radon may enter buildings through basement sumps or other openings.

Radon sampling was not requested as part of this assessment. According to the California Department of Health Services Radon Database, 34 tests were conducted for radon levels in the subject property zip code (94954) in 2016. All of these tests indicated that radon levels were below the action level of 4.0 pCi/L set forth by the US EPA. Therefore, radon is not expected to represent a significant environmental concern.

## 8.4 MOLD/INDOOR AIR QUALITY ISSUES

The subject property is currently vacant land or lacks structures. Consequently, mold was not addressed as part of this assessment.

## 9.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR Part 312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By:



Kathryn Smith
Project Manager

Reviewed By:



Richard D. Fehler
Senior Author

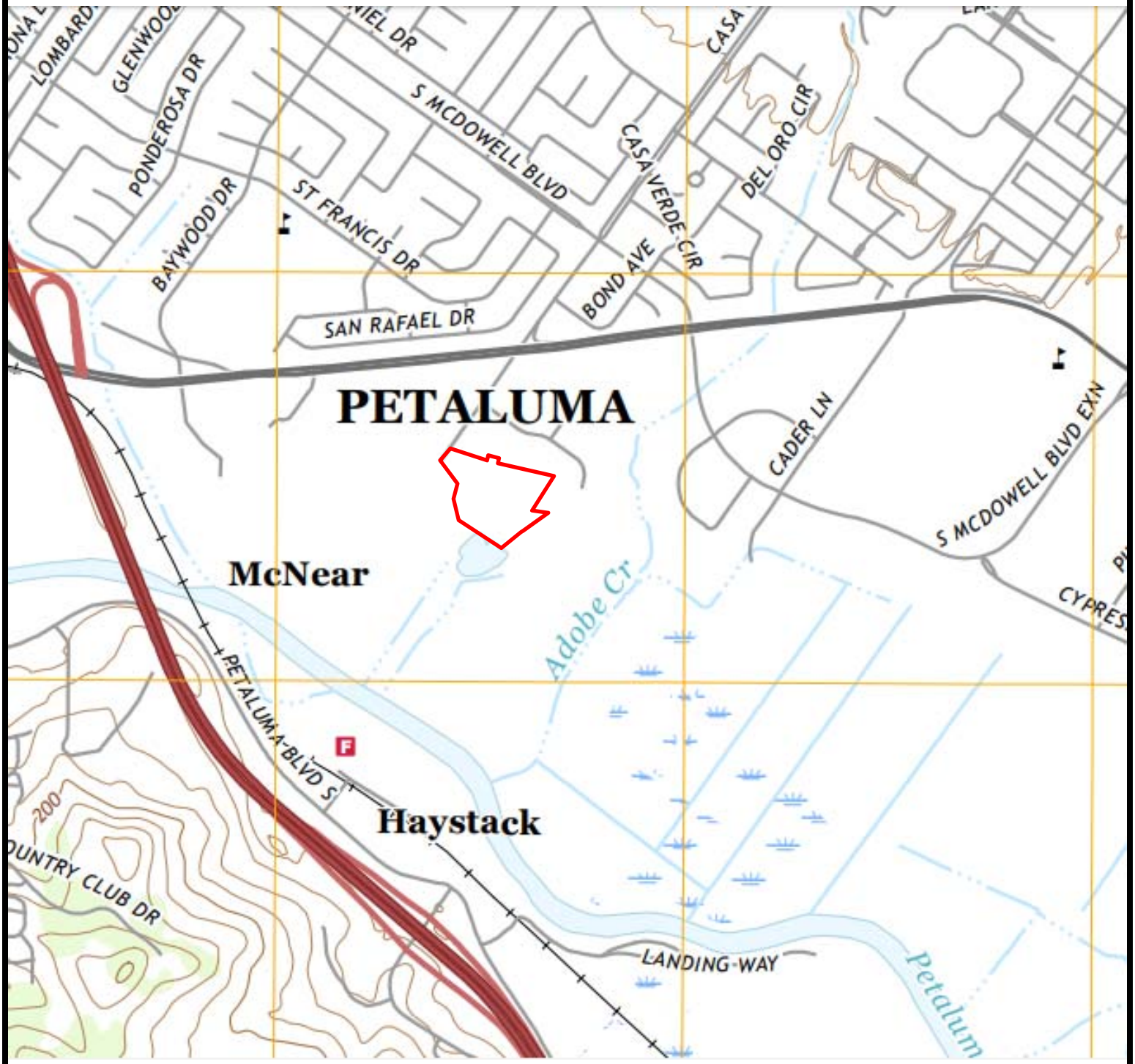
# 10.0 REFERENCES

| Item | Date(s) | Source |
|---|---|---|
| Soils Information | September 2, 2014 | Phase II Subsurface Investigation performed at the subject property |
| Topographic Map | 2018 | USGS, Petaluma River |
| Depth to Groundwater Information | September 2, 2014 | Phase II Subsurface Investigation performed at the subject property |
| Aerial Photographs | 1942, 1952, 1968, 1973, 1982, 1993, 2004, 2005, 2006, 2009, 2010, 2012, 2014, 2016 | ERIS |
| Sanborn Map Report/Search | October 30, 2018 | EDR |
| City Directories | 1972, 1976, 1981, 1986, 1991, 1996, 2001, 2006 | AEI's private collection of Haines Criss Cross Directories |
| Historical Topographic Maps | 1914, 1924, 1940, 1955, 1962, 1969, 1975, 1980 | Historicaerials.com |
| Environmental Health Department | October 28, 2018 | Sonoma County Environmental Health Division |
| Fire Department | October 28, 2018 | Petaluma Fire Department |
| Building Department | October 28, 2018 | Petaluma Building Department |
| Planning Department | October 28, 2018 | Petaluma Planning Department |
| Assessor's Information and Parcel Map | October 28, 2018 | Sonoma County Assessor's Office |
| Other Agencies Searched | October 28, 2018 | SWRCB GeoTracker, DTSC HWTS, and DTSC Envirostor databases, Bay Area Air Quality Management District (BAAQMD), SF Bay RWQCB |
| Oil and Gas Wells | October 28, 2018 | State of California Department of Conservation, Division of Oil, Gas & Geothermal Resources |
| Oil and Gas Pipelines | October 28, 2018 | NPMS Public Map Viewer https://www.npms.phmsa.dot.gov/PublicViewer/composite.jsf |
| Regulatory Database Report | October 30, 2018 | EDR |
| Interview with Key Site Manager | October 28, 2018 | Mr. Patrick Imbimbo |

| Item | Date(s) | Source |
|---|---|---|
| Previous Report(s) | February 8, 2016 | *Clean Closure Plan (2592 Lakeville Road, Petaluma, CA 94954)*, prepared by CKG Environmental, Inc. |
| | November 24, 2015 | *Debris Layering Investigation Report (2592 Lakeville Road, Petaluma, CA 94954)*, prepared by CKG Environmental, Inc. |
| | August 5, 2015 | *Report of Potholing Exploration and Soil Sampling (2592 Lakeville Road, Petaluma, CA 94954)*, prepared by CKG Environmental, Inc. |
| | September 2, 2014 | *Phase II Subsurface Investigation (2592 Lakeville Road, Petaluma, CA 94954)*, prepared by AEI Consultants |
| | March 24, 2014 | *Phase I Environmental Site Assessment (2592 Lakeville Road, Petaluma, CA 94954)*, prepared by AEI Consultants |
| Radon Zone Information | February 2016 | California Indoor Radon Test Results |

# APPENDIX A

# FIGURES



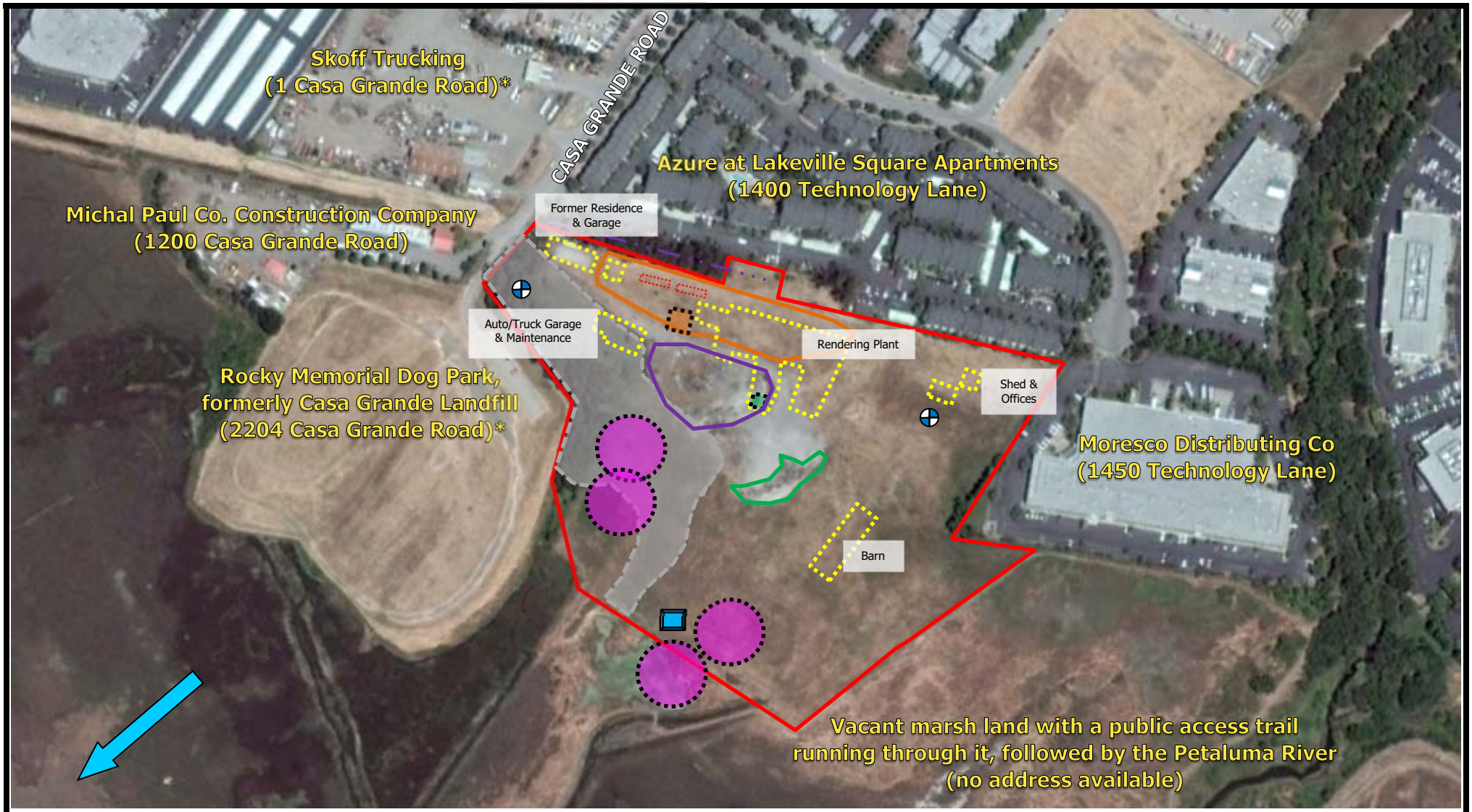

Legend
Approximate Property Boundary
Source: USGS Topographic Map *Petaluma River, California (2018)*

N

# Figure 1: TOPOGRAPHIC MAP

2592 Lakeville Highway, Petaluma, California 94954
Project Number: 396580

AEI Consultants




Legend

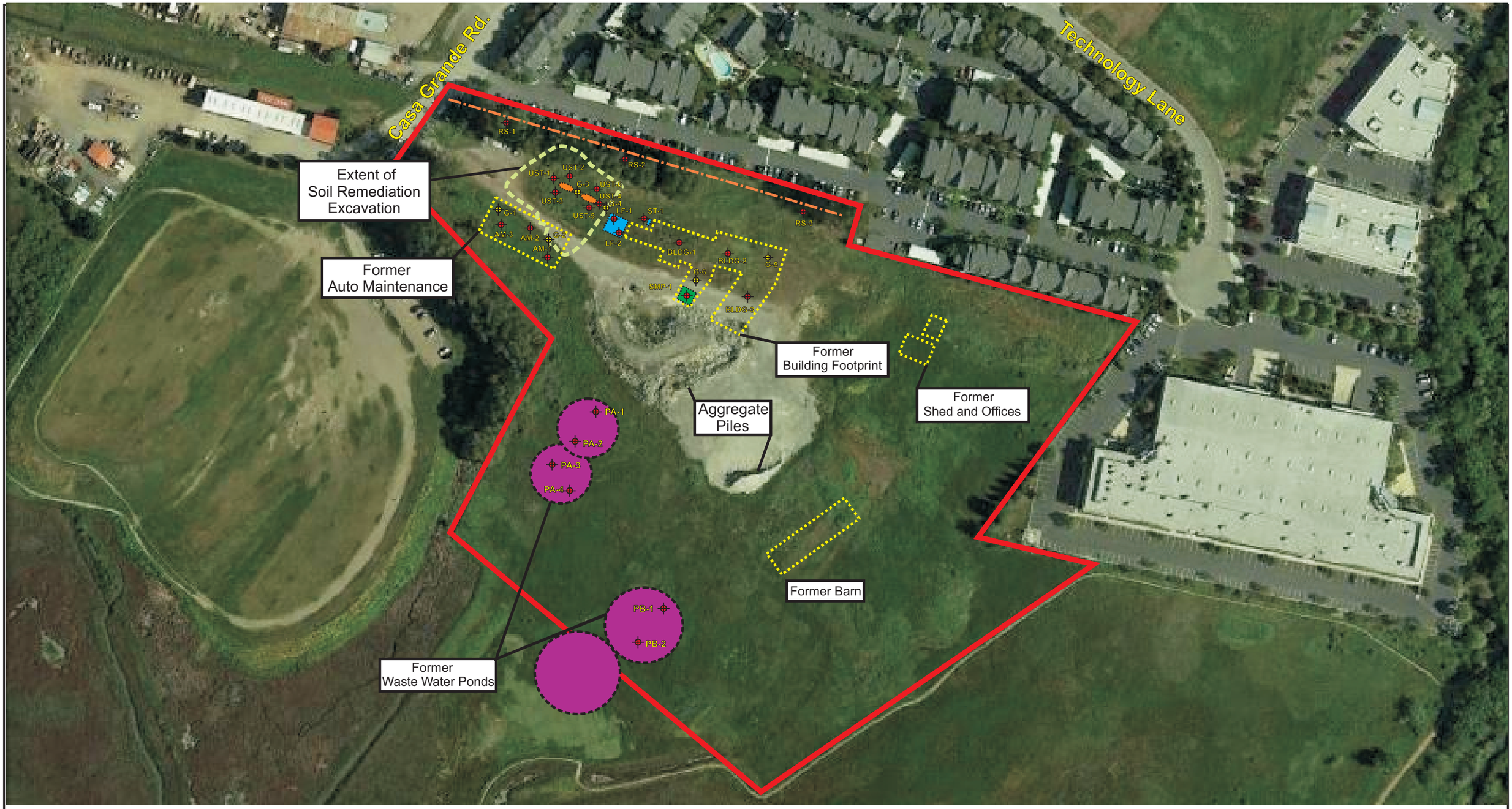
- Estimated Groundwater Flow Direction
- Approximate Property Boundary
- Listed in Environmental Database Report *
- Fill Material
- Construction Debris Mound
- Class II Aggregate Mound
- Unidentified Substance Container
- Monitoring Well (Observed)
- Former Royal Tallow Buildings
- Former USTs
- Former Waste Ponds
- Former Septic
- Former Railroad Spur
- Former Sump
- Extent of Former Adjacent Landfill with known lead contamination

N

# Figure 2: SITE MAP

2592 Lakeville Highway, Petaluma, California 94954
Project Number: 396580

AEI Consultants




## LEGEND

- Approximate Property Boundary
- Former Railroad Spur
- Former Structures
- Former Sump
- Former USTs
- Former Septic System Leach Field
- Former Septic Tanks Area
- Former Wastewater Ponds
- AEI Soil Boring Locations
- AEI Soil Gas Well Locations
- Approximate Extent of 2002 Remedial Excavation
  Source: Site Plan-Darling International, Inc. (Figure 2)
  MFG, Inc. Project No. 030070, 11/08/2006

N

0 65’ 130’

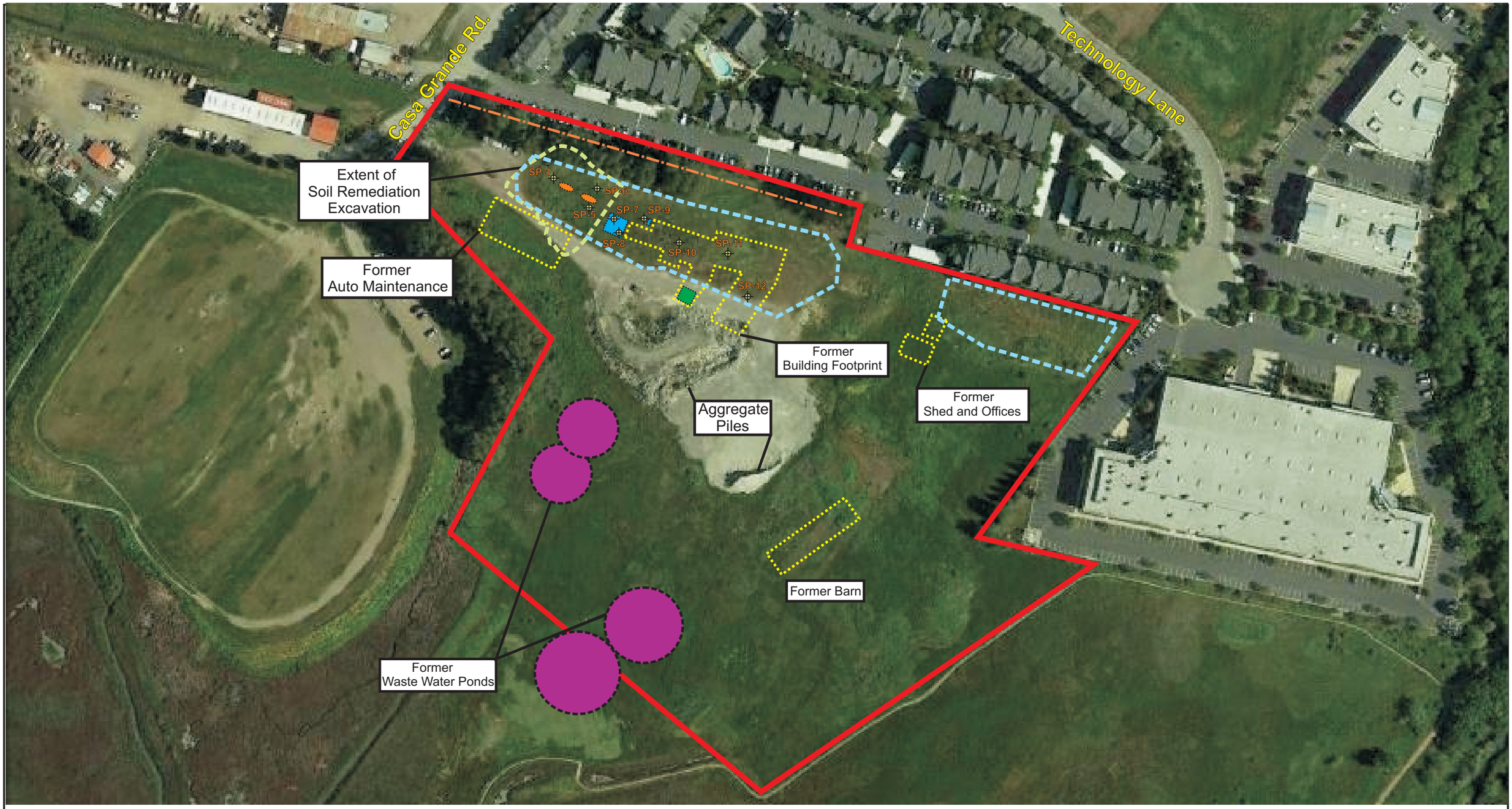
APPROXIMATE SCALE:
1” = 130’

**AEI CONSULTANTS**
2500 CAMINO DIABLO, WALNUT CREEK, CALIFORNIA

2014 BORING LOCATIONS

2592 Lakeville Highway
Petaluma, California

**FIGURE 2**
Project No. 327703




LEGEND

- Approximate Property Boundary
- Former Railroad Spur
- Former Structures
- Approximate Boundaries of Stockpiles
- Former Sump
- Former USTs
- Former Septic System Leach Field
- Former Septic Tanks Area
- Former Wastewater Ponds
- AEI Stockpile Soil Sampling Locations
- Approximate Extent of 2002 Remedial Excavation
  Source: Site Plan-Darling International, Inc. (Figure 2)
  MFG, Inc. Project No. 030070, 11/08/2006

N

0 65’ 130’

APPROXIMATE SCALE:
1” = 130’

**AEI CONSULTANTS**
2500 CAMINO DIABLO, WALNUT CREEK, CALIFORNIA

2014 STOCKPILE LOCATIONS

2592 Lakeville Highway
Petaluma, California

**FIGURE 3**
Project No. 327703




**Explanation**

- Sample Location
- Pot Hole Location October 2015
- Pot Hole Location April 2015
- Pot Hole Location (No Visible Debris)
- Pb Concentrations > TTLC or STLC Dashed where covered by overburden
- Metal Concentration > Res. ESL
- Pb Conentration < 80 ppm
- Historic Building Footprints
- Site Boundary

N

S

0 50 100

Scale in Feet

CKG Environmental, Inc.

Pot Hole Locations and Residual Lead Map
2592 Lakeville Highway
Petaluma, California

Plate
3

# APPENDIX B

# PROPERTY PHOTOGRAPHS



1. View of the western portion of the subject property from the west



2. View of the northern portion of the subject property from the northwest



3. View of the southern portion of the subject property from the south



4. View of the central portion of the subject property from the west



5. View of the eastern portion of the subject property from the south



6. View of the caretaker's mobile home located in the northwest corner of the property



7. View of a possible monitoring well observed on the northeast portion of the property



8. Additional view of a possible monitoring well observed on the western portion of the property



9. View of the unidentified substance container located on the southern portion of the subject property



10. View of a drainage stream on the southwest perimeter of the subject property



11. View of a drainage stream on the west perimeter of the subject property



12. View of the construction debris piles



13. View of the aggregate debris pile



14. View of the northwest adjacent property from the southeast across Casa Grande Road



15. View of the north adjacent property from the south



16. View of the northeast adjacent property from the west



17. View of the south adjacent property from the north



18. View of the southwest adjacent property from the north



19. View of the west adjacent property from the northeast

# APPENDIX C

# REGULATORY DATABASE

**396580**
2592 Lakeville Highway
Petaluma, CA  94954

Inquiry Number: 5469509.2s
October 30, 2018

# The EDR Radius Map™ Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

# TABLE OF CONTENTS


| SECTION | PAGE |
|---|---|
| Executive Summary | ES1 |
| Overview Map | 2 |
| Detail Map | 3 |
| Map Findings Summary | 4 |
| Map Findings | 8 |
| Orphan Summary | 192 |
| Government Records Searched/Data Currency Tracking | GR-1 |

**GEOCHECK ADDENDUM**

**GeoCheck - Not Requested**


***Thank you for your business.***
Please contact EDR at 1-800-352-0050
with any questions or comments.


**Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2018 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

# EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

## TARGET PROPERTY INFORMATION

### ADDRESS

2592 LAKEVILLE HIGHWAY
PETALUMA, CA 94954

### COORDINATES

| | |
|---|---|
| Latitude (North): | 38.2298650 - 38° 13' 47.51'' |
| Longitude (West): | 122.6052790 - 122° 36' 19.00'' |
| Universal Tranverse Mercator: | Zone 10 |
| UTM X (Meters): | 534547.9 |
| UTM Y (Meters): | 4231187.0 |
| Elevation: | 6 ft. above sea level |

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

| | |
|---|---|
| Target Property Map: | 5602160 PETALUMA RIVER, CA |
| Version Date: | 2012 |
| Southwest Map: | 5602158 PETALUMA, CA |
| Version Date: | 2012 |

### AERIAL PHOTOGRAPHY IN THIS REPORT

| | |
|---|---|
| Portions of Photo from: | 20140608 |
| Source: | USDA |

## MAPPED SITES SUMMARY

Target Property Address:
2592 LAKEVILLE HIGHWAY
PETALUMA, CA 94954

Click on Map ID to see full detail.

| MAP ID | SITE NAME | ADDRESS | DATABASE ACRONYMS | RELATIVE ELEVATION | DIST (ft. & mi.) DIRECTION |
|---|---|---|---|---|---|
| A1 | DARLING INTERNATIONA | 2592 LAKEVILLE HWY | HAZNET | | TP |
| A2 | ROYAL TALLOW & SOAP | 2592 LAKEVILLE HIGHW | ENVIROSTOR, SWF/LF, LUST, HIST UST, HIST CORTESE,... | | TP |
| A3 | DARLING-DELAWARE ROY | 2592 LAKEVILLE HWY | SEMS-ARCHIVE | | TP |
| A4 | ROYAL TALLOW & SOAP | 2592 LAKEVILLE HIGHW | FINDS | | TP |
| A5 | DARLING INTERNATIONA | 2592 LAKEVILLE HWY | HAZNET | | TP |
| A6 | ROYAL TALLOW & SOAP | 2592 LAKEVILLE | LUST, SWEEPS UST, HIST UST, CA FID UST | | TP |
| A7 | 2592 LAKEVILLE HIGHW | 2592 LAKEVILLE HIGHW | CPS-SLIC, CERS | | TP |
| A8 | DARLING INTL INC | 2592 LAKEVILLE HWY | HAZNET | | TP |
| A9 | ROYAL TALLOW & SOAP | 2592 LAKEVILLE HWY | RGA LUST | | TP |
| A10 | ROYAL TALLOW & SOAP | 2592 LAKEVILLE HWY | RGA LUST | | TP |
| A11 | ROYAL TALLOW & SOAP | 2592 LAKEVILLE HWY | RGA LUST | | TP |
| Reg | SOLA OPTICAL USA, IN | 3600 LAKEVILLE HWY | Delisted NPL, SEMS, RCRA-SQG, US ENG CONTROLS, US... | Same | 2802, 0.531, ENE |
| 12 | CASA GRANDE LANDFILL | WEST END OF CASA GRA | ENVIROSTOR, SWF/LF, Financial Assurance | Higher | 88, 0.017, WNW |
| B13 | SKOFF TRUCKING | 1 CASA GRANDE ROAD | UST | Higher | 148, 0.028, NW |
| B14 | SKOFF TRUCKING | 1 CASA GRANDE RD | HIST UST, CERS | Higher | 148, 0.028, NW |
| B15 | SKOFF TRUCKING | 1 CASA GRANDE | LUST, AST, SWEEPS UST, ENF, HIST CORTESE | Higher | 148, 0.028, NW |
| B16 | SKOFF TRUCKING | 1 CASA GRANDE RD | CA FID UST | Higher | 148, 0.028, NW |
| B17 | MARTY SKOFF TRUCKING | 1 CASA GRANDE RD | AST | Higher | 148, 0.028, NW |
| B18 | MARTY SKOFF TRUCKING | 1 CASA GRANDE RD | CERS, CERS HAZ WASTE, CERS TANKS | Higher | 148, 0.028, NW |
| B19 | NORTH COAST ROOFING, | 5 CASA GRANDE RD | HIST UST | Higher | 386, 0.073, NNW |
| B20 | NORTH COAST ROOFING | 5 CASA GRANDE AVE | HIST UST | Higher | 386, 0.073, NNW |
| B21 | WEDGE ROOFING | 5 CASA GRANDE RD | CERS HAZ WASTE, CERS | Higher | 386, 0.073, NNW |
| C22 | TESORO WEST COAST CO | 2601 LAKEVILLE HWY | RCRA-SQG | Higher | 1172, 0.222, NNE |
| C23 | TESORO (MOBIL) 68186 | 2601 LAKEVILLE HIWAY | CERS, CERS HAZ WASTE, CERS TANKS | Higher | 1172, 0.222, NNE |
| C24 | JET | 2601 LAKEVILLE HWY | HIST UST, CHMIRS | Higher | 1172, 0.222, NNE |
| C25 | BEACON #3703 (FORMER | 2601 LAKEVILLE HWY | LUST, HIST CORTESE, CERS | Higher | 1172, 0.222, NNE |
| C26 | BEACON #703 | 2601 LAKEVILLE HWY | SWEEPS UST, CA FID UST | Higher | 1172, 0.222, NNE |
| C27 | BEACON #3703 | 2601 LAKEVILLE HIGHW | UST | Higher | 1172, 0.222, NNE |
| C28 | BEACON #3703 (FORMER | 2601 LAKEVILLE HWY | LUST | Higher | 1172, 0.222, NNE |
| D29 | PETALUMA POULTRY PRO | 2700 LAKEVILLE HWY | LUST, HIST UST, ENF, HIST CORTESE, NPDES, WDS,... | Higher | 1350, 0.256, NE |
| D30 | PETALUMA POULTRY PRO | 2700 LAKEVILLE HWY | LUST | Higher | 1350, 0.256, NE |
| 31 | PETALUMA PRECEDENT | 781 BAYWOOD DRIVE | SEMS | Higher | 1781, 0.337, West |
| E32 | HENRIS SUPPLY WAREHO | 172 LANDING | HIST CORTESE | Higher | 1814, 0.344, SW |
| E33 | HENRIS SUPPLY WAREHO | 172 LANDING WAY | LUST, CERS | Higher | 1814, 0.344, SW |
| 34 | BIG 4 RENTS, INC. | 1731 LAKEVILLE HWY | LUST, CERS | Higher | 2102, 0.398, WNW |
| F35 | WEST SONOMA CO DISPO | 2543 ETALUMA | HIST CORTESE | Higher | 2201, 0.417, SSW |
| F36 | RECOLOGY SONOMA MARI | 2543 PETALUMA BLVD. | SWF/LF | Higher | 2201, 0.417, SSW |
| F37 | NOVATO DISPOSAL | 2543 PETALUMA BLVD S | LUST, NPDES, WDS, CIWQS, CERS | Higher | 2201, 0.417, SSW |
| 38 | DIVIDEND DEVELOPMENT | 1250 MCDOWELL BLVD N | LUST, HIST CORTESE, CERS | Higher | 2209, 0.418, North |

## MAPPED SITES SUMMARY

Target Property Address:
2592 LAKEVILLE HIGHWAY
PETALUMA, CA 94954

Click on Map ID to see full detail.

| MAP ID | SITE NAME | ADDRESS | DATABASE ACRONYMS | RELATIVE ELEVATION | DIST (ft. & mi.) DIRECTION |
|---|---|---|---|---|---|
| 39 | RINEHART TURCK STOP | 2645 PETALUMA BLVD S | CPS-SLIC, HIST UST, Cortese, CUPA Listings, ENF,... | Higher | 2253, 0.427, SW |
| G40 | STERO DISHWASHING MA | 3200 LAKEVILLE HWY | LUST, HIST CORTESE, CERS | Higher | 2359, 0.447, ENE |
| G41 | THE STERO COMPANY | 3200 LAKEVILLE HWY | LUST, EMI, WDS | Higher | 2359, 0.447, ENE |
| 42 | BIG 4 RENTS PETALUMA | 1731 LAKEVILLE HWY | RCRA-SQG, LUST, SWEEPS UST, HIST UST, CA FID UST,... | Higher | 2409, 0.456, WNW |
| H43 | METRON SUPER GAS | 910 BAYWOOD DR | LUST, HIST CORTESE, CERS | Higher | 2446, 0.463, WNW |
| H44 | METRON SUPER GAS | 910 BAYWOOD DR | LUST | Higher | 2446, 0.463, WNW |
| H45 | METRON SUPER GAS | 910 BAYWOOD DR | HAZNET, Notify 65 | Higher | 2446, 0.463, WNW |
| I46 | SOLA OPTICAL USA, IN | 1500 CADER LANE | CHMIRS, CA BOND EXP. PLAN, EMI | Higher | 3032, 0.574, ENE |
| I47 | NISSON RANCH | 3597 LAKEVILLE HWY | Notify 65 | Higher | 3068, 0.581, ENE |
| I48 | NISSON RANCH | 3597 LAKEVILLE HWY | Notify 65 | Higher | 3068, 0.581, ENE |
| I49 | NISSON RANCH | 3597 LAKEVILLE HWY | Notify 65 | Higher | 3068, 0.581, ENE |
| I50 | SOLA OPTICAL USA, IN | 3600 LAKEVILLE HWY | ENVIROSTOR, CPS-SLIC, HIST Cal-Sites, HIST UST,... | Higher | 3094, 0.586, ENE |
| 51 | QUARRY HEIGHTS | 1600 PETALUMA BOULEV | ENVIROSTOR, VCP | Higher | 3204, 0.607, WSW |
| 52 | MCPHAIL'S INC. | 1006 LAKEVILLE ST | ENVIROSTOR, VCP, DEED | Higher | 4383, 0.830, WNW |

# EXECUTIVE SUMMARY

**TARGET PROPERTY SEARCH RESULTS**

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

| Site | Database(s) | EPA ID |
|---|---|---|
| DARLING INTERNATIONA<br>2592 LAKEVILLE HWY<br>PETALUMA, CA 94952 | HAZNET<br>GEPAID: CAC002368151 | N/A |
| ROYAL TALLOW & SOAP<br>2592 LAKEVILLE HIGHW<br>PETALUMA, CA 94952 | ENVIROSTOR<br>Facility Id: 49280006<br>Status: Refer: RWQCB | N/A |
| | SWF/LF<br>Database: SWF/LF (SWIS), Date of Government Version: 08/08/2018<br>Facility ID: 49-CR-0042<br>Operational Status: Closed<br>Regulation Status: Unpermitted | |
| | LUST<br>Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018<br>Database: LUST, Date of Government Version: 09/10/2018<br>Status: Open - Site Assessment<br>Global Id: T0609700905<br>Global ID: T0609700905 | |
| | HIST UST<br>HIST CORTESE<br>Reg Id: 49-0142 | |
| | CERS | |
| DARLING-DELAWARE ROY<br>2592 LAKEVILLE HWY<br>PETALUMA, CA 94952 | SEMS-ARCHIVE<br>Site ID: 0903537<br>EPA Id: CAD046515599 | CAD046515599 |
| ROYAL TALLOW & SOAP<br>2592 LAKEVILLE HIGHW<br>PETALUMA, CA 94952 | FINDS<br>Registry ID:: 110061031798 | N/A |
| DARLING INTERNATIONA<br>2592 LAKEVILLE HWY<br>PETALUMA, CA 94952 | HAZNET<br>GEPAID: CAC002252793 | N/A |
| ROYAL TALLOW & SOAP<br>2592 LAKEVILLE<br>PETALUMA, CA 94952 | LUST<br>Database: LUST REG 2, Date of Government Version: 09/30/2004<br>Facility Id: 49-0142<br>Facility Status: Case Closed | N/A |

| | | |
|---|---|---|
| | date9: 7/30/2004 | |
| | SWEEPS UST<br>Status: A<br>Tank Status: A<br>Comp Number: 1359 | |
| | HIST UST<br>Facility Id: 00000038631 | |
| | CA FID UST<br>Facility Id: 49000606<br>Status: A | |
| 2592 LAKEVILLE HIGHW<br>2592 LAKEVILLE HIGHW<br>PETALUMA, CA | CPS-SLIC<br>Database: CPS-SLIC, Date of Government Version: 09/10/2018<br>Facility Status: Open - Assessment & Interim Remedial Action<br>Global Id: T10000011322 | N/A |
| | CERS | |
| DARLING INTL INC<br>2592 LAKEVILLE HWY<br>PETALUMA, CA 94952 | HAZNET<br>GEPAID: CAC002207113 | N/A |
| ROYAL TALLOW & SOAP<br>2592 LAKEVILLE HWY<br>PETALUMA, CA | RGA LUST | N/A |
| ROYAL TALLOW & SOAP<br>2592 LAKEVILLE HWY<br>PETALUMA, CA | RGA LUST | N/A |
| ROYAL TALLOW & SOAP<br>2592 LAKEVILLE HWY<br>PETALUMA, CA | RGA LUST | N/A |

**DATABASES WITH NO MAPPED SITES**

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

**STANDARD ENVIRONMENTAL RECORDS**

***Federal NPL site list***

NPL---------- National Priority List

# EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

***Federal CERCLIS list***

FEDERAL FACILITY ---------- Federal Facility Site Information listing

***Federal RCRA CORRACTS facilities list***

CORRACTS ---------- Corrective Action Report

***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

***Federal RCRA generators list***

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

***Federal institutional controls / engineering controls registries***

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

***Federal ERNS list***

ERNS ---------- Emergency Response Notification System

***State- and tribal - equivalent NPL***

RESPONSE ---------- State Response Sites

***State and tribal leaking storage tank lists***

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

***State and tribal registered storage tank lists***

FEMA UST ---------- Underground Storage Tank Listing
INDIAN UST ---------- Underground Storage Tanks on Indian Land

***State and tribal voluntary cleanup sites***

VCP ---------- Voluntary Cleanup Program Properties
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

***State and tribal Brownfields sites***

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

**ADDITIONAL ENVIRONMENTAL RECORDS**

***Local Brownfield lists***

US BROWNFIELDS ---------- A Listing of Brownfields Sites

# EXECUTIVE SUMMARY

***Local Lists of Landfill / Solid Waste Disposal Sites***

| | |
|---|---|
| WMUDS/SWAT | Waste Management Unit Database |
| SWRCY | Recycler Database |
| HAULERS | Registered Waste Tire Haulers Listing |
| INDIAN ODI | Report on the Status of Open Dumps on Indian Lands |
| ODI | Open Dump Inventory |
| DEBRIS REGION 9 | Torres Martinez Reservation Illegal Dump Site Locations |
| IHS OPEN DUMPS | Open Dumps on Indian Land |

***Local Lists of Hazardous waste / Contaminated Sites***

| | |
|---|---|
| US HIST CDL | Delisted National Clandestine Laboratory Register |
| SCH | School Property Evaluation Program |
| CDL | Clandestine Drug Labs |
| Toxic Pits | Toxic Pits Cleanup Act Sites |
| US CDL | National Clandestine Laboratory Register |

***Local Land Records***

| | |
|---|---|
| LIENS | Environmental Liens Listing |
| LIENS 2 | CERCLA Lien Information |
| DEED | Deed Restriction Listing |

***Records of Emergency Release Reports***

| | |
|---|---|
| HMIRS | Hazardous Materials Information Reporting System |
| CHMIRS | California Hazardous Material Incident Report System |
| LDS | Land Disposal Sites Listing |
| MCS | Military Cleanup Sites Listing |
| SPILLS 90 | SPILLS 90 data from FirstSearch |

***Other Ascertainable Records***

| | |
|---|---|
| RCRA NonGen / NLR | RCRA - Non Generators / No Longer Regulated |
| FUDS | Formerly Used Defense Sites |
| DOD | Department of Defense Sites |
| SCRD DRYCLEANERS | State Coalition for Remediation of Drycleaners Listing |
| US FIN ASSUR | Financial Assurance Information |
| EPA WATCH LIST | EPA WATCH LIST |
| 2020 COR ACTION | 2020 Corrective Action Program List |
| TSCA | Toxic Substances Control Act |
| TRIS | Toxic Chemical Release Inventory System |
| SSTS | Section 7 Tracking Systems |
| RMP | Risk Management Plans |
| RAATS | RCRA Administrative Action Tracking System |
| PRP | Potentially Responsible Parties |
| PADS | PCB Activity Database System |
| ICIS | Integrated Compliance Information System |
| FTTS | FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) |
| MLTS | Material Licensing Tracking System |
| COAL ASH DOE | Steam-Electric Plant Operation Data |
| COAL ASH EPA | Coal Combustion Residues Surface Impoundments List |

PCB TRANSFORMER - PCB Transformer Registration Database
RADINFO - Radiation Information Database
HIST FTTS - FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS - Incident and Accident Data
CONSENT - Superfund (CERCLA) Consent Decrees
INDIAN RESERV - Indian Reservations
FUSRAP - Formerly Utilized Sites Remedial Action Program
UMTRA - Uranium Mill Tailings Sites
LEAD SMELTERS - Lead Smelter Sites
US AIRS - Aerometric Information Retrieval System Facility Subsystem
US MINES - Mines Master Index File
ABANDONED MINES - Abandoned Mines
DOCKET HWC - Hazardous Waste Compliance Docket Listing
UXO - Unexploded Ordnance Sites
ECHO - Enforcement & Compliance History Information
FUELS PROGRAM - EPA Fuels Program Registered Listing
CUPA Listings - CUPA Resources List
DRYCLEANERS - Cleaner Facilities
EMI - Emissions Inventory Data
ENF - Enforcement Action Listing
Financial Assurance - Financial Assurance Information Listing
ICE - ICE
HWP - EnviroStor Permitted Facilities Listing
HWT - Registered Hazardous Waste Transporter Database
MINES - Mines Site Location Listing
MWMP - Medical Waste Management Program Listing
NPDES - NPDES Permits Listing
PEST LIC - Pesticide Regulation Licenses Listing
PROC - Certified Processors Database
UIC - UIC Listing
WASTEWATER PITS - Oil Wastewater Pits Listing
WDS - Waste Discharge System
WIP - Well Investigation Program Case List
NON-CASE INFO - NON-CASE INFO (GEOTRACKER)
MILITARY PRIV SITES - MILITARY PRIV SITES (GEOTRACKER)
WDR - Waste Discharge Requirements Listing
PROD WATER PONDS - PROD WATER PONDS (GEOTRACKER)
CIWQS - California Integrated Water Quality System
SAMPLING POINT - SAMPLING POINT (GEOTRACKER)
OTHER OIL GAS - OTHER OIL & GAS (GEOTRACKER)
PROJECT - PROJECT (GEOTRACKER)
WELL STIM PROJ - Well Stimulation Project (GEOTRACKER)
UIC GEO - UIC GEO (GEOTRACKER)

**EDR HIGH RISK HISTORICAL RECORDS**

***EDR Exclusive Records***

EDR MGP - EDR Proprietary Manufactured Gas Plants
EDR Hist Auto - EDR Exclusive Historical Auto Stations
EDR Hist Cleaner - EDR Exclusive Historical Cleaners

**EDR RECOVERED GOVERNMENT ARCHIVES**

***Exclusive Recovered Govt. Archives***

RGA LF - Recovered Government Archive Solid Waste Facilities List

# EXECUTIVE SUMMARY

**SURROUNDING SITES: SEARCH RESULTS**

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

**STANDARD ENVIRONMENTAL RECORDS**

### *Federal Delisted NPL site list*

Delisted NPL: The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may deleted from the NPL where no further response is appropriate.

A review of the Delisted NPL list, as provided by EDR, and dated 07/17/2018 has revealed that there is 1 Delisted NPL site within approximately 1 mile of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SOLA OPTICAL USA, IN***<br>EPA ID:: CAD981171523<br>Site ID:: 902280 | ***3600 LAKEVILLE HWY*** | ***ENE 1/2 - 1 (0.531 mi.)*** | ***0*** | ***23*** |

### *Federal CERCLIS list*

SEMS: SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the SEMS list, as provided by EDR, and dated 07/17/2018 has revealed that there is 1 SEMS site within approximately 0.5 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| PETALUMA PRECEDENT<br>Site ID: 0909134<br>EPA Id: CAN000909134 | 781 BAYWOOD DRIVE | W 1/4 - 1/2 (0.337 mi.) | 31 | 102 |

# EXECUTIVE SUMMARY

***Federal RCRA generators list***

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/01/2018 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| TESORO WEST COAST CO<br>EPA ID:: CAR000142141 | 2601 LAKEVILLE HWY | NNE 1/8 - 1/4 (0.222 mi.) | C22 | 69 |

***State- and tribal - equivalent CERCLIS***

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 07/30/2018 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***CASA GRANDE LANDFILL***<br>Facility Id: 49490012<br>Status: Refer: RWQCB | ***WEST END OF CASA GRA*** | ***WNW 0 - 1/8 (0.017 mi.)*** | ***12*** | ***41*** |
| ***SOLA OPTICAL USA, IN***<br>Facility Id: 49300001<br>Status: Refer: RWQCB | ***3600 LAKEVILLE HWY*** | ***ENE 1/2 - 1 (0.586 mi.)*** | ***I50*** | ***164*** |
| ***QUARRY HEIGHTS***<br>Facility Id: 60002395<br>Status: Active | ***1600 PETALUMA BOULEV*** | ***WSW 1/2 - 1 (0.607 mi.)*** | ***51*** | ***175*** |
| ***MCPHAIL'S INC.***<br>Facility Id: 49420003<br>Status: Certified / Operation & Maintenance | ***1006 LAKEVILLE ST*** | ***WNW 1/2 - 1 (0.830 mi.)*** | ***52*** | ***177*** |

# EXECUTIVE SUMMARY

***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there are 2 SWF/LF sites within approximately 0.5 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***CASA GRANDE LANDFILL*** | ***WEST END OF CASA GRA*** | ***WNW 0 - 1/8 (0.017 mi.)*** | ***12*** | ***41*** |
| Database: SWF/LF (SWIS), Date of Government Version: 08/08/2018<br>Facility ID: 49-AA-0009<br>Operational Status: Closed<br>Regulation Status: Permitted | | | | |
| RECOLOGY SONOMA MARI | 2543 PETALUMA BLVD. | SSW 1/4 - 1/2 (0.417 mi.) | F36 | 106 |
| Database: SWF/LF (SWIS), Date of Government Version: 08/08/2018<br>Facility ID: 49-AA-0406<br>Operational Status: Active<br>Regulation Status: Permitted | | | | |

***State and tribal leaking storage tank lists***

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 14 LUST sites within approximately 0.5 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SKOFF TRUCKING*** | ***1 CASA GRANDE*** | ***NW 0 - 1/8 (0.028 mi.)*** | ***B15*** | ***45*** |
| Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018<br>Database: LUST, Date of Government Version: 09/10/2018<br>Database: LUST REG 2, Date of Government Version: 09/30/2004<br>Status: Completed - Case Closed<br>Facility Id: 49-0161<br>Facility Status: Pollution Characterization<br>Global Id: T0609700924<br>Global ID: T0609700924 | | | | |
| ***BEACON #3703 (FORMER*** | ***2601 LAKEVILLE HWY*** | ***NNE 1/8 - 1/4 (0.222 mi.)*** | ***C25*** | ***82*** |
| Database: LUST, Date of Government Version: 09/10/2018<br>Status: Completed - Case Closed<br>Global Id: T0609700955 | | | | |
| BEACON #3703 (FORMER | 2601 LAKEVILLE HWY | NNE 1/8 - 1/4 (0.222 mi.) | C28 | 89 |
| Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018<br>Database: LUST REG 2, Date of Government Version: 09/30/2004<br>Facility Id: 49-0193<br>Facility Status: Remediation Plan<br>Global ID: T0609700955 | | | | |
| ***PETALUMA POULTRY PRO*** | ***2700 LAKEVILLE HWY*** | ***NE 1/4 - 1/2 (0.256 mi.)*** | ***D29*** | ***90*** |
| Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018<br>Database: LUST, Date of Government Version: 09/10/2018 | | | | |

Status: Completed - Case Closed
Global Id: T0609700883
Global ID: T0609700883

PETALUMA POULTRY PRO 2700 LAKEVILLE HWY NE 1/4 - 1/2 (0.256 mi.) D30 101
Database: LUST REG 2, Date of Government Version: 09/30/2004
Facility Id: 49-0119
Facility Status: Case Closed
date9: 3/6/1996

***HENRIS SUPPLY WAREHO 172 LANDING WAY SW 1/4 - 1/2 (0.344 mi.) E33 103***
Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018
Database: LUST, Date of Government Version: 09/10/2018
Database: LUST REG 2, Date of Government Version: 09/30/2004
Status: Completed - Case Closed
Facility Id: 49-0071
Facility Status: Case Closed
Global Id: T0609700838
Global ID: T0609700838
date9: 9/5/2001

***BIG 4 RENTS, INC. 1731 LAKEVILLE HWY WNW 1/4 - 1/2 (0.398 mi.) 34 105***
Database: LUST REG 2, Date of Government Version: 09/30/2004
Facility Id: 49-0014
Facility Status: Pollution Characterization

***NOVATO DISPOSAL 2543 PETALUMA BLVD S SSW 1/4 - 1/2 (0.417 mi.) F37 107***
Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018
Database: LUST, Date of Government Version: 09/10/2018
Database: LUST REG 2, Date of Government Version: 09/30/2004
Status: Completed - Case Closed
Facility Id: 49-0210
Facility Status: Post remedial action monitoring
Global Id: T0609700971
Global ID: T0609700971

***DIVIDEND DEVELOPMENT 1250 MCDOWELL BLVD N N 1/4 - 1/2 (0.418 mi.) 38 117***
Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018
Database: LUST, Date of Government Version: 09/10/2018
Database: LUST REG 2, Date of Government Version: 09/30/2004
Status: Completed - Case Closed
Facility Id: 49-0048
Facility Status: Case Closed
Global Id: T0609700817
Global ID: T0609700817
date9: 4/3/1997

***STERO DISHWASHING MA 3200 LAKEVILLE HWY ENE 1/4 - 1/2 (0.447 mi.) G40 135***
Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018
Database: LUST, Date of Government Version: 09/10/2018
Status: Completed - Case Closed
Global Id: T0609700949
Global ID: T0609700949

***THE STERO COMPANY 3200 LAKEVILLE HWY ENE 1/4 - 1/2 (0.447 mi.) G41 137***
Database: LUST REG 2, Date of Government Version: 09/30/2004
Facility Id: 49-0187
Facility Status: Case Closed
date9: 4/15/1997

***BIG 4 RENTS PETALUMA 1731 LAKEVILLE HWY WNW 1/4 - 1/2 (0.456 mi.) 42 140***
Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018
Database: LUST, Date of Government Version: 09/10/2018

Status: Completed - Case Closed
Global Id: T0609700784
Global ID: T0609700784

| | | | | |
|---|---|---|---|---|
| ***METRON SUPER GAS*** | ***910 BAYWOOD DR*** | ***WNW 1/4 - 1/2 (0.463 mi.)*** | ***H43*** | ***147*** |

Database: SONOMA CO. LUST, Date of Government Version: 10/02/2018
Database: LUST, Date of Government Version: 09/10/2018
Database: LUST REG 2, Date of Government Version: 09/30/2004
Status: Completed - Case Closed
Facility Id: 49-0231
Facility Status: Case Closed
Global Id: T0609700992
Global Id: T0609766367
Global ID: T0609700992
Global ID: T0609766367
date9: 11/20/1997

| | | | | |
|---|---|---|---|---|
| METRON SUPER GAS | 910 BAYWOOD DR | WNW 1/4 - 1/2 (0.463 mi.) | H44 | 158 |

Database: LUST REG 2, Date of Government Version: 09/30/2004
Facility Id: 49-0314
Facility Status: Pollution Characterization

CPS-SLIC: Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the CPS-SLIC list, as provided by EDR, has revealed that there is 1 CPS-SLIC site within approximately 0.5 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***RINEHART TURCK STOP*** | ***2645 PETALUMA BLVD S*** | ***SW 1/4 - 1/2 (0.427 mi.)*** | ***39*** | ***119*** |

Database: SLIC REG 2, Date of Government Version: 09/30/2004
Database: CPS-SLIC, Date of Government Version: 09/10/2018
Facility Status: Completed - Case Closed
Facility Id: 3762700
Global Id: SL0609788491

***State and tribal registered storage tank lists***

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there are 2 UST sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| SKOFF TRUCKING | 1 CASA GRANDE ROAD | NW 0 - 1/8 (0.028 mi.) | B13 | 43 |

Database: UST, Date of Government Version: 09/10/2018
Facility Id: 600028

| | | | | |
|---|---|---|---|---|
| BEACON #3703 | 2601 LAKEVILLE HIGHW | NNE 1/8 - 1/4 (0.222 mi.) | C27 | 89 |

Database: UST, Date of Government Version: 09/10/2018

Facility Id: 600122

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, has revealed that there are 2 AST sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SKOFF TRUCKING*** | ***1 CASA GRANDE*** | ***NW 0 - 1/8 (0.028 mi.)*** | ***B15*** | ***45*** |
| Database: AST, Date of Government Version: 07/06/2016 | | | | |
| MARTY SKOFF TRUCKING | 1 CASA GRANDE RD | NW 0 - 1/8 (0.028 mi.) | B17 | 55 |
| Database: AST, Date of Government Version: 07/06/2016 | | | | |

**ADDITIONAL ENVIRONMENTAL RECORDS**

***Local Lists of Hazardous waste / Contaminated Sites***

HIST Cal-Sites: Formerly known as ASPIS, this database contains both known and potential hazardous substance sites. The source is the California Department of Toxic Substance Control. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

A review of the HIST Cal-Sites list, as provided by EDR, and dated 08/08/2005 has revealed that there is 1 HIST Cal-Sites site within approximately 1 mile of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SOLA OPTICAL USA, IN*** | ***3600 LAKEVILLE HWY*** | ***ENE 1/2 - 1 (0.586 mi.)*** | ***I50*** | ***164*** |

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 07/23/2018 has revealed that there are 3 CERS HAZ WASTE sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***MARTY SKOFF TRUCKING*** | ***1 CASA GRANDE RD*** | ***NW 0 - 1/8 (0.028 mi.)*** | ***B18*** | ***56*** |
| ***WEDGE ROOFING*** | ***5 CASA GRANDE RD*** | ***NNW 0 - 1/8 (0.073 mi.)*** | ***B21*** | ***64*** |
| ***TESORO (MOBIL) 68186*** | ***2601 LAKEVILLE HIWAY*** | ***NNE 1/8 - 1/4 (0.222 mi.)*** | ***C23*** | ***70*** |

***Local Lists of Registered Storage Tanks***

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are

2 SWEEPS UST sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SKOFF TRUCKING*** | ***1 CASA GRANDE*** | ***NW 0 - 1/8 (0.028 mi.)*** | ***B15*** | ***45*** |
| Status: A<br>Tank Status: A<br>Comp Number: 2147 | | | | |
| ***BEACON #703*** | ***2601 LAKEVILLE HWY*** | ***NNE 1/8 - 1/4 (0.222 mi.)*** | ***C26*** | ***87*** |
| Status: A<br>Tank Status: A<br>Comp Number: 1231 | | | | |

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 4 HIST UST sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SKOFF TRUCKING*** | ***1 CASA GRANDE RD*** | ***NW 0 - 1/8 (0.028 mi.)*** | ***B14*** | ***44*** |
| Facility Id: 00000059288 | | | | |
| NORTH COAST ROOFING, | 5 CASA GRANDE RD | NNW 0 - 1/8 (0.073 mi.) | B19 | 63 |
| Facility Id: 00000064398 | | | | |
| NORTH COAST ROOFING | 5 CASA GRANDE AVE | NNW 0 - 1/8 (0.073 mi.) | B20 | 64 |
| ***JET*** | ***2601 LAKEVILLE HWY*** | ***NNE 1/8 - 1/4 (0.222 mi.)*** | ***C24*** | ***80*** |
| Facility Id: 00000010120 | | | | |

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 2 CA FID UST sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| SKOFF TRUCKING | 1 CASA GRANDE RD | NW 0 - 1/8 (0.028 mi.) | B16 | 55 |
| Facility Id: 49000622<br>Status: A | | | | |
| ***BEACON #703*** | ***2601 LAKEVILLE HWY*** | ***NNE 1/8 - 1/4 (0.222 mi.)*** | ***C26*** | ***87*** |
| Facility Id: 49000647<br>Status: A | | | | |

CERS TANKS: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

A review of the CERS TANKS list, as provided by EDR, and dated 07/23/2018 has revealed that there are 2 CERS TANKS sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***MARTY SKOFF TRUCKING*** | ***1 CASA GRANDE RD*** | ***NW 0 - 1/8 (0.028 mi.)*** | ***B18*** | ***56*** |
| ***TESORO (MOBIL) 68186*** | ***2601 LAKEVILLE HIWAY*** | ***NNE 1/8 - 1/4 (0.222 mi.)*** | ***C23*** | ***70*** |

***Other Ascertainable Records***

ROD: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 07/17/2018 has revealed that there is 1 ROD site within approximately 1 mile of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SOLA OPTICAL USA, IN***<br>EPA ID:: CAD981171523 | ***3600 LAKEVILLE HWY*** | ***ENE 1/2 - 1 (0.531 mi.)*** | ***0*** | ***23*** |

CA BOND EXP. PLAN: Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

A review of the CA BOND EXP. PLAN list, as provided by EDR, and dated 01/01/1989 has revealed that there is 1 CA BOND EXP. PLAN site within approximately 1 mile of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SOLA OPTICAL USA, IN*** | ***1500 CADER LANE*** | ***ENE 1/2 - 1 (0.574 mi.)*** | ***I46*** | ***159*** |

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 09/24/2018 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***RINEHART TURCK STOP*** | ***2645 PETALUMA BLVD S*** | ***SW 1/4 - 1/2 (0.427 mi.)*** | ***39*** | ***119*** |

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 9 HIST CORTESE sites within approximately 0.5 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***SKOFF TRUCKING***<br>Reg Id: 49-0161 | ***1 CASA GRANDE*** | ***NW 0 - 1/8 (0.028 mi.)*** | ***B15*** | ***45*** |
| ***BEACON #3703 (FORMER***<br>Reg Id: 49-0193 | ***2601 LAKEVILLE HWY*** | ***NNE 1/8 - 1/4 (0.222 mi.)*** | ***C25*** | ***82*** |
| ***PETALUMA POULTRY PRO***<br>Reg Id: 49-0119 | ***2700 LAKEVILLE HWY*** | ***NE 1/4 - 1/2 (0.256 mi.)*** | ***D29*** | ***90*** |
| HENRIS SUPPLY WAREHO<br>Reg Id: 49-0071 | 172 LANDING | SW 1/4 - 1/2 (0.344 mi.) | E32 | 102 |
| WEST SONOMA CO DISPO | 2543 ETALUMA | SSW 1/4 - 1/2 (0.417 mi.) | F35 | 106 |

| | | | | |
|---|---|---|---|---|
| Reg Id: 49-0210 | | | | |
| ***DIVIDEND DEVELOPMENT*** | ***1250 MCDOWELL BLVD N*** | ***N 1/4 - 1/2 (0.418 mi.)*** | ***38*** | ***117*** |
| Reg Id: 49-0048 | | | | |
| ***STERO DISHWASHING MA*** | ***3200 LAKEVILLE HWY*** | ***ENE 1/4 - 1/2 (0.447 mi.)*** | ***G40*** | ***135*** |
| Reg Id: 49-0187 | | | | |
| ***BIG 4 RENTS PETALUMA*** | ***1731 LAKEVILLE HWY*** | ***WNW 1/4 - 1/2 (0.456 mi.)*** | ***42*** | ***140*** |
| Reg Id: 49-0014 | | | | |
| ***METRON SUPER GAS*** | ***910 BAYWOOD DR*** | ***WNW 1/4 - 1/2 (0.463 mi.)*** | ***H43*** | ***147*** |
| Reg Id: 49-0231 | | | | |

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

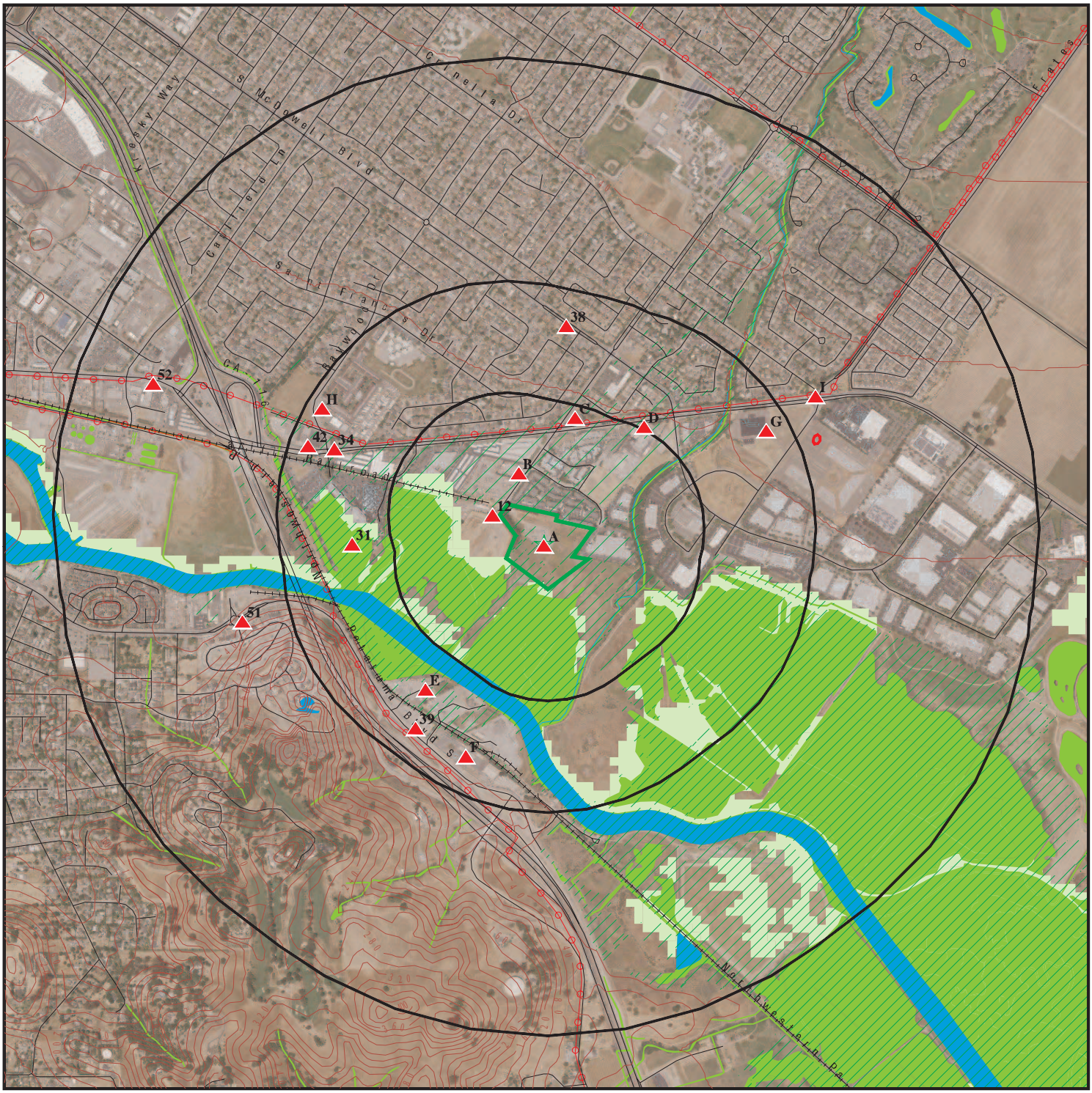
A review of the Notify 65 list, as provided by EDR, and dated 09/19/2018 has revealed that there are 4 Notify 65 sites within approximately 1 mile of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***METRON SUPER GAS*** | ***910 BAYWOOD DR*** | ***WNW 1/4 - 1/2 (0.463 mi.)*** | ***H45*** | ***159*** |
| NISSON RANCH | 3597 LAKEVILLE HWY | ENE 1/2 - 1 (0.581 mi.) | I47 | 163 |
| NISSON RANCH | 3597 LAKEVILLE HWY | ENE 1/2 - 1 (0.581 mi.) | I48 | 163 |
| NISSON RANCH | 3597 LAKEVILLE HWY | ENE 1/2 - 1 (0.581 mi.) | I49 | 164 |

# EXECUTIVE SUMMARY

There were no unmapped sites in this report.

# OVERVIEW MAP - 5469509.2S




0 1/4 1/2 1 Miles

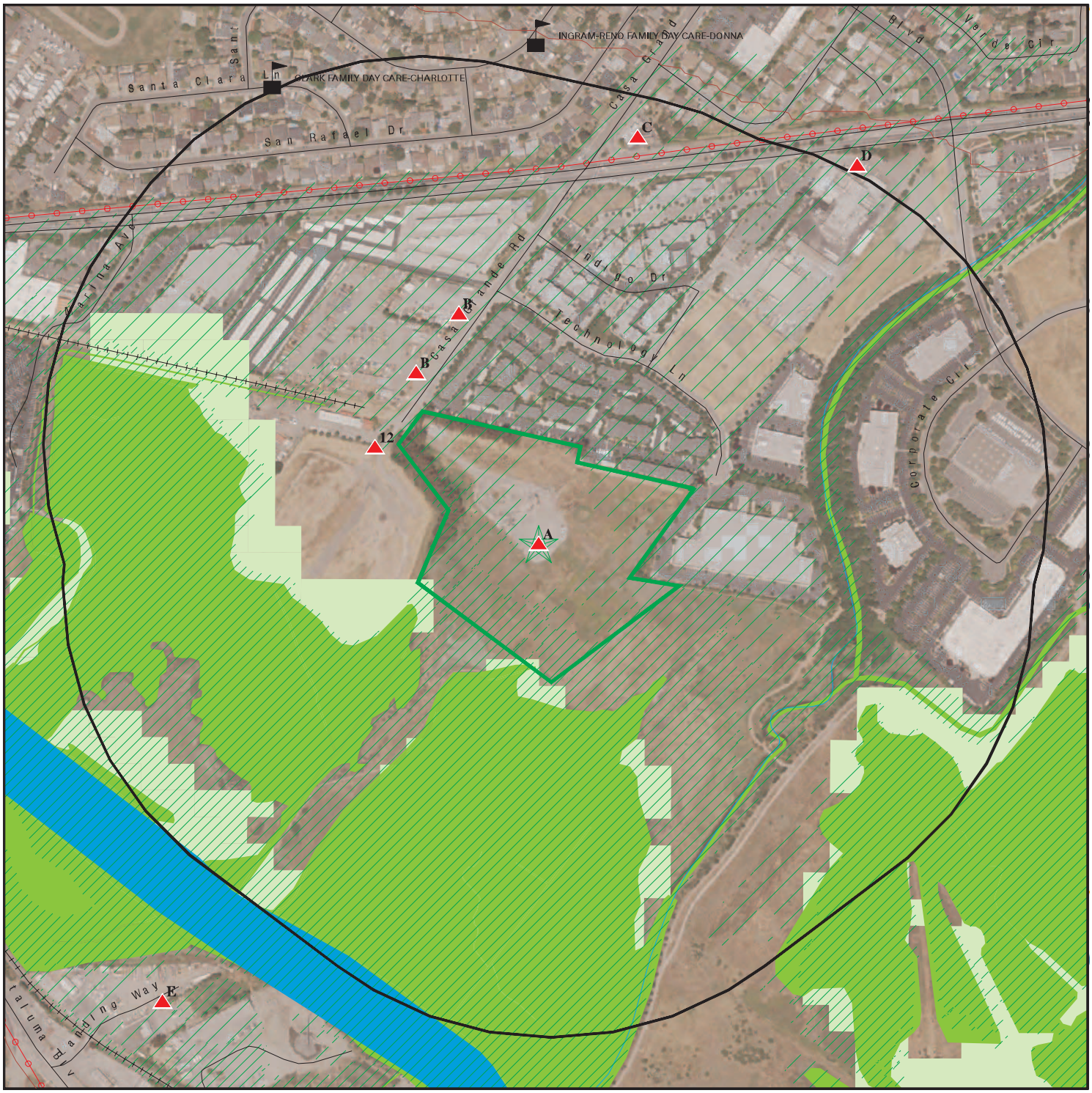
- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

| | |
|---|---|
| SITE NAME: 396580 | CLIENT: AEI Consultants |
| ADDRESS: 2592 Lakeville Highway<br>Petaluma CA 94954 | CONTACT: Brooke |
| LAT/LONG: 38.229865 / 122.605279 | INQUIRY #: 5469509.2s<br>DATE: October 30, 2018 3:35 pm |

Copyright © 2018 EDR, Inc. © 2015 TomTom Rel. 2015.

# DETAIL MAP - 5469509.2S




- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

| | |
|---|---|
| SITE NAME: 396580 | CLIENT: AEI Consultants |
| ADDRESS: 2592 Lakeville Highway<br>Petaluma CA 94954 | CONTACT: Brooke |
| LAT/LONG: 38.229865 / 122.605279 | INQUIRY #: 5469509.2s<br>DATE: October 30, 2018 3:40 pm |

Copyright © 2018 EDR, Inc. © 2015 TomTom Rel. 2015.

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| **STANDARD ENVIRONMENTAL RECORDS** | | | | | | | | |
| ***Federal NPL site list*** | | | | | | | | |
| NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| Proposed NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| NPL LIENS | TP | | NR | NR | NR | NR | NR | 0 |
| ***Federal Delisted NPL site list*** | | | | | | | | |
| Delisted NPL | 1.000 | | 0 | 0 | 0 | 1 | NR | 1 |
| ***Federal CERCLIS list*** | | | | | | | | |
| FEDERAL FACILITY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SEMS | 0.500 | | 0 | 0 | 1 | NR | NR | 1 |
| ***Federal CERCLIS NFRAP site list*** | | | | | | | | |
| SEMS-ARCHIVE | 0.500 | 1 | 0 | 0 | 0 | NR | NR | 1 |
| ***Federal RCRA CORRACTS facilities list*** | | | | | | | | |
| CORRACTS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***Federal RCRA non-CORRACTS TSD facilities list*** | | | | | | | | |
| RCRA-TSDF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Federal RCRA generators list*** | | | | | | | | |
| RCRA-LQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-SQG | 0.250 | | 0 | 1 | NR | NR | NR | 1 |
| RCRA-CESQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ***Federal institutional controls / engineering controls registries*** | | | | | | | | |
| LUCIS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US ENG CONTROLS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US INST CONTROL | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Federal ERNS list*** | | | | | | | | |
| ERNS | TP | | NR | NR | NR | NR | NR | 0 |
| ***State- and tribal - equivalent NPL*** | | | | | | | | |
| RESPONSE | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***State- and tribal - equivalent CERCLIS*** | | | | | | | | |
| ENVIROSTOR | 1.000 | 1 | 1 | 0 | 0 | 3 | NR | 5 |
| ***State and tribal landfill and/or solid waste disposal site lists*** | | | | | | | | |
| SWF/LF | 0.500 | 1 | 1 | 0 | 1 | NR | NR | 3 |
| ***State and tribal leaking storage tank lists*** | | | | | | | | |
| LUST | 0.500 | 2 | 1 | 2 | 11 | NR | NR | 16 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| INDIAN LUST | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| CPS-SLIC | 0.500 | 1 | 0 | 0 | 1 | NR | NR | 2 |
| ***State and tribal registered storage tank lists*** | | | | | | | | |
| FEMA UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| UST | 0.250 | | 1 | 1 | NR | NR | NR | 2 |
| AST | 0.250 | | 2 | 0 | NR | NR | NR | 2 |
| INDIAN UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ***State and tribal voluntary cleanup sites*** | | | | | | | | |
| VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| INDIAN VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***State and tribal Brownfields sites*** | | | | | | | | |
| BROWNFIELDS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| **ADDITIONAL ENVIRONMENTAL RECORDS** | | | | | | | | |
| ***Local Brownfield lists*** | | | | | | | | |
| US BROWNFIELDS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Local Lists of Landfill / Solid Waste Disposal Sites*** | | | | | | | | |
| WMUDS/SWAT | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SWRCY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HAULERS | TP | | NR | NR | NR | NR | NR | 0 |
| INDIAN ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| DEBRIS REGION 9 | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| IHS OPEN DUMPS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Local Lists of Hazardous waste / Contaminated Sites*** | | | | | | | | |
| US HIST CDL | TP | | NR | NR | NR | NR | NR | 0 |
| HIST Cal-Sites | 1.000 | | 0 | 0 | 0 | 1 | NR | 1 |
| SCH | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| CDL | TP | | NR | NR | NR | NR | NR | 0 |
| Toxic Pits | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| US CDL | TP | | NR | NR | NR | NR | NR | 0 |
| CERS HAZ WASTE | 0.250 | | 2 | 1 | NR | NR | NR | 3 |
| ***Local Lists of Registered Storage Tanks*** | | | | | | | | |
| SWEEPS UST | 0.250 | 1 | 1 | 1 | NR | NR | NR | 3 |
| HIST UST | 0.250 | 2 | 3 | 1 | NR | NR | NR | 6 |
| CA FID UST | 0.250 | 1 | 1 | 1 | NR | NR | NR | 3 |
| CERS TANKS | 0.250 | | 1 | 1 | NR | NR | NR | 2 |
| ***Local Land Records*** | | | | | | | | |
| LIENS | TP | | NR | NR | NR | NR | NR | 0 |
| LIENS 2 | TP | | NR | NR | NR | NR | NR | 0 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| DEED | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Records of Emergency Release Reports*** | | | | | | | | |
| HMIRS | TP | | NR | NR | NR | NR | NR | 0 |
| CHMIRS | TP | | NR | NR | NR | NR | NR | 0 |
| LDS | TP | | NR | NR | NR | NR | NR | 0 |
| MCS | TP | | NR | NR | NR | NR | NR | 0 |
| SPILLS 90 | TP | | NR | NR | NR | NR | NR | 0 |
| ***Other Ascertainable Records*** | | | | | | | | |
| RCRA NonGen / NLR | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| FUDS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| DOD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCRD DRYCLEANERS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US FIN ASSUR | TP | | NR | NR | NR | NR | NR | 0 |
| EPA WATCH LIST | TP | | NR | NR | NR | NR | NR | 0 |
| 2020 COR ACTION | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| TSCA | TP | | NR | NR | NR | NR | NR | 0 |
| TRIS | TP | | NR | NR | NR | NR | NR | 0 |
| SSTS | TP | | NR | NR | NR | NR | NR | 0 |
| ROD | 1.000 | | 0 | 0 | 0 | 1 | NR | 1 |
| RMP | TP | | NR | NR | NR | NR | NR | 0 |
| RAATS | TP | | NR | NR | NR | NR | NR | 0 |
| PRP | TP | | NR | NR | NR | NR | NR | 0 |
| PADS | TP | | NR | NR | NR | NR | NR | 0 |
| ICIS | TP | | NR | NR | NR | NR | NR | 0 |
| FTTS | TP | | NR | NR | NR | NR | NR | 0 |
| MLTS | TP | | NR | NR | NR | NR | NR | 0 |
| COAL ASH DOE | TP | | NR | NR | NR | NR | NR | 0 |
| COAL ASH EPA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| PCB TRANSFORMER | TP | | NR | NR | NR | NR | NR | 0 |
| RADINFO | TP | | NR | NR | NR | NR | NR | 0 |
| HIST FTTS | TP | | NR | NR | NR | NR | NR | 0 |
| DOT OPS | TP | | NR | NR | NR | NR | NR | 0 |
| CONSENT | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| INDIAN RESERV | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| FUSRAP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| UMTRA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| LEAD SMELTERS | TP | | NR | NR | NR | NR | NR | 0 |
| US AIRS | TP | | NR | NR | NR | NR | NR | 0 |
| US MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ABANDONED MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| FINDS | TP | 1 | NR | NR | NR | NR | NR | 1 |
| DOCKET HWC | TP | | NR | NR | NR | NR | NR | 0 |
| UXO | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ECHO | TP | | NR | NR | NR | NR | NR | 0 |
| FUELS PROGRAM | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| CA BOND EXP. PLAN | 1.000 | | 0 | 0 | 0 | 1 | NR | 1 |
| Cortese | 0.500 | | 0 | 0 | 1 | NR | NR | 1 |
| CUPA Listings | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| DRYCLEANERS | 0.250 | | 0 | 0 | NR | NR | NR | 0 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| EMI | TP | | NR | NR | NR | NR | NR | 0 |
| ENF | TP | | NR | NR | NR | NR | NR | 0 |
| Financial Assurance | TP | | NR | NR | NR | NR | NR | 0 |
| HAZNET | TP | 3 | NR | NR | NR | NR | NR | 3 |
| ICE | TP | | NR | NR | NR | NR | NR | 0 |
| HIST CORTESE | 0.500 | 1 | 1 | 1 | 7 | NR | NR | 10 |
| HWP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| HWT | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| MWMP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| NPDES | TP | | NR | NR | NR | NR | NR | 0 |
| PEST LIC | TP | | NR | NR | NR | NR | NR | 0 |
| PROC | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Notify 65 | 1.000 | | 0 | 0 | 1 | 3 | NR | 4 |
| UIC | TP | | NR | NR | NR | NR | NR | 0 |
| WASTEWATER PITS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| WDS | TP | | NR | NR | NR | NR | NR | 0 |
| WIP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| NON-CASE INFO | TP | | NR | NR | NR | NR | NR | 0 |
| MILITARY PRIV SITES | TP | | NR | NR | NR | NR | NR | 0 |
| CERS | TP | 2 | NR | NR | NR | NR | NR | 2 |
| WDR | TP | | NR | NR | NR | NR | NR | 0 |
| PROD WATER PONDS | TP | | NR | NR | NR | NR | NR | 0 |
| CIWQS | TP | | NR | NR | NR | NR | NR | 0 |
| SAMPLING POINT | TP | | NR | NR | NR | NR | NR | 0 |
| OTHER OIL GAS | TP | | NR | NR | NR | NR | NR | 0 |
| PROJECT | TP | | NR | NR | NR | NR | NR | 0 |
| WELL STIM PROJ | TP | | NR | NR | NR | NR | NR | 0 |
| UIC GEO | TP | | NR | NR | NR | NR | NR | 0 |
| **EDR HIGH RISK HISTORICAL RECORDS** | | | | | | | | |
| ***EDR Exclusive Records*** | | | | | | | | |
| EDR MGP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| EDR Hist Auto | 0.125 | | 0 | NR | NR | NR | NR | 0 |
| EDR Hist Cleaner | 0.125 | | 0 | NR | NR | NR | NR | 0 |
| **EDR RECOVERED GOVERNMENT ARCHIVES** | | | | | | | | |
| ***Exclusive Recovered Govt. Archives*** | | | | | | | | |
| RGA LF | TP | | NR | NR | NR | NR | NR | 0 |
| RGA LUST | TP | 3 | NR | NR | NR | NR | NR | 3 |
| - Totals -- | | 20 | 15 | 10 | 23 | 10 | 0 | 78 |

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

**A1** **DARLING INTERNATIONAL INC** **HAZNET** **S112916189**
**Target** **2592 LAKEVILLE HWY** **N/A**
**Property** **PETALUMA, CA 94952**

**Site 1 of 11 in cluster A**

**Actual:**
**6 ft.**

HAZNET:

| | |
|---|---|
| envid: | S112916189 |
| Year: | 2001 |
| GEPAID: | CAC002368151 |
| Contact: | BILL MCMURTRY - VP |
| Telephone: | 9722814409 |
| Mailing Name: | Not reported |
| Mailing Address: | 251 O'CONNOR RIDGE BLVD STE 300 |
| Mailing City,St,Zip: | IRVING, TX 750380000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD981382732 |
| TSD County: | Not reported |
| Waste Category: | Asbestos containing waste |
| Disposal Method: | Disposal, Land Fill |
| Tons: | 0.42 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

---

**A2** **ROYAL TALLOW & SOAP COMPANY** **ENVIROSTOR** **S101482559**
**Target** **2592 LAKEVILLE HIGHWAY** **SWF/LF** **N/A**
**Property** **PETALUMA, CA 94952** **LUST**
**HIST UST**

**Site 2 of 11 in cluster A** **HIST CORTESE**
**CERS**

**Actual:**
**6 ft.**

ENVIROSTOR:

| | |
|---|---|
| Facility ID: | 49280006 |
| Status: | Refer: RWQCB |
| Status Date: | 05/27/1994 |
| Site Code: | Not reported |
| Site Type: | Historical |
| Site Type Detailed: | * Historical |
| Acres: | Not reported |
| NPL: | NO |
| Regulatory Agencies: | NONE SPECIFIED |
| Lead Agency: | NONE SPECIFIED |
| Program Manager: | Not reported |
| Supervisor: | Referred - Not Assigned |
| Division Branch: | Cleanup Berkeley |
| Assembly: | 10 |
| Senate: | 03 |
| Special Program: | * Rural County Survey Program |
| Restricted Use: | NO |
| Site Mgmt Req: | NONE SPECIFIED |
| Funding: | Not reported |
| Latitude: | 38.23059 |
| Longitude: | -122.6062 |
| APN: | NONE SPECIFIED |
| Past Use: | NONE SPECIFIED |
| Potential COC: | NONE SPECIFIED |
| Confirmed COC: | NONE SPECIFIED |
| Potential Description: | NONE SPECIFIED |
| Alias Name: | DARLING DELAWARE (CERCLIS) |

**ROYAL TALLOW & SOAP COMPANY (Continued)** **S101482559**

Alias Type: Alternate Name
Alias Name: CAD046515599
Alias Type: EPA Identification Number
Alias Name: 49280006
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 01/28/1988
Comments: FACILITY IDENTIFIED IND DIR 1962, RWQCB #75-190 DISCH TO PETALUMA RIVER 7/17/75

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 04/22/1988
Comments: SITE SCREENING DONE POSS ONSITE CONTAM

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SWF/LF (SWIS):
Facility ID: 49-CR-0042
Lat/Long: 38.22993 / -122.60533
Owner Name: Baywood LLC
Owner Telephone: 7075785344
Owner Address: Larry Wasem
Owner Address2: 414 Aviation Blvd.
Owner City,St,Zip: Santa Rosa, CA 95403
Operational Status: Closed
Operator: Darling International, Inc.
Operator Phone: 2147170300
Operator Address: Bill McMurtry
Operator Address2: 251 O'Conner Ridge Blvd.
Operator City,St,Zip: Irving, TX 75038
Permit Date: Not reported
Permit Status: Not reported
Permitted Acreage: Not reported
Activity: Solid Waste Disposal Site
Regulation Status: Unpermitted
Landuse Name: Not reported
GIS Source: Map
Category: Disposal
Unit Number: 01
Inspection Frequency: None
Accepted Waste: Mixed municipal
Closure Date: Not reported
Closure Type: Not reported

**ROYAL TALLOW & SOAP COMPANY (Continued)** **S101482559**

Disposal Acreage: Not reported
SWIS Num: 49-CR-0042
Waste Discharge Requirement Num: Not reported
Program Type: Not reported
Permitted Throughput with Units: Not reported
Actual Throughput with Units: Not reported
Permitted Capacity with Units: Not reported
Remaining Capacity: Not reported
Remaining Capacity with Units: Not reported
Lat/Long: 38.22993 / -122.60533

LUST:
Lead Agency: SONOMA COUNTY LOP
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700905
Global Id: T0609700905
Latitude: 38.230794516
Longitude: -122.606174449
Status: Open - Site Assessment
Status Date: 12/09/2015
Case Worker: JGM
RB Case Number: 49-0142
Local Agency: SONOMA COUNTY LOP
File Location: Local Agency
Local Case Number: 00001359
Potential Media Affect: Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern: Gasoline
Site History: Site was closed in 2004. AEI Consultant's "Phse II Subsurface Investigation Report date September 2, 2014 indicates soil and groundwater contamination that greatly exceeds the levels when the site was closed in 2004. The site is reopened as of 12/9/15.

LUST:
Global Id: T0609700905
Contact Type: Regional Board Caseworker
Contact Name: ALYX KARPOWICZ
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 Clay St., Suite 1400
City: OAKLAND
Email: akarpowicz@waterboards.ca.gov
Phone Number: 5106222427

Global Id: T0609700905
Contact Type: Local Agency Caseworker
Contact Name: J. GLENN MORELLI
Organization Name: SONOMA COUNTY LOP
Address: 625 5th Street
City: SANTA ROSA
Email: glenn.morelli@sonoma-county.org
Phone Number: 7075656573

Global Id: T0609700905
Contact Type: Regional Board Caseworker
Contact Name: Regional Water Board
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND

**ROYAL TALLOW & SOAP COMPANY (Continued)** **S101482559**

Email: Not reported
Phone Number: Not reported

LUST:
Global Id: T0609700905
Action Type: RESPONSE
Date: 02/20/2017
Action: Soil Vapor Intrusion Investigation Report

Global Id: T0609700905
Action Type: Other
Date: 06/30/1989
Action: Leak Reported

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 12/09/2015
Action: Notice of Responsibility

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 08/16/2016
Action: Staff Letter

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 12/09/2015
Action: Staff Letter

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 07/25/2017
Action: Staff Letter

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 09/13/2017
Action: Staff Letter

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 12/09/2015
Action: Staff Letter

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 07/24/2003
Action: LOP Case Closure Summary to RB

Global Id: T0609700905
Action Type: RESPONSE
Date: 06/23/2017
Action: CAP/RAP - Feasibility Study Report

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 08/15/2018

**ROYAL TALLOW & SOAP COMPANY (Continued)** **S101482559**

| | |
|---|---|
| Action: | Staff Letter |
| Global Id: | T0609700905 |
| Action Type: | Other |
| Date: | 06/30/1989 |
| Action: | Leak Discovery |
| Global Id: | T0609700905 |
| Action Type: | ENFORCEMENT |
| Date: | 07/30/2004 |
| Action: | Closure/No Further Action Letter |
| Global Id: | T0609700905 |
| Action Type: | ENFORCEMENT |
| Date: | 12/09/2015 |
| Action: | Notice of Responsibility |
| Global Id: | T0609700905 |
| Action Type: | RESPONSE |
| Date: | 06/29/2018 |
| Action: | CAP/RAP - Feasibility Study Report - Regulator Responded |
| Global Id: | T0609700905 |
| Action Type: | ENFORCEMENT |
| Date: | 04/18/2017 |
| Action: | Staff Letter |
| Global Id: | T0609700905 |
| Action Type: | ENFORCEMENT |
| Date: | 05/10/2016 |
| Action: | Staff Letter |
| Global Id: | T0609700905 |
| Action Type: | RESPONSE |
| Date: | 08/12/2016 |
| Action: | Soil and Water Investigation Workplan - Addendum |
| Global Id: | T0609700905 |
| Action Type: | RESPONSE |
| Date: | 02/14/2018 |
| Action: | Soil and Water Investigation Report |
| Global Id: | T0609700905 |
| Action Type: | ENFORCEMENT |
| Date: | 02/02/2016 |
| Action: | Email Correspondence |
| Global Id: | T0609700905 |
| Action Type: | ENFORCEMENT |
| Date: | 06/16/2016 |
| Action: | Email Correspondence |
| Global Id: | T0609700905 |
| Action Type: | REMEDIATION |
| Date: | 12/21/2000 |
| Action: | Pump & Treat (P&T) Groundwater |

**ROYAL TALLOW & SOAP COMPANY (Continued)** **S101482559**

Global Id: T0609700905
Action Type: ENFORCEMENT
Date: 04/03/2018
Action: Staff Letter

Global Id: T0609700905
Action Type: RESPONSE
Date: 09/16/2015
Action: Site Assessment Report

Global Id: T0609700905
Action Type: RESPONSE
Date: 08/18/2017
Action: Soil and Water Investigation Workplan - Addendum - Regulator Responded

Global Id: T0609700905
Action Type: RESPONSE
Date: 06/23/2017
Action: Other Workplan - Regulator Responded

Global Id: T0609700905
Action Type: Other
Date: 06/30/1989
Action: Leak Stopped

Global Id: T0609700905
Action Type: RESPONSE
Date: 08/12/2016
Action: Site Investigation Workplan - Regulator Responded

Global Id: T0609700905
Action Type: RESPONSE
Date: 08/18/2017
Action: Other Workplan - Regulator Responded

Global Id: T0609700905
Action Type: REMEDIATION
Date: 04/05/2000
Action: Excavation

LUST:
Global Id: T0609700905
Status: Completed - Case Closed
Status Date: 07/30/2004

Global Id: T0609700905
Status: Open - Case Begin Date
Status Date: 02/28/1989

Global Id: T0609700905
Status: Open - Remediation
Status Date: 05/01/1995

Global Id: T0609700905
Status: Open - Remediation
Status Date: 02/03/2000

**ROYAL TALLOW & SOAP COMPANY (Continued)** **S101482559**

Global Id: T0609700905
Status: Open - Reopen Case
Status Date: 12/09/2015

Global Id: T0609700905
Status: Open - Site Assessment
Status Date: 09/18/1989

Global Id: T0609700905
Status: Open - Site Assessment
Status Date: 09/05/1990

Global Id: T0609700905
Status: Open - Site Assessment
Status Date: 12/09/2015

Global Id: T0609700905
Status: Open - Verification Monitoring
Status Date: 01/13/2003

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0142
Closed or Referred: Not reported
Confirm Date: Not reported
LOP Number: 00001359
Staff: JGM
Decode of Staff: J. Glenn Morelli
Global ID: T0609700905
APN: 005-060-041
Notes: Not reported

HIST UST:
File Number: 000216AC
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/000216AC.pdf
Region: Not reported
Facility ID: Not reported
Facility Type: Not reported
Other Type: Not reported
Contact Name: Not reported
Telephone: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner City,St,Zip: Not reported
Total Tanks: Not reported

Tank Num: Not reported
Container Num: Not reported
Year Installed: Not reported
Tank Capacity: Not reported
Tank Used for: Not reported
Type of Fuel: Not reported
Container Construction Thickness: Not reported
Leak Detection: Not reported

**ROYAL TALLOW & SOAP COMPANY (Continued)** **S101482559**

Click here for Geo Tracker PDF:

HIST CORTESE:

| | |
|---|---|
| Region: | CORTESE |
| Facility County Code: | 49 |
| Reg By: | LTNKA |
| Reg Id: | 49-0142 |

CERS TANKS:

| | |
|---|---|
| Site ID: | 217153 |
| CERS ID: | T0609700905 |
| CERS Description: | Leaking Underground Storage Tank Cleanup Site |

Affiliation:

| | |
|---|---|
| Affiliation Type Desc: | Local Agency Caseworker |
| Entity Name: | J. GLENN MORELLI - SONOMA COUNTY LOP |
| Entity Title: | Not reported |
| Affiliation Address: | 625 5th Street |
| Affiliation City: | SANTA ROSA |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | 7075656573 |

| | |
|---|---|
| Affiliation Type Desc: | Regional Board Caseworker |
| Entity Name: | ALYX KARPOWICZ - SAN FRANCISCO BAY RWQCB (REGION 2) |
| Entity Title: | Not reported |
| Affiliation Address: | 1515 Clay St., Suite 1400 |
| Affiliation City: | OAKLAND |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | 5106222427 |

| | |
|---|---|
| Affiliation Type Desc: | Regional Board Caseworker |
| Entity Name: | Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2) |
| Entity Title: | Not reported |
| Affiliation Address: | 1515 CLAY ST SUITE 1400 |
| Affiliation City: | OAKLAND |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

---

**A3** **DARLING-DELAWARE ROYAL TALLOW** **SEMS-ARCHIVE** **1003879410**
**Target** **2592 LAKEVILLE HWY** **CAD046515599**
**Property** **PETALUMA, CA 94952**

**Site 3 of 11 in cluster A**

**Actual:**
**6 ft.**

SEMS Archive:

| | |
|---|---|
| Site ID: | 903537 |
| EPA ID: | CAD046515599 |
| Cong District: | 1 |
| FIPS Code: | 6097 |
| FF: | N |

**DARLING-DELAWARE ROYAL TALLOW (Continued)** **1003879410**

NPL: Not on the NPL
Non NPL Status: NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:

Region: 9
Site ID: 903537
EPA ID: CAD046515599
Site Name: DARLING-DELAWARE ROYAL TALLOW
NPL: N
FF: N
OU: 0
Action Code: VS
Action Name: ARCH SITE
SEQ: 1
Start Date: Not reported
Finish Date: 1989-12-06 00:00:00
Qual: Not reported
Current Action Lead: EPA Perf In-Hse

Region: 9
Site ID: 903537
EPA ID: CAD046515599
Site Name: DARLING-DELAWARE ROYAL TALLOW
NPL: N
FF: N
OU: 0
Action Code: PA
Action Name: PA
SEQ: 1
Start Date: Not reported
Finish Date: 1989-12-06 00:00:00
Qual: N
Current Action Lead: EPA Perf

Region: 9
Site ID: 903537
EPA ID: CAD046515599
Site Name: DARLING-DELAWARE ROYAL TALLOW
NPL: N
FF: N
OU: 0
Action Code: DS
Action Name: DISCVRY
SEQ: 1
Start Date: 1988-12-01 00:00:00
Finish Date: 1988-12-01 00:00:00
Qual: Not reported
Current Action Lead: EPA Perf

**A4** **ROYAL TALLOW & SOAP COMPANY** **FINDS** **1023196127**
**Target** **2592 LAKEVILLE HIGHWAY** **N/A**
**Property** **PETALUMA, CA 94952**

**Site 4 of 11 in cluster A**

**Actual:** FINDS:
**6 ft.**

Registry ID: 110061031798

Environmental Interest/Information System
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

---

**A5** **DARLING INTERNATIONAL** **HAZNET** **S112907487**
**Target** **2592 LAKEVILLE HWY** **N/A**
**Property** **PETALUMA, CA 94952**

**Site 5 of 11 in cluster A**

**Actual:** HAZNET:
**6 ft.**

| | |
|---|---|
| envid: | S112907487 |
| Year: | 2000 |
| GEPAID: | CAC002252793 |
| Contact: | BILL MCMURTRY-VP |
| Telephone: | 9722814409 |
| Mailing Name: | Not reported |
| Mailing Address: | 251 O'CONNOR RIDGE BLVD STE 300 |
| Mailing City,St,Zip: | IRVING, TX 750380000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD981382732 |
| TSD County: | Not reported |
| Waste Category: | Asbestos containing waste |
| Disposal Method: | Disposal, Land Fill |
| Tons: | 1.68 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

| | |
|---|---|
| envid: | S112907487 |
| Year: | 2000 |
| GEPAID: | CAC002252793 |
| Contact: | BILL MCMURTRY-VP |
| Telephone: | 9722814409 |
| Mailing Name: | Not reported |
| Mailing Address: | 251 O'CONNOR RIDGE BLVD STE 300 |
| Mailing City,St,Zip: | IRVING, TX 750380000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD028409019 |
| TSD County: | Not reported |
| Waste Category: | Other inorganic solid waste |
| Disposal Method: | Transfer Station |
| Tons: | 0.01 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

**A6**
**Target**
**Property**

**ROYAL TALLOW & SOAP**
**2592 LAKEVILLE**
**PETALUMA, CA 94952**

**LUST** **1000148482**
**SWEEPS UST** **N/A**
**HIST UST**
**CA FID UST**

**Site 6 of 11 in cluster A**

**Actual:**
**6 ft.**

LUST REG 2:

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 49-0142 |
| Facility Status: | Case Closed |
| Case Number: | 00001359 |
| How Discovered: | Tank Closure |
| Leak Cause: | Structure Failure |
| Leak Source: | P, |
| Date Leak Confirmed: | Not reported |
| Oversight Program: | LUST |
| Prelim. Site Assesment Wokplan Submitted: | Not reported |
| Preliminary Site Assesment Began: | 9/18/1989 |
| Pollution Characterization Began: | 9/5/1990 |
| Pollution Remediation Plan Submitted: | 5/1/1995 |
| Date Remediation Action Underway: | 2/3/2000 |
| Date Post Remedial Action Monitoring Began: | 1/13/2003 |

SWEEPS UST:

| | |
|---|---|
| Status: | Active |
| Comp Number: | 1359 |
| Number: | 9 |
| Board Of Equalization: | 44-027811 |
| Referral Date: | Not reported |
| Action Date: | 10-03-89 |
| Created Date: | 03-31-89 |
| Owner Tank Id: | Not reported |
| SWRCB Tank Id: | 49-000-001359-000001 |
| Tank Status: | A |
| Capacity: | 2000 |
| Active Date: | 10-03-89 |
| Tank Use: | M.V. FUEL |
| STG: | P |
| Content: | LEADED |
| Number Of Tanks: | 2 |

| | |
|---|---|
| Status: | Active |
| Comp Number: | 1359 |
| Number: | 9 |
| Board Of Equalization: | 44-027811 |
| Referral Date: | Not reported |
| Action Date: | 10-03-89 |
| Created Date: | 03-31-89 |
| Owner Tank Id: | Not reported |
| SWRCB Tank Id: | 49-000-001359-000002 |
| Tank Status: | A |
| Capacity: | 1 |
| Active Date: | 10-03-89 |
| Tank Use: | UNKNOWN |
| STG: | P |
| Content: | UNKNOWN |
| Number Of Tanks: | Not reported |

**ROYAL TALLOW & SOAP (Continued)** **1000148482**

HIST UST:

| | |
|---|---|
| File Number: | Not reported |
| URL: | Not reported |
| Region: | STATE |
| Facility ID: | 00000038631 |
| Facility Type: | Other |
| Other Type: | SOAP CO. |
| Contact Name: | JAKE GRAY-MANAGER |
| Telephone: | 7077622731 |
| Owner Name: | DARLING-DELAWARE CO., INC. |
| Owner Address: | 4650 SO. RACINE AVENUE |
| Owner City,St,Zip: | CHICAGO, IL 60609 |
| Total Tanks: | 0001 |
| | |
| Tank Num: | 001 |
| Container Num: | 1 |
| Year Installed: | 1973 |
| Tank Capacity: | 00002000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | REGULAR |
| Container Construction Thickness: | 1/8 |
| Leak Detection: | None |

CA FID UST:

| | |
|---|---|
| Facility ID: | 49000606 |
| Regulated By: | UTNKA |
| Regulated ID: | Not reported |
| Cortese Code: | Not reported |
| SIC Code: | Not reported |
| Facility Phone: | 7077622731 |
| Mail To: | Not reported |
| Mailing Address: | 4650 RACINE S |
| Mailing Address 2: | Not reported |
| Mailing City,St,Zip: | PETALUMA 94952 |
| Contact: | Not reported |
| Contact Phone: | Not reported |
| DUNs Number: | Not reported |
| NPDES Number: | Not reported |
| EPA ID: | Not reported |
| Comments: | Not reported |
| Status: | Active |

---

**A7** **2592 LAKEVILLE HIGHWAY** **CPS-SLIC** **S121476028**
**Target Property** **2592 LAKEVILLE HIGHWAY** **CERS** **N/A**
**PETALUMA, CA**

**Site 7 of 11 in cluster A**

**Actual: 6 ft.**

CPS-SLIC:

| | |
|---|---|
| Region: | STATE |
| **Facility Status:** | **Open - Assessment & Interim Remedial Action** |
| Status Date: | 02/16/2018 |
| Global Id: | T10000011322 |
| Lead Agency: | SAN FRANCISCO BAY RWQCB (REGION 2) |
| Lead Agency Case Number: | Not reported |
| Latitude: | 38.23057 |
| Longitude: | -122.60503 |

**2592 LAKEVILLE HIGHWAY (Continued)** **S121476028**

| | |
|---|---|
| Case Type: | Cleanup Program Site |
| Case Worker: | AJK |
| Local Agency: | Not reported |
| RB Case Number: | 2149.4094 |
| File Location: | All Files are on GeoTracker or in the Local Agency Database |
| Potential Media Affected: | Soil |
| Potential Contaminants of Concern: | Lead |
| Site History: | Casa Grande Landfill was operated on the property west of the Site from possibly before 1942. The landfill stopped accepting wastes in 1991 and was officially closed in 1994. During the early 1940s and 1950s the landfill activity was close to the boundary between the two properties and it appears that some debris material may have been placed onto the Site. |

Click here to access the California GeoTracker records for this facility:

CERS TANKS:

| | |
|---|---|
| Site ID: | 433789 |
| CERS ID: | T10000011322 |
| CERS Description: | Cleanup Program Site |

Affiliation:

| | |
|---|---|
| Affiliation Type Desc: | Regional Board Caseworker |
| Entity Name: | ALYX KARPOWICZ - SAN FRANCISCO BAY RWQCB (REGION 2) |
| Entity Title: | Not reported |
| Affiliation Address: | 1515 Clay St., Suite 1400 |
| Affiliation City: | OAKLAND |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | 5106222427 |

---

**A8** **DARLING INTL INC** **HAZNET** **S112903798**
**Target** **2592 LAKEVILLE HWY** **N/A**
**Property** **PETALUMA, CA 94952**

**Site 8 of 11 in cluster A**

**Actual:** **6 ft.**

HAZNET:

| | |
|---|---|
| envid: | S112903798 |
| Year: | 2000 |
| GEPAID: | CAC002207113 |
| Contact: | BILL MCMURTRY |
| Telephone: | 9722814409 |
| Mailing Name: | Not reported |
| Mailing Address: | 251 OCONNOR RIDGE BLVD STE 300 |
| Mailing City,St,Zip: | IRVING, TX 750380000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD059494310 |
| TSD County: | Not reported |
| Waste Category: | Off-specification, aged or surplus organics |
| Disposal Method: | Transfer Station |
| Tons: | 1.31 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

**DARLING INTL INC (Continued)** **S112903798**

envid: S112903798
Year: 2000
GEPAID: CAC002207113
Contact: BILL MCMURTRY
Telephone: 9722814409
Mailing Name: Not reported
Mailing Address: 251 OCONNOR RIDGE BLVD STE 300
Mailing City,St,Zip: IRVING, TX 750380000
Gen County: Not reported
TSD EPA ID: UTD991301748
TSD County: Not reported
Waste Category: Waste oil and mixed oil
Disposal Method: Not reported
Tons: 0.5
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Sonoma

envid: S112903798
Year: 2000
GEPAID: CAC002207113
Contact: BILL MCMURTRY
Telephone: 9722814409
Mailing Name: Not reported
Mailing Address: 251 OCONNOR RIDGE BLVD STE 300
Mailing City,St,Zip: IRVING, TX 750380000
Gen County: Not reported
TSD EPA ID: CAD059494310
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Transfer Station
Tons: 0.15
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Sonoma

envid: S112903798
Year: 2000
GEPAID: CAC002207113
Contact: BILL MCMURTRY
Telephone: 9722814409
Mailing Name: Not reported
Mailing Address: 251 OCONNOR RIDGE BLVD STE 300
Mailing City,St,Zip: IRVING, TX 750380000
Gen County: Not reported
TSD EPA ID: CAD059494310
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Disposal, Other
Tons: 0.04
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Sonoma

envid: S112903798
Year: 2000
GEPAID: CAC002207113

**DARLING INTL INC (Continued)** **S112903798**

| | |
|---|---|
| Contact: | BILL MCMURTRY |
| Telephone: | 9722814409 |
| Mailing Name: | Not reported |
| Mailing Address: | 251 OCONNOR RIDGE BLVD STE 300 |
| Mailing City,St,Zip: | IRVING, TX 750380000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD059494310 |
| TSD County: | Not reported |
| Waste Category: | Unspecified oil-containing waste |
| Disposal Method: | Transfer Station |
| Tons: | 0.9 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

Click this hyperlink while viewing on your computer to access
4 additional CA_HAZNET: record(s) in the EDR Site Report.

---

**A9** **ROYAL TALLOW & SOAP CO** **RGA LUST** **S114679097**
**Target Property** **2592 LAKEVILLE HWY** **N/A**
**PETALUMA, CA**

**Site 9 of 11 in cluster A**

**Actual: 6 ft.**

RGA LUST:

| | | |
|---|---|---|
| 1996 | ROYAL TALLOW & SOAP CO | 2592 LAKEVILLE HWY |
| 1995 | ROYAL TALLOW & SOAP CO | 2592 LAKEVILLE HWY |
| 1994 | ROYAL TALLOW & SOAP CO | 2592 LAKEVILLE HWY |
| 1993 | ROYAL TALLOW & SOAP CO | 2592 LAKEVILLE HWY |
| 1992 | ROYAL TALLOW & SOAP CO | 2592 LAKEVILLE HWY |

---

**A10** **ROYAL TALLOW & SOAP CO.** **RGA LUST** **S114679095**
**Target Property** **2592 LAKEVILLE HWY** **N/A**
**PETALUMA, CA**

**Site 10 of 11 in cluster A**

**Actual: 6 ft.**

RGA LUST:

| | | |
|---|---|---|
| 2012 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |
| 2011 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |
| 2010 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |
| 2009 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |
| 2008 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |
| 2007 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |
| 2006 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |
| 2005 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |
| 2003 | ROYAL TALLOW & SOAP CO. | 2592 LAKEVILLE HWY |

**A11** **ROYAL TALLOW & SOAP COMPANY** **RGA LUST** **S114679098**
**Target** **2592 LAKEVILLE HWY** **N/A**
**Property** **PETALUMA, CA**

**Site 11 of 11 in cluster A**

**Actual:** **6 ft.**

RGA LUST:

| | | |
|---|---|---|
| 2002 | ROYAL TALLOW & SOAP COMPANY | 2592 LAKEVILLE HWY |
| 2001 | ROYAL TALLOW & SOAP COMPANY | 2592 LAKEVILLE HWY |
| 2000 | ROYAL TALLOW & SOAP COMPANY | 2592 LAKEVILLE HWY |
| 1998 | ROYAL TALLOW & SOAP COMPANY | 2592 LAKEVILLE HWY |
| 1997 | ROYAL TALLOW & SOAP COMPANY | 2592 LAKEVILLE HWY |

---

**NPL** **SOLA OPTICAL USA, INC.** **Delisted NPL** **1001075498**
**Region** **3600 LAKEVILLE HWY** **SEMS** **CAD981171523**
**ENE** **PETALUMA, CA 94952** **RCRA-SQG**
**1/2-1** **US ENG CONTROLS**
**2802 ft.** **US INST CONTROL**
**ROD**
**PRP**
**FINDS**
**HAZNET**

Delisted NPL:

| | |
|---|---|
| EPA ID: | CAD981171523 |
| Site ID: | 902280 |
| EPA Region: | 9 |
| Federal: | No |
| Deleted Date: | 2013-10-31 00:00:00 |
| Latitude: | 38.2332 |
| Longitude: | -122.5931 |

Category Details:

| | |
|---|---|
| NPL Status: | Currently on the Final NPL |
| Category Description: | Depth To Aquifer-> 10 And <= 25 Feet |
| Category Value: | 15 FTBGS |

| | |
|---|---|
| NPL Status: | Currently on the Final NPL |
| Category Description: | Distance To Nearest Population-0 Miles (On Site) |
| Category Value: | 0 |

Site Details:

| | |
|---|---|
| Site Name: | SOLA OPTICAL USA, INC. |
| Site Status: | Final |
| Site Zip: | 94952 |
| Site City: | PETALUMA |
| Site State: | CA |
| Federal Site: | No |
| Site County: | SONOMA |
| EPA Region: | 09 |
| Date Proposed: | 06/24/88 |
| Date Deleted: | Not reported |
| Date Finalized: | 02/21/90 |

Substance Details:

| | |
|---|---|
| NPL Status: | Currently on the Final NPL |
| Substance ID: | Not reported |
| Substance: | Not reported |

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

CAS #: Not reported
Pathway: Not reported
Scoring: Not reported

NPL Status: Currently on the Final NPL
Substance ID: C321
Substance: TRICHLOROETHANE
CAS #: 25323-89-1
Pathway: GROUND WATER PATHWAY
Scoring: 4

NPL Status: Currently on the Final NPL
Substance ID: U076
Substance: DICHLOROETHANE, 1,1-
CAS #: 75-34-3
Pathway: GROUND WATER PATHWAY
Scoring: 2

NPL Status: Currently on the Final NPL
Substance ID: U078
Substance: DICHLOROETHENE, 1,1-
CAS #: 75-35-4
Pathway: GROUND WATER PATHWAY
Scoring: 4

NPL Status: Currently on the Final NPL
Substance ID: U080
Substance: METHYLENE CHLORIDE
CAS #: 75-09-2
Pathway: NO PATHWAY INDICATED
Scoring: 1

Summary Details:

Conditions at proposal June 24, 1988): Sola Optical USA, Inc., has manufactured optical lenses at its 35-acre facility at 3600 Lakeville Highway, Petaluma, Petaluma County, California, since 1978. In May 1982, the California Department of Health Services identified acetone in a well on the Sola property. Subsequently, consultants for Sola Optical reported that soil adjacent to six underground solvent storage tanks at the facility was contaminated with trichloroethane TCA) and methylene chloride. In 1985, Sola removed the tanks and confirmed that shallow ground water under the site was contaminated with volatile organic compounds, including 1,1-dichloroethylene, TCA, and 1,1-dichloroethane. A public well, Petaluma Station 5 City Well, is approximately 500 feet from contaminated wells on-site. The well is joined to the Petaluma Water Department distribution system, which serves an estimated 50,000 people. In 1986 and 1987, the well contained low levels of TCA and other solvents in several samples taken by the California Department of Health Services and by Sola. Tests conducted in November 1986 by the California State Water Resources Control Board showed a hydraulic connection between theStation 5 well and several on-site contaminated wells, establishing the potential for site contaminants to migrate into the Station 5 well.
In May 1985, the California Regional Water Quality Control Board issued Waste Discharge Requirements calling for Sola to conduct ground water studies. In April 1987, the board issued Site Cleanup Requirements calling for Sola to determine the lateral and vertical extent of ground water contamination and to propose remedial action alternatives. Status February 21, 1990): In response to the April 1987 requirements, Sola has installed nine new

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

monitoring wells and seven extraction wells and has begun to operate a system to pump shallow ground water to the surface and treat it with activated carbon to remove VOGs. To improve the system s efficiency, the Station 5 well is not pumped while the system operates. On October 2, 1989, EPA and Sola signed an Administrative Order on Consent under CERCLA Sections 104and 122 for Sola to conduct a remedial investigation/feasibility study to determine the type and extent of contamination at the site and identify alternatives for remedial action.

Site Status Details:
- NPL Status: Final
- Proposed Date: 06/24/1988
- Final Date: 02/21/1990
- Deleted Date: Not reported

Narratives Details:
- NPL Name: SOLA OPTICAL USA, INC.
- City: PETALUMA
- State: CA

SEMS:
- Site ID: 902280
- EPA ID: CAD981171523
- Cong District: Not reported
- FIPS Code: 6097
- Latitude: 38.233199999999997
- Longitude: -122.59310000000001
- FF: N
- NPL: Deleted from the Final NPL
- Non NPL Status: Not reported

SEMS Detail:
- Region: 9
- Site ID: 902280
- EPA ID: CAD981171523
- Site Name: SOLA OPTICAL USA, INC.
- NPL: D
- FF: N
- OU: 1
- Action Code: RA
- Action Name: RA
- SEQ: 1
- Start Date: 2007-09-27 00:00:00
- Finish Date: 5/8/2013
- Qual: Not reported
- Current Action Lead: EPA Perf In-Hse

- Region: 9
- Site ID: 902280
- EPA ID: CAD981171523
- Site Name: SOLA OPTICAL USA, INC.
- NPL: D
- FF: N
- OU: 0
- Action Code: HR
- Action Name: HAZRANK

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

SEQ: 1
Start Date: 1987-06-01 00:00:00
Finish Date: 6/1/1987
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 0
Action Code: RS
Action Name: RV ASSESS
SEQ: 2
Start Date: 1991-05-28 00:00:00
Finish Date: 5/28/1991
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 1
Action Code: ED
Action Name: R/H ASMT
SEQ: 1
Start Date: 1991-02-01 00:00:00
Finish Date: 5/3/1991
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 1
Action Code: AR
Action Name: ADMIN REC
SEQ: 1
Start Date: 1991-05-25 00:00:00
Finish Date: Not reported
Qual: E
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

| | |
|---|---|
| OU: | 0 |
| Action Code: | MA |
| Action Name: | ST COOP |
| SEQ: | 1 |
| Start Date: | 1991-09-30 00:00:00 |
| Finish Date: | Not reported |
| Qual: | Not reported |
| Current Action Lead: | EPA Perf |
| | |
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | SI |
| Action Name: | SI |
| SEQ: | 1 |
| Start Date: | 1987-06-01 00:00:00 |
| Finish Date: | 6/1/1987 |
| Qual: | H |
| Current Action Lead: | EPA Perf |
| | |
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | CR |
| Action Name: | CI |
| SEQ: | 1 |
| Start Date: | 1989-06-01 00:00:00 |
| Finish Date: | 9/27/1991 |
| Qual: | Not reported |
| Current Action Lead: | EPA Perf |
| | |
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | NF |
| Action Name: | NPL FINL |
| SEQ: | 1 |
| Start Date: | 1990-02-21 00:00:00 |
| Finish Date: | 2/21/1990 |
| Qual: | Not reported |
| Current Action Lead: | EPA Perf |
| | |
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

| | |
|---|---|
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | CM |
| Action Name: | PCOR |
| SEQ: | 1 |
| Start Date: | 1992-08-14 00:00:00 |
| Finish Date: | 8/14/1992 |
| Qual: | Not reported |
| Current Action Lead: | EPA Perf |

| | |
|---|---|
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | DS |
| Action Name: | DISCVRY |
| SEQ: | 1 |
| Start Date: | 1987-06-01 00:00:00 |
| Finish Date: | 6/1/1987 |
| Qual: | Not reported |
| Current Action Lead: | EPA Perf |

| | |
|---|---|
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | TU |
| Action Name: | NOID |
| SEQ: | 1 |
| Start Date: | 2013-07-24 00:00:00 |
| Finish Date: | 7/24/2013 |
| Qual: | Not reported |
| Current Action Lead: | EPA Perf |

| | |
|---|---|
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | PA |
| Action Name: | PA |
| SEQ: | 1 |
| Start Date: | 1987-06-01 00:00:00 |
| Finish Date: | 6/1/1987 |
| Qual: | H |
| Current Action Lead: | EPA Perf |

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

| | |
|---|---|
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | RS |
| Action Name: | RV ASSESS |
| SEQ: | 1 |
| Start Date: | 1989-08-03 00:00:00 |
| Finish Date: | 8/3/1989 |
| Qual: | Not reported |
| Current Action Lead: | EPA Perf |

| | |
|---|---|
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 1 |
| Action Code: | RO |
| Action Name: | ROD |
| SEQ: | 1 |
| Start Date: | 1991-09-27 00:00:00 |
| Finish Date: | 9/27/1991 |
| Qual: | R |
| Current Action Lead: | EPA Perf |

| | |
|---|---|
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | FE |
| Action Name: | 5 YEAR |
| SEQ: | 2 |
| Start Date: | 2005-06-30 00:00:00 |
| Finish Date: | 9/28/2005 |
| Qual: | Not reported |
| Current Action Lead: | EPA Perf |

| | |
|---|---|
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 0 |
| Action Code: | CQ |
| Action Name: | CLSOUT R |
| SEQ: | 1 |
| Start Date: | 2013-05-08 00:00:00 |
| Finish Date: | 5/8/2013 |

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 0
Action Code: AR
Action Name: ADMIN REC
SEQ: 2
Start Date: 2000-08-10 00:00:00
Finish Date: Not reported
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 0
Action Code: CR
Action Name: CI
SEQ: 2
Start Date: 2006-02-16 00:00:00
Finish Date: 3/10/2006
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 0
Action Code: FE
Action Name: 5 YEAR
SEQ: 3
Start Date: 2010-09-24 00:00:00
Finish Date: 9/24/2010
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 0
Action Code: ND
Action Name: DELETION

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

SEQ: 1
Start Date: 2013-07-24 00:00:00
Finish Date: 10/31/2013
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 0
Action Code: FE
Action Name: 5 YEAR
SEQ: 1
Start Date: 2000-03-30 00:00:00
Finish Date: 9/29/2000
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 0
Action Code: NP
Action Name: PROPOSED
SEQ: 1
Start Date: 1988-06-24 00:00:00
Finish Date: 6/24/1988
Qual: Not reported
Current Action Lead: EPA Perf

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 1
Action Code: OM
Action Name: OM
SEQ: 1
Start Date: 2007-09-27 00:00:00
Finish Date: 5/8/2013
Qual: Not reported
Current Action Lead: EPA Ovrsght

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

OU: 1
Action Code: BF
Action Name: PRP RA
SEQ: 2
Start Date: 2008-02-20 00:00:00
Finish Date: 5/29/2012
Qual: Not reported
Current Action Lead: EPA Ovrsght

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 1
Action Code: BE
Action Name: PRP RD
SEQ: 2
Start Date: 2007-09-27 00:00:00
Finish Date: 2/20/2008
Qual: Not reported
Current Action Lead: EPA Ovrsght

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 1
Action Code: BE
Action Name: PRP RD
SEQ: 1
Start Date: 1991-09-27 00:00:00
Finish Date: 9/27/1991
Qual: Not reported
Current Action Lead: EPA Ovrsght

Region: 9
Site ID: 902280
EPA ID: CAD981171523
Site Name: SOLA OPTICAL USA, INC.
NPL: D
FF: N
OU: 1
Action Code: BF
Action Name: PRP RA
SEQ: 1
Start Date: 1991-09-27 00:00:00
Finish Date: 9/27/1991
Qual: Not reported
Current Action Lead: EPA Ovrsght

Region: 9
Site ID: 902280
EPA ID: CAD981171523

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

| | |
|---|---|
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 1 |
| Action Code: | ME |
| Action Name: | PRP LR |
| SEQ: | 1 |
| Start Date: | 2008-02-20 00:00:00 |
| Finish Date: | 5/8/2013 |
| Qual: | Not reported |
| Current Action Lead: | EPA Ovrsght |

| | |
|---|---|
| Region: | 9 |
| Site ID: | 902280 |
| EPA ID: | CAD981171523 |
| Site Name: | SOLA OPTICAL USA, INC. |
| NPL: | D |
| FF: | N |
| OU: | 1 |
| Action Code: | BD |
| Action Name: | PRP RI/FS |
| SEQ: | 1 |
| Start Date: | 1989-10-03 00:00:00 |
| Finish Date: | 9/27/1991 |
| Qual: | Not reported |
| Current Action Lead: | EPA Ovrsght |

RCRA-SQG:

| | |
|---|---|
| Date form received by agency: | 10/12/2000 |
| Facility name: | SOLA OPTICAL USA INC |
| Site name: | SOLA OPTICAL USA, INC. |
| Facility address: | 1500 CADER LANE<br>PETALUMA, CA 94954 |
| EPA ID: | CAD981171523 |
| Contact: | CLAIRE M. MCCARTHY |
| Contact address: | Not reported<br>Not reported |
| Contact country: | US |
| Contact telephone: | 707-763-9911 |
| Telephone ext.: | 6218 |
| Contact email: | Not reported |
| EPA Region: | 09 |
| Land type: | Private |
| Classification: | Small Small Quantity Generator |
| Description: | Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time |

Handler Activities Summary:

| | |
|---|---|
| U.S. importer of hazardous waste: | No |
| Mixed waste (haz. and radioactive): | No |
| Recycler of hazardous waste: | No |
| Transporter of hazardous waste: | No |

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/04/1999
Site name: SOLA OPTICAL USA, INC.
Classification: Large Quantity Generator

Date form received by agency: 09/01/1996
Site name: SOLA OPTICAL USA INC
Classification: Large Quantity Generator

Date form received by agency: 09/01/1996
Site name: SOLA OPTICAL USA INC
Classification: Small Quantity Generator

Date form received by agency: 02/16/1996
Site name: SOLA OPTICAL USA, INC.
Classification: Large Quantity Generator

Date form received by agency: 11/14/1995
Site name: SOLA OPTICAL USA INC
Classification: Large Quantity Generator

Date form received by agency: 03/28/1994
Site name: SOLA OPTICAL USA. INC.
Classification: Large Quantity Generator

Date form received by agency: 02/26/1992
Site name: SOLA OPTICAL USA INC
Classification: Large Quantity Generator

Date form received by agency: 04/11/1990
Site name: SOLA OPTICAL
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: F - 262.30-34.C
Area of violation: Generators - General
Date violation determined: 12/05/2000
Date achieved compliance: 09/30/2002
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 09/30/2002
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 262.40-43.D
Area of violation: Generators - General
Date violation determined: 12/05/2000
Date achieved compliance: 09/30/2002
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 09/30/2002
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 262.30-34.C
Area of violation: Generators - General
Date violation determined: 12/05/2000
Date achieved compliance: 09/30/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/10/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 262.40-43.D
Area of violation: Generators - General
Date violation determined: 12/05/2000
Date achieved compliance: 09/30/2002
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: 01/04/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 262.40-43.D
Area of violation: Generators - General
Date violation determined: 12/05/2000
Date achieved compliance: 09/30/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/10/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 262.30-34.C
Area of violation: Generators - General
Date violation determined: 12/05/2000
Date achieved compliance: 09/30/2002
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: 01/04/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 12/05/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 09/30/2002
Evaluation lead agency: EPA

US ENG CONTROLS:
EPA ID: CAD981171523
Site ID: 0902280
Name: SOLA OPTICAL USA, INC.
Address: 3600 LAKEVILLE HWY
PETALUMA, CA 94952
EPA Region: 09
County: SONOMA
Event Code: Not reported
Actual Date: 06/30/2007
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 09/27/1991
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Carbon Adsorption
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 09/27/1991
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Discharge
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 09/27/1991
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 09/27/1991
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Operations & Maintenance (O&M)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 09/27/1991
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Publicly Owned Treatment Works (POTW)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 09/27/1991
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Pump And Treat
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 03/30/2007
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 03/30/2007
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Natural Attenuation
Contact Name: Not reported

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

Contact Phone and Ext: Not reported
Event Code Description: Not reported

US INST CONTROL:

| | |
|---|---|
| EPA ID: | CAD981171523 |
| Site ID: | 0902280 |
| Name: | SOLA OPTICAL USA, INC. |
| Action Name: | ROD Amendment |
| Address: | 3600 LAKEVILLE HWY<br>PETALUMA, CA 94952 |
| EPA Region: | 09 |
| County: | SONOMA |
| Event Code: | Not reported |
| Inst. Control: | Covenant |
| Actual Date: | 06/30/2007 |
| Complet. Date: | 03/30/2007 |
| Operable Unit: | 01 |
| Contaminated Media : | Groundwater |
| Contact Name : | Not reported |
| Contact Phone and Ext : | Not reported |
| Event Code Description: | Not reported |

| | |
|---|---|
| EPA ID: | CAD981171523 |
| Site ID: | 0902280 |
| Name: | SOLA OPTICAL USA, INC. |
| Action Name: | ROD Amendment |
| Address: | 3600 LAKEVILLE HWY<br>PETALUMA, CA 94952 |
| EPA Region: | 09 |
| County: | SONOMA |
| Event Code: | Not reported |
| Inst. Control: | Groundwater use/well drilling regulation |
| Actual Date: | 06/30/2007 |
| Complet. Date: | 03/30/2007 |
| Operable Unit: | 01 |
| Contaminated Media : | Groundwater |
| Contact Name : | Not reported |
| Contact Phone and Ext : | Not reported |
| Event Code Description: | Not reported |

ROD:

Full-text of USEPA Record of Decision(s) is available from EDR.

PRP:

PRP name: PILKINGTON VISIONCARE, INC.
PILKINGTON VISIONCARE, INC.
SOLA OPTICAL USA, INC.
SOLA OPTICAL USA, INC.

FINDS:

Registry ID: 110064129125

Environmental Interest/Information System

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

California Department of Toxic Substances Control EnviroStor System (DTSC-EnviroStor) is an online search and Geographic Information System (GIS) tool for identifying sites that have known contamination or sites for which there may be reasons to investigate further. The EnviroStor database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites.

SUPERFUND NPL

STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

HAZNET:

| | |
|---|---|
| envid: | 1001075498 |
| Year: | 2001 |
| GEPAID: | CAD981171523 |
| Contact: | ROMAN STARNO-DIR OF FACILITIES |
| Telephone: | 7077639911 |
| Mailing Name: | Not reported |
| Mailing Address: | 2277 PINE VIEW WAY |
| Mailing City,St,Zip: | PETALUMA, CA 949540000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD009452657 |
| TSD County: | Not reported |
| Waste Category: | Unspecified organic liquid mixture |
| Disposal Method: | Treatment, Incineration |
| Tons: | 1.32 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

| | |
|---|---|
| envid: | 1001075498 |
| Year: | 2001 |
| GEPAID: | CAD981171523 |
| Contact: | ROMAN STARNO-DIR OF FACILITIES |
| Telephone: | 7077639911 |
| Mailing Name: | Not reported |
| Mailing Address: | 2277 PINE VIEW WAY |
| Mailing City,St,Zip: | PETALUMA, CA 949540000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD009452657 |
| TSD County: | Not reported |
| Waste Category: | Polymeric resin waste |
| Disposal Method: | Treatment, Incineration |
| Tons: | 0.22 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

| | |
|---|---|
| envid: | 1001075498 |
| Year: | 2001 |
| GEPAID: | CAD981171523 |

**SOLA OPTICAL USA, INC. (Continued)** **1001075498**

| | |
|---|---|
| Contact: | ROMAN STARNO-DIR OF FACILITIES |
| Telephone: | 7077639911 |
| Mailing Name: | Not reported |
| Mailing Address: | 2277 PINE VIEW WAY |
| Mailing City,St,Zip: | PETALUMA, CA 949540000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD009452657 |
| TSD County: | Not reported |
| Waste Category: | Polymeric resin waste |
| Disposal Method: | Recycler |
| Tons: | 3.66 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

| | |
|---|---|
| envid: | 1001075498 |
| Year: | 2001 |
| GEPAID: | CAD981171523 |
| Contact: | ROMAN STARNO-DIR OF FACILITIES |
| Telephone: | 7077639911 |
| Mailing Name: | Not reported |
| Mailing Address: | 2277 PINE VIEW WAY |
| Mailing City,St,Zip: | PETALUMA, CA 949540000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD009452657 |
| TSD County: | Not reported |
| Waste Category: | Polymeric resin waste |
| Disposal Method: | Disposal, Land Fill |
| Tons: | 0.15 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

| | |
|---|---|
| envid: | 1001075498 |
| Year: | 2001 |
| GEPAID: | CAD981171523 |
| Contact: | ROMAN STARNO-DIR OF FACILITIES |
| Telephone: | 7077639911 |
| Mailing Name: | Not reported |
| Mailing Address: | 2277 PINE VIEW WAY |
| Mailing City,St,Zip: | PETALUMA, CA 949540000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAD009452657 |
| TSD County: | Not reported |
| Waste Category: | Organic monomer waste (includes unreacted resins) |
| Disposal Method: | Treatment, Incineration |
| Tons: | 4.58 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

Click this hyperlink while viewing on your computer to access
139 additional CA_HAZNET: record(s) in the EDR Site Report.

**12**
**WNW**
**< 1/8**
**0.017 mi.**
**88 ft.**

**CASA GRANDE LANDFILL**
**WEST END OF CASA GRANDE ROAD**
**PETALUMA, CA 94952**

**ENVIROSTOR** **S100186370**
**SWF/LF** **N/A**
**Financial Assurance**

**Relative:**
**Higher**

**Actual:**
**13 ft.**

ENVIROSTOR:

| | |
|---|---|
| Facility ID: | 49490012 |
| Status: | Refer: RWQCB |
| Status Date: | 05/11/1988 |
| Site Code: | Not reported |
| Site Type: | Historical |
| Site Type Detailed: | * Historical |
| Acres: | Not reported |
| NPL: | NO |
| Regulatory Agencies: | NONE SPECIFIED |
| Lead Agency: | NONE SPECIFIED |
| Program Manager: | Not reported |
| Supervisor: | Referred - Not Assigned |
| Division Branch: | Cleanup Berkeley |
| Assembly: | Not reported |
| Senate: | Not reported |
| Special Program: | * Rural County Survey Program |
| Restricted Use: | NO |
| Site Mgmt Req: | NONE SPECIFIED |
| Funding: | Not reported |
| Latitude: | 38.23104 |
| Longitude: | -122.6070 |
| APN: | NONE SPECIFIED |
| Past Use: | NONE SPECIFIED |
| Potential COC: | NONE SPECIFIED |
| Confirmed COC: | NONE SPECIFIED |
| Potential Description: | NONE SPECIFIED |
| Alias Name: | 110013911437 |
| Alias Type: | EPA (FRS #) |
| Alias Name: | 49490012 |
| Alias Type: | Envirostor ID Number |

Completed Info:

| | |
|---|---|
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |
| Completed Document Type: | Site Screening |
| Completed Date: | 05/11/1988 |
| Comments: | SITE SCREENING DONE CALDERON LIST RANK 14 FOR SWAT |
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |
| Completed Document Type: | * Discovery |
| Completed Date: | 04/26/1988 |
| Comments: | FACILITY IDENTIFIED SWIS 49 AA 0009 T5N R7W S35 |
| Future Area Name: | Not reported |
| Future Sub Area Name: | Not reported |
| Future Document Type: | Not reported |
| Future Due Date: | Not reported |
| Schedule Area Name: | Not reported |
| Schedule Sub Area Name: | Not reported |
| Schedule Document Type: | Not reported |
| Schedule Due Date: | Not reported |
| Schedule Revised Date: | Not reported |

**CASA GRANDE LANDFILL (Continued)** **S100186370**

SWF/LF (SWIS):

| | |
|---|---|
| Facility ID: | 49-AA-0009 |
| Lat/Long: | 38.22944 / -122.60861 |
| Owner Name: | City Of Petaluma Street Dept |
| Owner Telephone: | 7077784303 |
| Owner Address: | Not reported |
| Owner Address2: | P.O. Box 61 |
| Owner City,St,Zip: | Petaluma, CA 94953 |
| Operational Status: | Closed |
| Operator: | City Of Petaluma Street Dept |
| Operator Phone: | 7077784303 |
| Operator Address: | Not reported |
| Operator Address2: | P.O. Box 61 |
| Operator City,St,Zip: | Petaluma, CA 94953 |
| Permit Date: | 10/25/1985 |
| Permit Status: | Permitted |
| Permitted Acreage: | 21 |
| Activity: | Solid Waste Disposal Site |
| Regulation Status: | Permitted |
| Landuse Name: | Wetlands,Park,Open Space - Irrigated |
| GIS Source: | Map |
| Category: | Disposal |
| Unit Number: | 01 |
| Inspection Frequency: | Quarterly |
| Accepted Waste: | Construction/demolition,Green Materials |
| Closure Date: | 01/01/1993 |
| Closure Type: | Actual |
| Disposal Acreage: | 0 |
| SWIS Num: | 49-AA-0009 |
| Waste Discharge Requirement Num: | Not reported |
| Program Type: | Financial Assurance Responsibilities |
| Permitted Throughput with Units: | 16 |
| Actual Throughput with Units: | Cu Yards/day |
| Permitted Capacity with Units: | 0 |
| Remaining Capacity: | 0 |
| Remaining Capacity with Units: | Not reported |
| Lat/Long: | 38.22944 / -122.60861 |

CA Financial Assurance 2:

| | |
|---|---|
| Region: | 2 |
| SWIS_NO: | 49-AA-0009 |
| Closure Approved: | Yes |
| Closure Inf Coverage Date: | Not reported |
| Closure Plan Coverage: | $475,522.00 |
| Closure Plan Date: | 10/16/1994 |
| PostClose Approved: | Yes |
| PostClose Adequacy Date: | 06/01/1994 |
| PostClose Inf Coverage: | $1,215,967.00 |
| PostClose Inf Coverage Date: | 06/01/2007 |
| CorActCoverage: | $0.00 |
| CorActApproved: | No |
| CorAct Mec Adequacy Date: | Not reported |
| CorAct Inf Coverage: | $0.00 |
| CorActPlanCoverage: | $113,000.00 |
| CorAct Plan Date: | 11/01/2015 |
| Lia Coverage: | $0.00 |

**CASA GRANDE LANDFILL (Continued)** **S100186370**

| | |
|---|---|
| Lia Approved: | No |
| Review: | 04/20/1995 |
| Closure Mechanism A: | Not reported |
| Closure Mechanism B: | Not reported |
| Closure Coverage: | $0.00 |
| Closure Adequacy: | Not reported |
| Closure Inflation Estimate: | $0.00 |
| Post Closure Mechanism A: | PLEDGE OF REVENUE |
| Post Closure Established A: | 01/09/1995 |
| Post Closure Mechanism B: | Not reported |
| Post Closure Coverate: | $1,215,967.00 |
| Post Closure Adequacy: | Not reported |
| Corrective Action Extablished A: | Not reported |
| Corrective Actiont Coverage: | $0.00 |
| Corrective Action Approved: | No |
| Corrective Action Inflation Estimate: | $0.00 |
| Corrective Action Inflationdate: | Not reported |
| Corrective Action Plan Estimate: | $113,000.00 |
| Liability Mechanism A: | Not reported |
| Liability Established A: | Not reported |
| Liability Mechanism B: | Not reported |
| CostAnniversary: | Not reported |
| ClosureEstablishedA: | Not reported |
| ClosureEstablishedB: | Not reported |
| ClosureDisbursement: | 0 |
| PostClosureEstablishedB: | Not reported |
| PostClosureDisbursement: | 0 |
| CorrectiveActionMechanismA: | Not reported |
| CorrectiveActionMechanismB: | Not reported |
| CorrectiveActionExtablishedB: | Not reported |
| CorrectiveActiontDisbursement: | 0 |
| LiabilityEstabllishedB: | Not reported |
| LiabilityAdequacy: | Not reported |
| Responsible Party: | Not reported |
| Provider: | Not reported |
| Contact: | Not reported |

---

**B13** **SKOFF TRUCKING** **UST** **U003949082**
**NW** **1 CASA GRANDE ROAD** **N/A**
**< 1/8** **PETALUMA, CA 94954**
**0.028 mi.**
**148 ft.** **Site 1 of 9 in cluster B**

**Relative:** UST:
**Higher**

**Actual:**
**12 ft.**

| | |
|---|---|
| Facility ID: | 600028 |
| Permitting Agency: | PETALUMA, CITY OF |
| Latitude: | 38.233286 |
| Longitude: | -122.606299 |

**B14**
**NW**
**< 1/8**
**0.028 mi.**
**148 ft.**

**SKOFF TRUCKING**
**1 CASA GRANDE RD**
**PETALUMA, CA 94953**

**Site 2 of 9 in cluster B**

**HIST UST** **U001600674**
**CERS** **N/A**

**Relative:**
**Higher**

**Actual:**
**12 ft.**

HIST UST:

| | |
|---|---|
| File Number: | 00021741 |
| URL: | http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021741.pdf |
| Region: | STATE |
| Facility ID: | 00000059288 |
| Facility Type: | Gas Station |
| Other Type: | Not reported |
| Contact Name: | GERALD SKOFF |
| Telephone: | 7077628543 |
| Owner Name: | SKOFF TRUCKING |
| Owner Address: | #1 CASA GRANDE RD |
| Owner City,St,Zip: | PETALUMA, CA 94953 |
| Total Tanks: | 0006 |
| | |
| Tank Num: | 001 |
| Container Num: | #1 |
| Year Installed: | 1977 |
| Tank Capacity: | 00012000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | DIESEL |
| Container Construction Thickness: | 1/4 |
| Leak Detection: | Stock Inventor, Pressure Test |
| | |
| Tank Num: | 002 |
| Container Num: | #2 |
| Year Installed: | 1980 |
| Tank Capacity: | 00012000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | DIESEL |
| Container Construction Thickness: | 1/4 |
| Leak Detection: | None |
| | |
| Tank Num: | 003 |
| Container Num: | #3 |
| Year Installed: | 1980 |
| Tank Capacity: | 00012000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | DIESEL |
| Container Construction Thickness: | 1/4 |
| Leak Detection: | Stock Inventor, Pressure Test |
| | |
| Tank Num: | 004 |
| Container Num: | #4 |
| Year Installed: | 1977 |
| Tank Capacity: | 00001000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | UNLEADED |
| Container Construction Thickness: | 12 |
| Leak Detection: | Stock Inventor, Pressure Test |
| | |
| Tank Num: | 005 |
| Container Num: | #5 |
| Year Installed: | 1977 |

**SKOFF TRUCKING (Continued)** **U001600674**

Tank Capacity: 00001000
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Container Construction Thickness: 12
Leak Detection: Stock Inventor, Pressure Test

Tank Num: 006
Container Num: #6
Year Installed: 1977
Tank Capacity: 00000000
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Container Construction Thickness: 12
Leak Detection: Visual, Stock Inventor, Pressure Test

Click here for Geo Tracker PDF:

CERS TANKS:
Site ID: 230193
CERS ID: T0609700924
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Regional Board Caseworker
Entity Name: Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2)
Entity Title: Not reported
Affiliation Address: 1515 CLAY ST SUITE 1400
Affiliation City: OAKLAND
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

---

**B15** **SKOFF TRUCKING** **LUST** **S102437646**
**NW** **1 CASA GRANDE** **AST** **N/A**
**< 1/8** **PETALUMA, CA 94952** **SWEEPS UST**
**0.028 mi.** **ENF**
**148 ft.** **Site 3 of 9 in cluster B** **HIST CORTESE**

**Relative:** **Higher**

**Actual:** **12 ft.**

LUST:
Lead Agency: SONOMA COUNTY LOP
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700924
Global Id: T0609700924
Latitude: 38.2318611491
Longitude: -122.607761588
Status: Completed - Case Closed
Status Date: 05/30/2014
Case Worker: LCW
RB Case Number: 49-0161
Local Agency: SONOMA COUNTY LOP
File Location: Local Agency Warehouse
Local Case Number: 00002147
Potential Media Affect: Well used for drinking water supply
Potential Contaminants of Concern: Waste Oil / Motor / Hydraulic / Lubricating, Gasoline
Site History: Excerpts of site histroy from file reports: In 1990 two underground storage tanks (USTs) were removed. Five monitoring wells were

**SKOFF TRUCKING (Continued)** **S102437646**

installed between 1990 and 1991. In 1994, five additional USTs were removed from another area of the property. In 1999, two more USTs were removed from the property. Additional investigation occurred between 1999 and 2007. In 2006 approximately 700 to 800 cubic yards (990 tons) of soil were excavated from the site. Site meets the Low Threat Closure Policy. Site closed May 30, 2014.

LUST:
Global Id: T0609700924
Contact Type: Regional Board Caseworker
Contact Name: Regional Water Board
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

LUST:
Global Id: T0609700924
Action Type: Other
Date: 10/02/1989
Action: Leak Reported

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 05/29/2012
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 05/02/2012
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 09/29/2010
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 02/19/2014
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 05/30/2014
Action: Closure/No Further Action Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 07/28/2010
Action: Staff Letter

Global Id: T0609700924
Action Type: RESPONSE
Date: 08/08/2012
Action: Clean Up Fund - 5-Year Review Summary

**SKOFF TRUCKING (Continued)** **S102437646**

Global Id: T0609700924
Action Type: RESPONSE
Date: 04/24/2012
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 07/11/2013
Action: Technical Correspondence / Assistance / Other

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 09/29/2009
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 12/31/2013
Action: Clean Up Fund - Case Closure Review Summary Report (RSR)

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 03/11/2009
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 04/22/2014
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 02/19/2014
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 02/19/2014
Action: Staff Letter

Global Id: T0609700924
Action Type: Other
Date: 09/14/1989
Action: Leak Discovery

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 11/12/2004
Action: Notification - Public Notice of ROD/RAP/CAP

Global Id: T0609700924
Action Type: RESPONSE
Date: 02/14/2014
Action: Other Workplan - Regulator Responded

Global Id: T0609700924
Action Type: ENFORCEMENT

**SKOFF TRUCKING (Continued)** **S102437646**

Date: 09/29/2009
Action: Staff Letter

Global Id: T0609700924
Action Type: RESPONSE
Date: 05/02/2011
Action: Pilot Study/ Treatability Report

Global Id: T0609700924
Action Type: RESPONSE
Date: 01/14/2014
Action: Soil Vapor Intrusion Investigation Report

Global Id: T0609700924
Action Type: REMEDIATION
Date: 07/05/2006
Action: Excavation

Global Id: T0609700924
Action Type: RESPONSE
Date: 09/14/2009
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0609700924
Action Type: RESPONSE
Date: 02/14/2011
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0609700924
Action Type: RESPONSE
Date: 08/17/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0609700924
Action Type: RESPONSE
Date: 11/01/2013
Action: Soil Vapor Intrusion Investigation Workplan - Regulator Responded

Global Id: T0609700924
Action Type: RESPONSE
Date: 04/28/2014
Action: Well Destruction Workplan - Regulator Responded

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 07/17/2013
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 11/19/2013
Action: Staff Letter

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 02/19/2014
Action: Notification - Public Notice of Case Closure

**SKOFF TRUCKING (Continued)** **S102437646**

Global Id: T0609700924
Action Type: Other
Date: 09/05/1989
Action: Leak Stopped

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 02/19/2014
Action: LOP Case Closure Summary to RB

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 07/13/2011
Action: Staff Letter

Global Id: T0609700924
Action Type: RESPONSE
Date: 11/07/2013
Action: Soil Vapor Intrusion Investigation Workplan - Regulator Responded

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 08/29/2012
Action: Staff Letter

Global Id: T0609700924
Action Type: RESPONSE
Date: 10/02/2006
Action: CAP/RAP - Other Report

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 02/17/2006
Action: Staff Letter

Global Id: T0609700924
Action Type: RESPONSE
Date: 12/29/2009
Action: CAP/RAP - Feasibility Study Report

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 01/09/2014
Action: Technical Correspondence / Assistance / Other

Global Id: T0609700924
Action Type: ENFORCEMENT
Date: 01/22/2014
Action: Staff Letter

LUST:
Global Id: T0609700924
Status: Completed - Case Closed
Status Date: 05/30/2014

Global Id: T0609700924
Status: Open - Case Begin Date

**SKOFF TRUCKING (Continued)** **S102437646**

Status Date: 09/05/1989

Global Id: T0609700924
Status: Open - Eligible for Closure
Status Date: 01/16/2014

Global Id: T0609700924
Status: Open - Remediation
Status Date: 07/29/2004

Global Id: T0609700924
Status: Open - Remediation
Status Date: 02/13/2007

Global Id: T0609700924
Status: Open - Site Assessment
Status Date: 07/02/1990

Global Id: T0609700924
Status: Open - Site Assessment
Status Date: 08/16/1999

LUST REG 2:
Region: 2
Facility Id: 49-0161
Facility Status: Pollution Characterization
Case Number: 00002147
How Discovered: Not reported
Leak Cause: UNK
Leak Source: UNK
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 7/2/1990
Pollution Characterization Began: 8/16/1999
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0161
Closed or Referred: Y
Confirm Date: 05/30/2014
LOP Number: 00002147
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700924
APN: 005-050-037
Notes: CLOSED

AST:
Certified Unified Program Agencies: Petaluma
Owner: Skoff Trucking
Total Gallons: 13,500

**SKOFF TRUCKING (Continued)** **S102437646**

| | |
|---|---|
| CERSID: | Not reported |
| Facility ID: | Not reported |
| Business Name: | Not reported |
| Phone: | Not reported |
| Fax: | Not reported |
| Mailing Address: | Not reported |
| Mailing Address City: | Not reported |
| Mailing Address State: | Not reported |
| Mailing Address Zip Code: | Not reported |
| Operator Name: | Not reported |
| Operator Phone: | Not reported |
| Owner Phone: | Not reported |
| Owner Mail Address: | Not reported |
| Owner State: | Not reported |
| Owner Zip Code: | Not reported |
| Owner Country: | Not reported |
| Property Owner Name: | Not reported |
| Property Owner Phone: | Not reported |
| Property Owner Mailing Address: | Not reported |
| Property Owner City: | Not reported |
| Property Owner Stat : | Not reported |
| Property Owner Zip Code: | Not reported |
| Property Owner Country: | Not reported |
| EPAID: | Not reported |

SWEEPS UST:

| | |
|---|---|
| Status: | Not reported |
| Comp Number: | 2147 |
| Number: | Not reported |
| Board Of Equalization: | 44-027951 |
| Referral Date: | Not reported |
| Action Date: | Not reported |
| Created Date: | Not reported |
| Owner Tank Id: | Not reported |
| SWRCB Tank Id: | 49-000-002147-000002 |
| Tank Status: | Not reported |
| Capacity: | 1000 |
| Active Date: | Not reported |
| Tank Use: | M.V. FUEL |
| STG: | PRODUCT |
| Content: | LEADED |
| Number Of Tanks: | Not reported |

| | |
|---|---|
| Status: | Not reported |
| Comp Number: | 2147 |
| Number: | Not reported |
| Board Of Equalization: | 44-027951 |
| Referral Date: | Not reported |
| Action Date: | Not reported |
| Created Date: | Not reported |
| Owner Tank Id: | Not reported |
| SWRCB Tank Id: | 49-000-002147-000004 |
| Tank Status: | Not reported |
| Capacity: | 1000 |
| Active Date: | Not reported |
| Tank Use: | M.V. FUEL |
| STG: | PRODUCT |

**SKOFF TRUCKING (Continued)** **S102437646**

Content: LEADED
Number Of Tanks: Not reported

Status: Not reported
Comp Number: 2147
Number: Not reported
Board Of Equalization: 44-027951
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 49-000-002147-000001
Tank Status: Not reported
Capacity: 1000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: REG UNLEADED
Number Of Tanks: 3

Status: Active
Comp Number: 2147
Number: 1
Board Of Equalization: 44-027951
Referral Date: 09-15-92
Action Date: 07-06-93
Created Date: 03-31-89
Owner Tank Id: 2
SWRCB Tank Id: 49-000-002147-000003
Tank Status: A
Capacity: 12000
Active Date: 09-10-91
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: 3

Status: Active
Comp Number: 2147
Number: 1
Board Of Equalization: 44-027951
Referral Date: 09-15-92
Action Date: 07-06-93
Created Date: 03-31-89
Owner Tank Id: 5
SWRCB Tank Id: 49-000-002147-000005
Tank Status: A
Capacity: 12000
Active Date: 09-10-91
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 2147
Number: 1

**SKOFF TRUCKING (Continued)** **S102437646**

Board Of Equalization: 44-027951
Referral Date: 09-15-92
Action Date: 07-06-93
Created Date: 03-31-89
Owner Tank Id: Not reported
SWRCB Tank Id: 49-000-002147-000006
Tank Status: A
Capacity: 1000
Active Date: 10-05-89
Tank Use: OIL
STG: W
Content: WASTE OIL
Number Of Tanks: Not reported

ENF:
Region: 2
Facility Id: 261373
Agency Name: Skoff Trucking
Place Type: Facility
Place Subtype: Not reported
Facility Type: All other facilities
Agency Type: Privately-Owned Business
# Of Agencies: 1
Place Latitude: Not reported
Place Longitude: Not reported
SIC Code 1: Not reported
SIC Desc 1: Not reported
SIC Code 2: Not reported
SIC Desc 2: Not reported
SIC Code 3: Not reported
SIC Desc 3: Not reported
NAICS Code 1: Not reported
NAICS Desc 1: Not reported
NAICS Code 2: Not reported
NAICS Desc 2: Not reported
NAICS Code 3: Not reported
NAICS Desc 3: Not reported
# Of Places: 1
Source Of Facility: Reg Meas
Design Flow: Not reported
Threat To Water Quality: Not reported
Complexity: Not reported
Pretreatment: Not reported
Facility Waste Type: Not reported
Facility Waste Type 2: Not reported
Facility Waste Type 3: Not reported
Facility Waste Type 4: Not reported
Program: AGT
Program Category1: TANKS
Program Category2: Not reported
# Of Programs: 1
WDID: 2 49AGT441U
Reg Measure Id: 169540
Reg Measure Type: Unregulated
Region: 2
Order #: Not reported
Npdes# CA#: Not reported

**SKOFF TRUCKING (Continued)** **S102437646**

| | |
|---|---|
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Never Active |
| Status Date: | 02/20/2013 |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | N |
| Individual/General: | I |
| Fee Code: | Not reported |
| Direction/Voice: | Passive |
| Enforcement Id(EID): | 241464 |
| Region: | 2 |
| Order / Resolution Number: | UNKNOWN |
| Enforcement Action Type: | Staff Enforcement Letter |
| Effective Date: | 04/30/2002 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 49AGT441U |
| Description: | Notice of Noncompliance with APSA Facility has been contacted |
| Program: | AGT |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |

HIST CORTESE:

| | |
|---|---|
| Region: | CORTESE |
| Facility County Code: | 49 |
| Reg By: | LTNKA |
| Reg Id: | 49-0161 |

**B16** **SKOFF TRUCKING** **CA FID UST** **S101595336**
**NW** **1 CASA GRANDE RD** **N/A**
**< 1/8** **PETALUMA, CA 94954**
**0.028 mi.**
**148 ft.** **Site 4 of 9 in cluster B**

**Relative:**
**Higher**

**Actual:**
**12 ft.**

CA FID UST:

| | |
|---|---|
| Facility ID: | 49000622 |
| Regulated By: | UTNKA |
| Regulated ID: | Not reported |
| Cortese Code: | Not reported |
| SIC Code: | Not reported |
| Facility Phone: | 7077628543 |
| Mail To: | Not reported |
| Mailing Address: | P O BOX |
| Mailing Address 2: | Not reported |
| Mailing City,St,Zip: | PETALUMA 94954 |
| Contact: | Not reported |
| Contact Phone: | Not reported |
| DUNs Number: | Not reported |
| NPDES Number: | Not reported |
| EPA ID: | Not reported |
| Comments: | Not reported |
| Status: | Active |

---

**B17** **MARTY SKOFF TRUCKING** **AST** **A100422215**
**NW** **1 CASA GRANDE RD** **N/A**
**< 1/8** **PETALUMA, CA 94954**
**0.028 mi.**
**148 ft.** **Site 5 of 9 in cluster B**

**Relative:**
**Higher**

**Actual:**
**12 ft.**

AST:

| | |
|---|---|
| Certified Unified Program Agencies: | Not reported |
| Owner: | Marty Skoff |
| Total Gallons: | Not reported |
| CERSID: | 10131457 |
| Facility ID: | Not reported |
| Business Name: | Marty Skoff Trucking |
| Phone: | 707-762-8543 |
| Fax: | Not reported |
| Mailing Address: | 1 Casa Grande Rd |
| Mailing Address City: | Petaluma |
| Mailing Address State: | CA |
| Mailing Address Zip Code: | 94954 |
| Operator Name: | Marty Skoff |
| Operator Phone: | 707-762-8543 |
| Owner Phone: | 707-762-8543 |
| Owner Mail Address: | Same as business |
| Owner State: | ca |
| Owner Zip Code: | 94954 |
| Owner Country: | United States |
| Property Owner Name: | Not reported |
| Property Owner Phone: | Not reported |
| Property Owner Mailing Address: | Not reported |
| Property Owner City: | Not reported |
| Property Owner Stat : | Not reported |
| Property Owner Zip Code: | Not reported |
| Property Owner Country: | Not reported |
| EPAID: | 72734 |

**B18** **MARTY SKOFF TRUCKING** **CERS** **S121743069**
**NW** **1 CASA GRANDE RD** **CERS HAZ WASTE** **N/A**
**< 1/8** **PETALUMA, CA 94954** **CERS TANKS**
**0.028 mi.**
**148 ft.** **Site 6 of 9 in cluster B**

**Relative:**
**Higher**

**Actual:**
**12 ft.**

CERS TANKS:

| | |
|---|---|
| Site ID: | 133250 |
| CERS ID: | 10131457 |
| CERS Description: | Chemical Storage Facilities |

Violations:

| | |
|---|---|
| Site ID: | 133250 |
| Site Name: | Marty Skoff Trucking |
| Violation Date: | 02-14-2017 |
| Citation: | 22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f) |
| Violation Description: | Failure to properly label hazardous waste accumulation containers and portable tanks with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date. |
| Violation Notes: | Returned to compliance on 03/09/2017. |
| Violation Division: | Petaluma City Fire Department |
| Violation Program: | HW |
| Violation Source: | CERS |

| | |
|---|---|
| Site ID: | 133250 |
| Site Name: | Marty Skoff Trucking |
| Violation Date: | 07-21-2015 |
| Citation: | HSC 6.67 Multiple - California Health and Safety Code, Chapter 6.67, Section(s) Multiple |
| Violation Description: | Haz Waste Generator Program - Operations/Maintenance - General |
| Violation Notes: | Returned to compliance on 04/05/2015. |
| Violation Division: | Petaluma City Fire Department |
| Violation Program: | HW |
| Violation Source: | CERS |

Evaluation:

| | |
|---|---|
| Eval General Type: | Compliance Evaluation Inspection |
| Eval Date: | 02-14-2017 |
| Violations Found: | Yes |
| Eval Type: | Routine done by local agency |
| Eval Notes: | Not reported |
| Eval Division: | Petaluma City Fire Department |
| Eval Program: | HW |
| Eval Source: | CERS |

| | |
|---|---|
| Eval General Type: | Compliance Evaluation Inspection |
| Eval Date: | 03-10-2014 |
| Violations Found: | No |
| Eval Type: | Routine done by local agency |
| Eval Notes: | Not reported |
| Eval Division: | Petaluma City Fire Department |
| Eval Program: | HMRRP |
| Eval Source: | CERS |

| | |
|---|---|
| Eval General Type: | Compliance Evaluation Inspection |
| Eval Date: | 03-10-2014 |

**MARTY SKOFF TRUCKING (Continued)** **S121743069**

Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-21-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: remove oil from 2nd cont dispose of grease sweep as haz waste
Eval Division: Petaluma City Fire Department
Eval Program: HW
Eval Source: CERS

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Petaluma City Fire Department
Entity Title: Not reported
Affiliation Address: 11 English Street
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94952
Affiliation Phone: (707) 778-4389

Affiliation Type Desc: Environmental Contact
Entity Name: Marty Skoff
Entity Title: Not reported
Affiliation Address: PO Box 750996
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94975-0996
Affiliation Phone: (707) 695-7201

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: PO Box 750996
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94975-0996
Affiliation Phone: Not reported

Affiliation Type Desc: Identification Signer
Entity Name: Marty Skoff
Entity Title: Owner
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

**MARTY SKOFF TRUCKING (Continued)** **S121743069**

| | |
|---|---|
| Affiliation Type Desc: | Legal Owner |
| Entity Name: | Marty Skoff |
| Entity Title: | Not reported |
| Affiliation Address: | PO Box 750996 |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | United States |
| Affiliation Zip: | 94975-0996 |
| Affiliation Phone: | (707) 762-8543 |

| | |
|---|---|
| Affiliation Type Desc: | Operator |
| Entity Name: | Marty Skoff |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (707) 762-8543 |

| | |
|---|---|
| Affiliation Type Desc: | Parent Corporation |
| Entity Name: | Marty Skoff Trucking |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

CERS HAZ WASTE:

| | |
|---|---|
| Site ID: | 133250 |
| CERS ID: | 10131457 |
| CERS Description: | Hazardous Waste Generator |

Violations:

| | |
|---|---|
| Site ID: | 133250 |
| Site Name: | Marty Skoff Trucking |
| Violation Date: | 02-14-2017 |
| Citation: | 22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f) |
| Violation Description: | Failure to properly label hazardous waste accumulation containers and portable tanks with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date. |
| Violation Notes: | Returned to compliance on 03/09/2017. |
| Violation Division: | Petaluma City Fire Department |
| Violation Program: | HW |
| Violation Source: | CERS |

| | |
|---|---|
| Site ID: | 133250 |
| Site Name: | Marty Skoff Trucking |
| Violation Date: | 07-21-2015 |
| Citation: | HSC 6.67 Multiple - California Health and Safety Code, Chapter 6.67, Section(s) Multiple |

**MARTY SKOFF TRUCKING (Continued)** **S121743069**

Violation Description: Haz Waste Generator Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 04/05/2015.
Violation Division: Petaluma City Fire Department
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-14-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-10-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-10-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-21-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: remove oil from 2nd cont dispose of grease sweep as haz waste
Eval Division: Petaluma City Fire Department
Eval Program: HW
Eval Source: CERS

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Petaluma City Fire Department
Entity Title: Not reported
Affiliation Address: 11 English Street
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94952
Affiliation Phone: (707) 778-4389

Affiliation Type Desc: Environmental Contact
Entity Name: Marty Skoff

**MARTY SKOFF TRUCKING (Continued)** **S121743069**

| | |
|---|---|
| Entity Title: | Not reported |
| Affiliation Address: | PO Box 750996 |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 94975-0996 |
| Affiliation Phone: | (707) 695-7201 |
| | |
| Affiliation Type Desc: | Facility Mailing Address |
| Entity Name: | Mailing Address |
| Entity Title: | Not reported |
| Affiliation Address: | PO Box 750996 |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 94975-0996 |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Identification Signer |
| Entity Name: | Marty Skoff |
| Entity Title: | Owner |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Legal Owner |
| Entity Name: | Marty Skoff |
| Entity Title: | Not reported |
| Affiliation Address: | PO Box 750996 |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | United States |
| Affiliation Zip: | 94975-0996 |
| Affiliation Phone: | (707) 762-8543 |
| | |
| Affiliation Type Desc: | Operator |
| Entity Name: | Marty Skoff |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (707) 762-8543 |
| | |
| Affiliation Type Desc: | Parent Corporation |
| Entity Name: | Marty Skoff Trucking |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

**MARTY SKOFF TRUCKING (Continued)** **S121743069**

CERS TANKS:
Site ID: 133250
CERS ID: 10131457
CERS Description: Aboveground Petroleum Storage

Violations:
Site ID: 133250
Site Name: Marty Skoff Trucking
Violation Date: 02-14-2017
Citation: 22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description: Failure to properly label hazardous waste accumulation containers and portable tanks with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes: Returned to compliance on 03/09/2017.
Violation Division: Petaluma City Fire Department
Violation Program: HW
Violation Source: CERS

Site ID: 133250
Site Name: Marty Skoff Trucking
Violation Date: 07-21-2015
Citation: HSC 6.67 Multiple - California Health and Safety Code, Chapter 6.67, Section(s) Multiple
Violation Description: Haz Waste Generator Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 04/05/2015.
Violation Division: Petaluma City Fire Department
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-14-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-10-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-10-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department

**MARTY SKOFF TRUCKING (Continued)** **S121743069**

Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-21-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: remove oil from 2nd cont dispose of grease sweep as haz waste
Eval Division: Petaluma City Fire Department
Eval Program: HW
Eval Source: CERS

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Petaluma City Fire Department
Entity Title: Not reported
Affiliation Address: 11 English Street
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94952
Affiliation Phone: (707) 778-4389

Affiliation Type Desc: Environmental Contact
Entity Name: Marty Skoff
Entity Title: Not reported
Affiliation Address: PO Box 750996
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94975-0996
Affiliation Phone: (707) 695-7201

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: PO Box 750996
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94975-0996
Affiliation Phone: Not reported

Affiliation Type Desc: Identification Signer
Entity Name: Marty Skoff
Entity Title: Owner
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Legal Owner
Entity Name: Marty Skoff
Entity Title: Not reported
Affiliation Address: PO Box 750996

**MARTY SKOFF TRUCKING (Continued)** **S121743069**

| | |
|---|---|
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | United States |
| Affiliation Zip: | 94975-0996 |
| Affiliation Phone: | (707) 762-8543 |
| Affiliation Type Desc: | Operator |
| Entity Name: | Marty Skoff |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (707) 762-8543 |
| Affiliation Type Desc: | Parent Corporation |
| Entity Name: | Marty Skoff Trucking |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

---

**B19** **NORTH COAST ROOFING, INC.** **HIST UST** **U001600560**
**NNW** **5 CASA GRANDE RD** **N/A**
**< 1/8** **PETALUMA, CA 94952**
**0.073 mi.**
**386 ft.** **Site 7 of 9 in cluster B**

**Relative:** HIST UST:
**Higher**

**Actual:**
**13 ft.**

| | |
|---|---|
| File Number: | Not reported |
| URL: | Not reported |
| Region: | STATE |
| Facility ID: | 00000064398 |
| Facility Type: | Other |
| Other Type: | ROOFING CONTRACTOR |
| Contact Name: | Not reported |
| Telephone: | 7077628060 |
| Owner Name: | NORTH COAST ROOFING, INC. |
| Owner Address: | 5 CASA GRANDE AVE |
| Owner City,St,Zip: | PETALUMA, CA 94952 |
| Total Tanks: | 0001 |
| Tank Num: | 001 |
| Container Num: | ONE |
| Year Installed: | Not reported |
| Tank Capacity: | 00000550 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | REGULAR |
| Container Construction Thickness: | Not reported |
| Leak Detection: | None |

**B20** **NORTH COAST ROOFING INC** **HIST UST** **S118413502**
**NNW** **5 CASA GRANDE AVE** **N/A**
**< 1/8** **PETALUMA, CA 94952**
**0.073 mi.**
**386 ft.** **Site 8 of 9 in cluster B**

**Relative:**
**Higher**

**Actual:**
**13 ft.**

HIST UST:

| | |
|---|---|
| File Number: | 00021C56 |
| URL: | http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021C56.pdf |
| Region: | Not reported |
| Facility ID: | Not reported |
| Facility Type: | Not reported |
| Other Type: | Not reported |
| Contact Name: | Not reported |
| Telephone: | Not reported |
| Owner Name: | Not reported |
| Owner Address: | Not reported |
| Owner City,St,Zip: | Not reported |
| Total Tanks: | Not reported |
| Tank Num: | Not reported |
| Container Num: | Not reported |
| Year Installed: | Not reported |
| Tank Capacity: | Not reported |
| Tank Used for: | Not reported |
| Type of Fuel: | Not reported |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Not reported |

Click here for Geo Tracker PDF:

---

**B21** **WEDGE ROOFING** **CERS HAZ WASTE** **S121777539**
**NNW** **5 CASA GRANDE RD** **CERS** **N/A**
**< 1/8** **PETALUMA, CA 94954**
**0.073 mi.**
**386 ft.** **Site 9 of 9 in cluster B**

**Relative:**
**Higher**

**Actual:**
**13 ft.**

CERS HAZ WASTE:

| | |
|---|---|
| Site ID: | 407452 |
| CERS ID: | 10158087 |
| CERS Description: | Hazardous Waste Generator |

Violations:

| | |
|---|---|
| Site ID: | 407452 |
| Site Name: | Wedge Roofing |
| Violation Date: | 02-01-2016 |
| Citation: | 40 CFR 1 265.174 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.174 |
| Violation Description: | Failure to inspect hazardous waste storage areas at least weekly. |
| Violation Notes: | Returned to compliance on 03/20/2016. Hazardous materials secondary containment full of debris. |
| Violation Division: | Petaluma City Fire Department |
| Violation Program: | HW |
| Violation Source: | CERS |

Evaluation:

| | |
|---|---|
| Eval General Type: | Compliance Evaluation Inspection |
| Eval Date: | 02-01-2016 |
| Violations Found: | No |
| Eval Type: | Routine done by local agency |

**WEDGE ROOFING (Continued)** **S121777539**

Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-01-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HW
Eval Source: CERS

Coordinates:
Site ID: 407452
Facility Name: Wedge Roofing
Env Int Type Code: HMBP
Program ID: 10158087
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 38.232320
Longitude: -122.606700

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Petaluma City Fire Department
Entity Title: Not reported
Affiliation Address: 11 English Street
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94952
Affiliation Phone: (707) 778-4389

Affiliation Type Desc: Document Preparer
Entity Name: Paula Conner, Fire Inspector
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Environmental Contact
Entity Name: Dave Fischer
Entity Title: Not reported
Affiliation Address: 5 Casa Grande Rd
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94954
Affiliation Phone: (707) 763-5475

Affiliation Type Desc: Facility Mailing Address

**WEDGE ROOFING (Continued)** **S121777539**

| | |
|---|---|
| Entity Name: | Mailing Address |
| Entity Title: | Not reported |
| Affiliation Address: | 5 Casa Grande Rd |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 94954 |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Identification Signer |
| Entity Name: | Dave Fischer |
| Entity Title: | employee |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Legal Owner |
| Entity Name: | Ralph Wedge |
| Entity Title: | Not reported |
| Affiliation Address: | 5 Casa Grande Rd |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | United States |
| Affiliation Zip: | 94954 |
| Affiliation Phone: | (707) 763-5475 |
| | |
| Affiliation Type Desc: | Operator |
| Entity Name: | Ralph Wedge |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (707) 763-5475 |
| | |
| Affiliation Type Desc: | Parent Corporation |
| Entity Name: | Wedge Roofing |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

CERS TANKS:

| | |
|---|---|
| Site ID: | 407452 |
| CERS ID: | 10158087 |
| CERS Description: | Chemical Storage Facilities |

Violations:

| | |
|---|---|
| Site ID: | 407452 |

**WEDGE ROOFING (Continued)** **S121777539**

| | |
|---|---|
| Site Name: | Wedge Roofing |
| Violation Date: | 02-01-2016 |
| Citation: | 40 CFR 1 265.174 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.174 |
| Violation Description: | Failure to inspect hazardous waste storage areas at least weekly. |
| Violation Notes: | Returned to compliance on 03/20/2016. Hazardous materials secondary containment full of debris. |
| Violation Division: | Petaluma City Fire Department |
| Violation Program: | HW |
| Violation Source: | CERS |

Evaluation:

| | |
|---|---|
| Eval General Type: | Compliance Evaluation Inspection |
| Eval Date: | 02-01-2016 |
| Violations Found: | No |
| Eval Type: | Routine done by local agency |
| Eval Notes: | Not reported |
| Eval Division: | Petaluma City Fire Department |
| Eval Program: | HMRRP |
| Eval Source: | CERS |

| | |
|---|---|
| Eval General Type: | Compliance Evaluation Inspection |
| Eval Date: | 02-01-2016 |
| Violations Found: | Yes |
| Eval Type: | Routine done by local agency |
| Eval Notes: | Not reported |
| Eval Division: | Petaluma City Fire Department |
| Eval Program: | HW |
| Eval Source: | CERS |

Coordinates:

| | |
|---|---|
| Site ID: | 407452 |
| Facility Name: | Wedge Roofing |
| Env Int Type Code: | HMBP |
| Program ID: | 10158087 |
| Coord Name: | Not reported |
| Ref Point Type Desc: | Center of a facility or station. |
| Latitude: | 38.232320 |
| Longitude: | -122.606700 |

Affiliation:

| | |
|---|---|
| Affiliation Type Desc: | CUPA District |
| Entity Name: | Petaluma City Fire Department |
| Entity Title: | Not reported |
| Affiliation Address: | 11 English Street |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 94952 |
| Affiliation Phone: | (707) 778-4389 |

| | |
|---|---|
| Affiliation Type Desc: | Document Preparer |
| Entity Name: | Paula Conner, Fire Inspector |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |

**WEDGE ROOFING (Continued)** **S121777539**

| | |
|---|---|
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Environmental Contact |
| Entity Name: | Dave Fischer |
| Entity Title: | Not reported |
| Affiliation Address: | 5 Casa Grande Rd |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 94954 |
| Affiliation Phone: | (707) 763-5475 |
| | |
| Affiliation Type Desc: | Facility Mailing Address |
| Entity Name: | Mailing Address |
| Entity Title: | Not reported |
| Affiliation Address: | 5 Casa Grande Rd |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 94954 |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Identification Signer |
| Entity Name: | Dave Fischer |
| Entity Title: | employee |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Legal Owner |
| Entity Name: | Ralph Wedge |
| Entity Title: | Not reported |
| Affiliation Address: | 5 Casa Grande Rd |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | United States |
| Affiliation Zip: | 94954 |
| Affiliation Phone: | (707) 763-5475 |
| | |
| Affiliation Type Desc: | Operator |
| Entity Name: | Ralph Wedge |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (707) 763-5475 |
| | |
| Affiliation Type Desc: | Parent Corporation |
| Entity Name: | Wedge Roofing |

**WEDGE ROOFING (Continued)** **S121777539**

| | |
|---|---|
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

---

**C22** **TESORO WEST COAST CO LLC NO 68186** **RCRA-SQG** **1010561881**
**NNE** **2601 LAKEVILLE HWY** **CAR000142141**
**1/8-1/4** **PETALUMA, CA 94954**
**0.222 mi.**
**1172 ft.** **Site 1 of 7 in cluster C**

**Relative:**
**Higher**

**Actual:**
**18 ft.**

RCRA-SQG:

| | |
|---|---|
| Date form received by agency: | 05/09/2007 |
| Facility name: | TESORO WEST COAST CO LLC NO 68186 |
| Facility address: | 2601 LAKEVILLE HWY<br>PETALUMA, CA 94954 |
| EPA ID: | CAR000142141 |
| Mailing address: | 3450 S 344TH WAY<br>STE 201<br>AUBURN, WA 98001 |
| Contact: | SANDY EDWARDS |
| Contact address: | 3450 S 344TH WAY STE 201<br>AUBURN, WA 98001 |
| Contact country: | US |
| Contact telephone: | 559-585-8156 |
| Contact email: | Not reported |
| EPA Region: | 09 |
| Classification: | Small Small Quantity Generator |
| Description: | Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time |

Owner/Operator Summary:

| | |
|---|---|
| Owner/operator name: | TESORO WEST COAST COMPANY LLC |
| Owner/operator address: | Not reported<br>Not reported |
| Owner/operator country: | Not reported |
| Owner/operator telephone: | Not reported |
| Owner/operator email: | Not reported |
| Owner/operator fax: | Not reported |
| Owner/operator extension: | Not reported |
| Legal status: | Private |
| Owner/Operator Type: | Operator |
| Owner/Op start date: | 05/01/2007 |
| Owner/Op end date: | Not reported |

| | |
|---|---|
| Owner/operator name: | TESORO WEST COAST COMPANY LLC |
| Owner/operator address: | Not reported<br>Not reported |
| Owner/operator country: | Not reported |
| Owner/operator telephone: | Not reported |

**TESORO WEST COAST CO LLC NO 68186 (Continued)** **1010561881**

Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/01/2007
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D018
. Waste name: BENZENE

Historical Generators:
Date form received by agency: 03/04/2005
Site name: USA GASOLINE CORPORATION FACILITY 3703
Classification: Small Quantity Generator

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 03/13/2003
Site name: USA GASOLINE CORPORATION FACILITY 3703
Classification: Small Quantity Generator

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

---

**C23** **TESORO (MOBIL) 68186** **CERS** **S121748195**
**NNE** **2601 LAKEVILLE HIWAY** **CERS HAZ WASTE** **N/A**
**1/8-1/4** **PETALUMA, CA 94954** **CERS TANKS**
**0.222 mi.**
**1172 ft.** **Site 2 of 7 in cluster C**

**Relative:**
**Higher**

**Actual:**
**18 ft.**

CERS TANKS:
Site ID: 160477
CERS ID: 10131238
CERS Description: Chemical Storage Facilities

Evaluation:
Eval General Type: Compliance Evaluation Inspection

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

Eval Date: 01-10-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-10-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-21-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-22-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-22-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Petaluma City Fire Department
Entity Title: Not reported
Affiliation Address: 11 English Street
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94952
Affiliation Phone: (707) 778-4389

Affiliation Type Desc: Document Preparer
Entity Name: BELSHIRE ENVIRONMENTAL SERVICES,INC.

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

| | |
|---|---|
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Environmental Contact |
| Entity Name: | Steve Coulter |
| Entity Title: | Not reported |
| Affiliation Address: | 12 Miga Madison |
| Affiliation City: | Sacramento |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 95835 |
| Affiliation Phone: | (951) 538-6895 |
| | |
| Affiliation Type Desc: | Facility Mailing Address |
| Entity Name: | Mailing Address |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS: TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Identification Signer |
| Entity Name: | BURKE D. ALBELDA |
| Entity Title: | ENVIRONMENTAL COMPLIANCE SUPERVISOR |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Legal Owner |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS: TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-6681 |
| | |
| Affiliation Type Desc: | Operator |
| Entity Name: | Tesoro West Coast Company LLC |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (210) 626-4673 |

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

| | |
|---|---|
| Affiliation Type Desc: | Parent Corporation |
| Entity Name: | Tesoro Refining and Marketing Company LLC |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

| | |
|---|---|
| Affiliation Type Desc: | Property Owner |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS:TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-4994 |

| | |
|---|---|
| Affiliation Type Desc: | UST Permit Applicant |
| Entity Name: | BURKE D. ALBELDA |
| Entity Title: | ENVIRONMENTAL COMPLIANCE SUPERVISOR |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (310) 869-4096 |

| | |
|---|---|
| Affiliation Type Desc: | UST Property Owner Name |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS:TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-4673 |

| | |
|---|---|
| Affiliation Type Desc: | UST Tank Operator |
| Entity Name: | ANABI OIL CORPORATION (SAM ANABI) |
| Entity Title: | Not reported |
| Affiliation Address: | 2601 LAKEVILLE HIWAY |
| Affiliation City: | PETALUMA |
| Affiliation State: | CA |
| Affiliation Country: | United States |
| Affiliation Zip: | 94954 |
| Affiliation Phone: | (909) 394-4728 |

| | |
|---|---|
| Affiliation Type Desc: | UST Tank Owner |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS:TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

Affiliation Zip: 78259
Affiliation Phone: (210) 626-4673

CERS HAZ WASTE:
Site ID: 160477
CERS ID: 10131238
CERS Description: Hazardous Waste Generator

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-10-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-10-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-21-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-22-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-22-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Affiliation:
Affiliation Type Desc: CUPA District

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

| | |
|---|---|
| Entity Name: | Petaluma City Fire Department |
| Entity Title: | Not reported |
| Affiliation Address: | 11 English Street |
| Affiliation City: | Petaluma |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 94952 |
| Affiliation Phone: | (707) 778-4389 |
| | |
| Affiliation Type Desc: | Document Preparer |
| Entity Name: | BELSHIRE ENVIRONMENTAL SERVICES,INC. |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Environmental Contact |
| Entity Name: | Steve Coulter |
| Entity Title: | Not reported |
| Affiliation Address: | 12 Miga Madison |
| Affiliation City: | Sacramento |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 95835 |
| Affiliation Phone: | (951) 538-6895 |
| | |
| Affiliation Type Desc: | Facility Mailing Address |
| Entity Name: | Mailing Address |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS: TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | Not reported |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Identification Signer |
| Entity Name: | BURKE D. ALBELDA |
| Entity Title: | ENVIRONMENTAL COMPLIANCE SUPERVISOR |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Legal Owner |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS: TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

| | |
|---|---|
| Affiliation Phone: | (210) 626-6681 |
| Affiliation Type Desc: | Operator |
| Entity Name: | Tesoro West Coast Company LLC |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (210) 626-4673 |
| Affiliation Type Desc: | Parent Corporation |
| Entity Name: | Tesoro Refining and Marketing Company LLC |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| Affiliation Type Desc: | Property Owner |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS:TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-4994 |
| Affiliation Type Desc: | UST Permit Applicant |
| Entity Name: | BURKE D. ALBELDA |
| Entity Title: | ENVIRONMENTAL COMPLIANCE SUPERVISOR |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (310) 869-4096 |
| Affiliation Type Desc: | UST Property Owner Name |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS:TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-4673 |
| Affiliation Type Desc: | UST Tank Operator |
| Entity Name: | ANABI OIL CORPORATION (SAM ANABI) |
| Entity Title: | Not reported |
| Affiliation Address: | 2601 LAKEVILLE HIWAY |
| Affiliation City: | PETALUMA |

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 94954
Affiliation Phone: (909) 394-4728

Affiliation Type Desc: UST Tank Owner
Entity Name: Tesoro Sierra Properties LLC
Entity Title: Not reported
Affiliation Address: 19100 RIDGEWOOD PKWY, MS:TX1-022
Affiliation City: San Antonio
Affiliation State: TX
Affiliation Country: United States
Affiliation Zip: 78259
Affiliation Phone: (210) 626-4673

CERS TANKS:
Site ID: 160477
CERS ID: 10131238
CERS Description: Underground Storage Tank

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-10-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-10-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-21-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-22-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: HMRRP
Eval Source: CERS

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-22-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Petaluma City Fire Department
Eval Program: UST
Eval Source: CERS

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Petaluma City Fire Department
Entity Title: Not reported
Affiliation Address: 11 English Street
Affiliation City: Petaluma
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94952
Affiliation Phone: (707) 778-4389

Affiliation Type Desc: Document Preparer
Entity Name: BELSHIRE ENVIRONMENTAL SERVICES,INC.
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Environmental Contact
Entity Name: Steve Coulter
Entity Title: Not reported
Affiliation Address: 12 Miga Madison
Affiliation City: Sacramento
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 95835
Affiliation Phone: (951) 538-6895

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 19100 RIDGEWOOD PKWY, MS: TX1-022
Affiliation City: San Antonio
Affiliation State: TX
Affiliation Country: Not reported
Affiliation Zip: 78259
Affiliation Phone: Not reported

Affiliation Type Desc: Identification Signer
Entity Name: BURKE D. ALBELDA
Entity Title: ENVIRONMENTAL COMPLIANCE SUPERVISOR
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

| | |
|---|---|
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Legal Owner |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS: TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-6681 |
| | |
| Affiliation Type Desc: | Operator |
| Entity Name: | Tesoro West Coast Company LLC |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (210) 626-4673 |
| | |
| Affiliation Type Desc: | Parent Corporation |
| Entity Name: | Tesoro Refining and Marketing Company LLC |
| Entity Title: | Not reported |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| | |
| Affiliation Type Desc: | Property Owner |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS:TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-4994 |
| | |
| Affiliation Type Desc: | UST Permit Applicant |
| Entity Name: | BURKE D. ALBELDA |
| Entity Title: | ENVIRONMENTAL COMPLIANCE SUPERVISOR |
| Affiliation Address: | Not reported |
| Affiliation City: | Not reported |
| Affiliation State: | Not reported |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | (310) 869-4096 |
| | |
| Affiliation Type Desc: | UST Property Owner Name |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS:TX1-022 |

**TESORO (MOBIL) 68186 (Continued)** **S121748195**

| | |
|---|---|
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-4673 |
| | |
| Affiliation Type Desc: | UST Tank Operator |
| Entity Name: | ANABI OIL CORPORATION (SAM ANABI) |
| Entity Title: | Not reported |
| Affiliation Address: | 2601 LAKEVILLE HIWAY |
| Affiliation City: | PETALUMA |
| Affiliation State: | CA |
| Affiliation Country: | United States |
| Affiliation Zip: | 94954 |
| Affiliation Phone: | (909) 394-4728 |
| | |
| Affiliation Type Desc: | UST Tank Owner |
| Entity Name: | Tesoro Sierra Properties LLC |
| Entity Title: | Not reported |
| Affiliation Address: | 19100 RIDGEWOOD PKWY, MS:TX1-022 |
| Affiliation City: | San Antonio |
| Affiliation State: | TX |
| Affiliation Country: | United States |
| Affiliation Zip: | 78259 |
| Affiliation Phone: | (210) 626-4673 |

---

**C24** **JET** **HIST UST** **U001600496**
**NNE** **2601 LAKEVILLE HWY** **CHMIRS** **N/A**
**1/8-1/4** **PETALUMA, CA 94952**
**0.222 mi.**
**1172 ft.** **Site 3 of 7 in cluster C**

**Relative:** **Higher**

**Actual:** **18 ft.**

HIST UST:

| | |
|---|---|
| File Number: | 00021A8A |
| URL: | http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021A8A.pdf |
| Region: | STATE |
| Facility ID: | 00000010120 |
| Facility Type: | Gas Station |
| Other Type: | Not reported |
| Contact Name: | Not reported |
| Telephone: | 7077629888 |
| Owner Name: | KAYO OIL COMPANY |
| Owner Address: | 1221 E. MAIN STREET |
| Owner City,St,Zip: | CHATTANOOGA, TN 3408 |
| Total Tanks: | 0004 |
| | |
| Tank Num: | 001 |
| Container Num: | 1 |
| Year Installed: | 1982 |
| Tank Capacity: | 00010000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | REGULAR |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Visual, Stock Inventor, Pressure Test |
| | |
| Tank Num: | 002 |
| Container Num: | 2 |

**JET (Continued)** **U001600496**

| | |
|---|---|
| Year Installed: | 1982 |
| Tank Capacity: | 00010000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | UNLEADED |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Visual, Stock Inventor, Pressure Test |
| | |
| Tank Num: | 003 |
| Container Num: | 3 |
| Year Installed: | 1982 |
| Tank Capacity: | 00010000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | PREMIUM |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Visual, Stock Inventor, Pressure Test |
| | |
| Tank Num: | 004 |
| Container Num: | 4 |
| Year Installed: | 1982 |
| Tank Capacity: | 00012000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | DIESEL |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Visual, Stock Inventor, Pressure Test |

Click here for Geo Tracker PDF:

CHMIRS:

| | |
|---|---|
| OES Incident Number: | 17-0494 |
| OES notification: | 01/17/2017 |
| OES Date: | Not reported |
| OES Time: | Not reported |
| **Date Completed:** | **Not reported** |
| Property Use: | Not reported |
| Agency Id Number: | Not reported |
| Agency Incident Number: | Not reported |
| Time Notified: | Not reported |
| Time Completed: | Not reported |
| Surrounding Area: | Not reported |
| Estimated Temperature: | Not reported |
| Property Management: | Not reported |
| More Than Two Substances Involved?: | Not reported |
| Resp Agncy Personel # Of Decontaminated: | Not reported |
| Responding Agency Personel # Of Injuries: | Not reported |
| Responding Agency Personel # Of Fatalities: | Not reported |
| Others Number Of Decontaminated: | Not reported |
| Others Number Of Injuries: | Not reported |
| Others Number Of Fatalities: | Not reported |
| Vehicle Make/year: | Not reported |
| Vehicle License Number: | Not reported |
| Vehicle State: | Not reported |
| Vehicle Id Number: | Not reported |
| CA DOT PUC/ICC Number: | Not reported |
| Company Name: | Not reported |
| Reporting Officer Name/ID: | Not reported |
| Report Date: | Not reported |
| Facility Telephone: | Not reported |

**JET (Continued)** **U001600496**

| | |
|---|---|
| Waterway Involved: | No |
| Waterway: | Not reported |
| Spill Site: | Service Station |
| Cleanup By: | Fire Dept. |
| Containment: | Not reported |
| What Happened: | Not reported |
| Type: | Not reported |
| Measure: | Not reported |
| Other: | Not reported |
| Type: | PETROLEUM |
| Measure: | Gal(s) |
| Other: | Not reported |
| Date/Time: | 830 |
| Year: | 2017 |
| Agency: | Tesoro Refining and Marketing |
| Incident Date: | 01/17/2017 |
| Admin Agency: | Petaluma Fire Department |
| Amount: | Not reported |
| Contained: | Yes |
| Site Type: | Not reported |
| E Date: | Not reported |
| Substance: | Gasoline |
| Quantity Released: | 16 |
| Unknown: | Not reported |
| Substance #2: | Not reported |
| Substance #3: | Not reported |
| Evacuations: | Not reported |
| Number of Injuries: | Not reported |
| Number of Fatalities: | Not reported |
| #1 Pipeline: | No |
| #2 Pipeline: | No |
| #3 Pipeline: | No |
| #1 Vessel >= 300 Tons: | No |
| #2 Vessel >= 300 Tons: | No |
| #3 Vessel >= 300 Tons: | No |
| Evacs: | No |
| Injuries: | No |
| Fatals: | No |
| Comments: | Not reported |
| Description: | RP states that 16 gallons of gasoline released on to the concrete and asphalt, of a service station, due to a leaky fuel tank. The release is contained and was cleaned by Petaluma Fire and Tesoro personnel. no waterways were impacted. |

---

**C25** **BEACON #3703 (FORMER)** **LUST** **S102439549**
**NNE** **2601 LAKEVILLE HWY** **HIST CORTESE** **N/A**
**1/8-1/4** **PETALUMA, CA 94952** **CERS**
**0.222 mi.**
**1172 ft.** **Site 4 of 7 in cluster C**

**Relative:** **Higher**

**Actual:** **18 ft.**

LUST:

| | |
|---|---|
| Lead Agency: | SONOMA COUNTY LOP |
| Case Type: | LUST Cleanup Site |
| Geo Track: | http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700955 |
| Global Id: | T0609700955 |
| Latitude: | 38.234035951 |
| Longitude: | -122.604077596 |

**BEACON #3703 (FORMER) (Continued)** **S102439549**

| | |
|---|---|
| Status: | Completed - Case Closed |
| Status Date: | 11/15/2013 |
| Case Worker: | LCW |
| RB Case Number: | 49-0193 |
| Local Agency: | SONOMA COUNTY LOP |
| File Location: | Local Agency Warehouse |
| Local Case Number: | 00001231 |
| Potential Media Affect: | Aquifer used for drinking water supply |
| Potential Contaminants of Concern: | Gasoline |
| Site History: | Excerpt from Horizon Environmental Third Quarter 2009 Montioirng Report: It is our understanding that a gasoline service stateion has been located at the property at 2601 Lakeville Highway since the 1970's. Prior to 1990, the stateion was a Jet Gas Station operated by Conoco Oil Company (Conoco). Ultramar, Inc. (Ultramar) purchased the service station site in July 1990 and opertaed Beacon Station No. 3710 at the site. In May 2002, Tesoro purchased the site from Ultramar, then Tesoro sold the station to Green Valley Gasline LLC (Greene Valley) of Agoura Hills, California in December 2002. Site closed under resolution 92-49 on 11/15/13. |

LUST:

| | |
|---|---|
| Global Id: | T0609700955 |
| Contact Type: | Regional Board Caseworker |
| Contact Name: | Regional Water Board |
| Organization Name: | SAN FRANCISCO BAY RWQCB (REGION 2) |
| Address: | 1515 CLAY ST SUITE 1400 |
| City: | OAKLAND |
| Email: | Not reported |
| Phone Number: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700955 |
| Action Type: | RESPONSE |
| Date: | 09/28/2011 |
| Action: | Monitoring Report - Other |
| | |
| Global Id: | T0609700955 |
| Action Type: | ENFORCEMENT |
| Date: | 12/06/2006 |
| Action: | * Historical Enforcement |
| | |
| Global Id: | T0609700955 |
| Action Type: | Other |
| Date: | 06/08/1987 |
| Action: | Leak Reported |
| | |
| Global Id: | T0609700955 |
| Action Type: | ENFORCEMENT |
| Date: | 05/09/2013 |
| Action: | Staff Letter |
| | |
| Global Id: | T0609700955 |
| Action Type: | ENFORCEMENT |
| Date: | 05/09/2013 |
| Action: | Staff Letter |
| | |
| Global Id: | T0609700955 |

**BEACON #3703 (FORMER) (Continued)** **S102439549**

Action Type: ENFORCEMENT
Date: 01/13/2009
Action: Staff Letter

Global Id: T0609700955
Action Type: Other
Date: 05/12/1987
Action: Leak Discovery

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 06/25/2009
Action: Staff Letter

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 05/09/2013
Action: Notification - Public Notice of Case Closure

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 05/09/2013
Action: LOP Case Closure Summary to RB

Global Id: T0609700955
Action Type: RESPONSE
Date: 06/12/2009
Action: Final Remedial Action Report / Corrective Action Report

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 08/19/2009
Action: Staff Letter

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 08/20/2008
Action: Staff Letter

Global Id: T0609700955
Action Type: RESPONSE
Date: 02/10/2006
Action: Other Report / Document

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 07/11/2013
Action: Staff Letter

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 05/24/2012
Action: Staff Letter

Global Id: T0609700955
Action Type: REMEDIATION
Date: 10/06/2008

**BEACON #3703 (FORMER) (Continued)** **S102439549**

| | |
|---|---|
| Action: | In Situ Physical/Chemical Treatment (other than SVE) |
| Global Id: | T0609700955 |
| Action Type: | REMEDIATION |
| Date: | 06/01/2004 |
| Action: | In Situ Physical/Chemical Treatment (other than SVE) |
| Global Id: | T0609700955 |
| Action Type: | REMEDIATION |
| Date: | 11/29/2011 |
| Action: | In Situ Physical/Chemical Treatment (other than SVE) |
| Global Id: | T0609700955 |
| Action Type: | ENFORCEMENT |
| Date: | 08/21/2013 |
| Action: | Staff Letter |
| Global Id: | T0609700955 |
| Action Type: | ENFORCEMENT |
| Date: | 03/22/2013 |
| Action: | Staff Letter |
| Global Id: | T0609700955 |
| Action Type: | ENFORCEMENT |
| Date: | 10/06/2010 |
| Action: | Staff Letter |
| Global Id: | T0609700955 |
| Action Type: | REMEDIATION |
| Date: | 10/07/2009 |
| Action: | In Situ Physical/Chemical Treatment (other than SVE) |
| Global Id: | T0609700955 |
| Action Type: | REMEDIATION |
| Date: | 12/09/2009 |
| Action: | In Situ Physical/Chemical Treatment (other than SVE) |
| Global Id: | T0609700955 |
| Action Type: | ENFORCEMENT |
| Date: | 12/08/2011 |
| Action: | Staff Letter |
| Global Id: | T0609700955 |
| Action Type: | RESPONSE |
| Date: | 08/24/2012 |
| Action: | Well Destruction Report - Regulator Responded |
| Global Id: | T0609700955 |
| Action Type: | RESPONSE |
| Date: | 08/15/2013 |
| Action: | Well Destruction Workplan - Regulator Responded |
| Global Id: | T0609700955 |
| Action Type: | RESPONSE |
| Date: | 05/07/2013 |
| Action: | Other Report / Document |

**BEACON #3703 (FORMER) (Continued)** **S102439549**

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 11/15/2013
Action: Closure/No Further Action Letter

Global Id: T0609700955
Action Type: Other
Date: 09/26/1986
Action: Leak Stopped

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 04/27/2011
Action: Staff Letter

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 04/11/2012
Action: Staff Letter

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 05/09/2013
Action: Staff Letter

Global Id: T0609700955
Action Type: ENFORCEMENT
Date: 03/04/2010
Action: Staff Letter

LUST:
Global Id: T0609700955
Status: Completed - Case Closed
Status Date: 11/15/2013

Global Id: T0609700955
Status: Open - Case Begin Date
Status Date: 06/10/1987

Global Id: T0609700955
Status: Open - Eligible for Closure
Status Date: 03/22/2013

Global Id: T0609700955
Status: Open - Remediation
Status Date: 02/10/2003

Global Id: T0609700955
Status: Open - Remediation
Status Date: 05/03/2004

Global Id: T0609700955
Status: Open - Site Assessment
Status Date: 03/18/1993

**BEACON #3703 (FORMER) (Continued)** **S102439549**

HIST CORTESE:
- Region: CORTESE
- Facility County Code: 49
- Reg By: LTNKA
- Reg Id: 49-0193

CERS TANKS:
- Site ID: 257729
- CERS ID: T0609700955
- CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
- Affiliation Type Desc: Regional Board Caseworker
- Entity Name: Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2)
- Entity Title: Not reported
- Affiliation Address: 1515 CLAY ST SUITE 1400
- Affiliation City: OAKLAND
- Affiliation State: CA
- Affiliation Country: Not reported
- Affiliation Zip: Not reported
- Affiliation Phone: Not reported

---

**C26** **BEACON #703** **SWEEPS UST** **S101595339**
**NNE** **2601 LAKEVILLE HWY** **CA FID UST** **N/A**
**1/8-1/4** **PETALUMA, CA 94954**
**0.222 mi.**
**1172 ft.** **Site 5 of 7 in cluster C**

**Relative:** **Higher**
**Actual:** **18 ft.**

SWEEPS UST:
- Status: Active
- Comp Number: 1231
- Number: 1
- Board Of Equalization: 44-027753
- Referral Date: 07-03-91
- Action Date: 07-03-91
- Created Date: 03-31-89
- Owner Tank Id: 3
- SWRCB Tank Id: 49-000-001231-000001
- Tank Status: A
- Capacity: 10000
- Active Date: 07-03-91
- Tank Use: M.V. FUEL
- STG: P
- Content: LEADED
- Number Of Tanks: 4

- Status: Active
- Comp Number: 1231
- Number: 1
- Board Of Equalization: 44-027753
- Referral Date: 07-03-91
- Action Date: 07-03-91
- Created Date: 03-31-89
- Owner Tank Id: 2
- SWRCB Tank Id: 49-000-001231-000002
- Tank Status: A

**BEACON #703 (Continued)** **S101595339**

Capacity: 10000
Active Date: 07-03-91
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 1231
Number: 1
Board Of Equalization: 44-027753
Referral Date: 07-03-91
Action Date: 07-03-91
Created Date: 03-31-89
Owner Tank Id: 1
SWRCB Tank Id: 49-000-001231-000003
Tank Status: A
Capacity: 10000
Active Date: 07-03-91
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 1231
Number: 1
Board Of Equalization: 44-027753
Referral Date: 07-03-91
Action Date: 07-03-91
Created Date: 03-31-89
Owner Tank Id: Not reported
SWRCB Tank Id: 49-000-001231-000004
Tank Status: A
Capacity: 10000
Active Date: 07-03-91
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

CA FID UST:
Facility ID: 49000647
Regulated By: UTNKA
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 7077620139
Mail To: Not reported
Mailing Address: 525 W 3RD ST
Mailing Address 2: Not reported
Mailing City,St,Zip: PETALUMA 94954
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported

**BEACON #703 (Continued)** **S101595339**

Comments: Not reported
Status: Active

---

**C27** **BEACON #3703** **UST** **U003938352**
**NNE** **2601 LAKEVILLE HIGHWAY** **N/A**
**1/8-1/4** **PETALUMA, CA 94954**
**0.222 mi.**
**1172 ft.** **Site 6 of 7 in cluster C**

**Relative:**
**Higher**

**Actual:**
**18 ft.**

UST:
Facility ID: Not reported
Permitting Agency: Petaluma City Fire Department
Latitude: 37.271881
Longitude: -119.270233

Facility ID: 600122
Permitting Agency: PETALUMA, CITY OF
Latitude: 38.2354017
Longitude: -122.6025771

---

**C28** **BEACON #3703 (FORMER)** **LUST** **S102425105**
**NNE** **2601 LAKEVILLE HWY** **N/A**
**1/8-1/4** **PETALUMA, CA 94952**
**0.222 mi.**
**1172 ft.** **Site 7 of 7 in cluster C**

**Relative:**
**Higher**

**Actual:**
**18 ft.**

LUST REG 2:
Region: 2
Facility Id: 49-0193
Facility Status: Remediation Plan
Case Number: 00001231
How Discovered: Not reported
Leak Cause: Not reported
Leak Source: Not reported
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 3/18/1993
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: 2/10/2003
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0193
Closed or Referred: Y
Confirm Date: 11/15/2013
LOP Number: 00001231
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700955
APN: 005-040-006
Notes: CLOSED

**D29**
**NE**
**1/4-1/2**
**0.256 mi.**
**1350 ft.**

**Relative:**
**Higher**

**Actual:**
**18 ft.**

**PETALUMA POULTRY PROCESSORS**
**2700 LAKEVILLE HWY**
**PETALUMA, CA 94954**

**Site 1 of 2 in cluster D**

**Database(s):** LUST, HIST UST, ENF, HIST CORTESE, NPDES, WDS, CERS

**EDR ID Number:** U001600580
**EPA ID Number:** N/A

LUST:

| | |
|---|---|
| Lead Agency: | SONOMA COUNTY LOP |
| Case Type: | LUST Cleanup Site |
| Geo Track: | http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700883 |
| Global Id: | T0609700883 |
| Latitude: | 38.232997 |
| Longitude: | -122.601629 |
| Status: | Completed - Case Closed |
| Status Date: | 03/06/1996 |
| Case Worker: | LCW |
| RB Case Number: | 49-0119 |
| Local Agency: | SONOMA COUNTY LOP |
| File Location: | All Files are on GeoTracker or in the Local Agency Database |
| Local Case Number: | 00001313 |
| Potential Media Affect: | Soil |
| Potential Contaminants of Concern: | Gasoline, Diesel |
| Site History: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700883 |
| Contact Type: | Local Agency Caseworker |
| Contact Name: | LOP CLOSED IN RB02 |
| Organization Name: | SONOMA COUNTY LOP |
| Address: | 625 FIFTH STREET |
| City: | SANTA ROSA |
| Email: | Not reported |
| Phone Number: | Not reported |

| | |
|---|---|
| Global Id: | T0609700883 |
| Contact Type: | Regional Board Caseworker |
| Contact Name: | Regional Water Board |
| Organization Name: | SAN FRANCISCO BAY RWQCB (REGION 2) |
| Address: | 1515 CLAY ST SUITE 1400 |
| City: | OAKLAND |
| Email: | Not reported |
| Phone Number: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700883 |
| Action Type: | Other |
| Date: | 01/02/1965 |
| Action: | Leak Reported |

| | |
|---|---|
| Global Id: | T0609700883 |
| Action Type: | Other |
| Date: | 06/30/1988 |
| Action: | Leak Discovery |

LUST:

| | |
|---|---|
| Global Id: | T0609700883 |
| Status: | Completed - Case Closed |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

Status Date: 03/06/1996

Global Id: T0609700883
Status: Open - Case Begin Date
Status Date: 06/30/1988

Global Id: T0609700883
Status: Open - Site Assessment
Status Date: 11/26/1990

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0119
Closed or Referred: Y
Confirm Date: 03/06/1996
LOP Number: 00001313
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700883
APN: 005-040-048
Notes: CLOSED

HIST UST:
File Number: 00021565
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021565.pdf
Region: STATE
Facility ID: 00000002880
Facility Type: Other
Other Type: POULTRY PLANT
Contact Name: DARRELL FREITAS
Telephone: 7077631904
Owner Name: PETALUMA POULTRY PROCESSORS
Owner Address: 2700 LAKEVILLE HWY.
Owner City,St,Zip: PETALUMA, CA 94952
Total Tanks: 0004

Tank Num: 001
Container Num: 1
Year Installed: 1974
Tank Capacity: 00010000
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Container Construction Thickness: Not reported
Leak Detection: Visual

Tank Num: 002
Container Num: 2
Year Installed: 1970
Tank Capacity: 00000550
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: Not reported
Leak Detection: Visual

Tank Num: 003

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

| | |
|---|---|
| Container Num: | 3 |
| Year Installed: | 1974 |
| Tank Capacity: | 00010000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | DIESEL |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Visual, Stock Inventor |

| | |
|---|---|
| Tank Num: | 004 |
| Container Num: | 4 |
| Year Installed: | 1970 |
| Tank Capacity: | 00001500 |
| Tank Used for: | WASTE |
| Type of Fuel: | WASTE OIL |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Visual |

Click here for Geo Tracker PDF:

ENF:

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 250250 |
| Agency Name: | Petaluma Poultry Processing |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | All other facilities |
| Agency Type: | Privately-Owned Business |
| # Of Agencies: | 1 |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | Not reported |
| SIC Desc 1: | Not reported |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Reg Meas |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | AGT |
| Program Category1: | TANKS |
| Program Category2: | Not reported |
| # Of Programs: | 1 |
| WDID: | 2 49AGT432U |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

| | |
|---|---|
| Reg Measure Id: | 169577 |
| Reg Measure Type: | Unregulated |
| Region: | 2 |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Never Active |
| Status Date: | 02/20/2013 |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | N |
| Individual/General: | I |
| Fee Code: | Not reported |
| Direction/Voice: | Passive |
| Enforcement Id(EID): | 240651 |
| Region: | 2 |
| Order / Resolution Number: | UNKNOWN |
| Enforcement Action Type: | Staff Enforcement Letter |
| Effective Date: | 03/01/2002 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 49AGT432U |
| Description: | Notice of noncompliance with APSA. Facility contacted an told to expect letter. |
| Program: | AGT |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |

HIST CORTESE:

| | |
|---|---|
| Region: | CORTESE |
| Facility County Code: | 49 |
| Reg By: | LTNKA |
| Reg Id: | 49-0119 |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

NPDES:

| | |
|---|---|
| Facility Status: | Active |
| NPDES Number: | CAS000001 |
| Region: | 2 |
| Agency Number: | 0 |
| Regulatory Measure ID: | 184843 |
| Place ID: | Not reported |
| Order Number: | 97-03-DWQ |
| WDID: | 2 49I002971 |
| Regulatory Measure Type: | Enrollee |
| Program Type: | Industrial |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | 04/02/1992 |
| Termination Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Discharge Address: | PO Box 7368 |
| Discharge Name: | Petaluma Poultry Processing |
| Discharge City: | PETALUMA |
| Discharge State: | California |
| Discharge Zip: | 94954 |
| Status: | Not reported |
| Status Date: | Not reported |
| Operator Name: | Not reported |
| Operator Address: | Not reported |
| Operator City: | Not reported |
| Operator State: | Not reported |
| Operator Zip: | Not reported |

NPDES as of 03/2018:

| | |
|---|---|
| NPDES Number: | Not reported |
| Status: | Not reported |
| Agency Number: | Not reported |
| Region: | 2 |
| Regulatory Measure ID: | 184843 |
| Order Number: | Not reported |
| Regulatory Measure Type: | Industrial |
| Place ID: | Not reported |
| WDID: | 2 49I002971 |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | Not reported |
| Discharge Address: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |
| Received Date: | 05/09/2008 |
| Processed Date: | 04/02/1992 |
| Status: | Active |
| Status Date: | 04/02/1992 |
| Place Size: | 404000 |
| Place Size Unit: | SqFt |
| Contact: | Allison Howlett |
| Contact Title: | Environmental Sustainability Manager |
| Contact Phone: | 707-283-2285 |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

| | |
|---|---|
| Contact Phone Ext: | Not reported |
| Contact Email: | allison.howlett@perdue.com |
| Operator Name: | Petaluma Poultry Processing |
| Operator Address: | PO Box 7368 |
| Operator City: | PETALUMA |
| Operator State: | California |
| Operator Zip: | 94954 |
| Operator Contact: | Allison Howlett |
| Operator Contact Title: | Environmental Sustainability Manager |
| Operator Contact Phone: | 707-283-2285 |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | allison.howlett@perdue.com |
| Operator Type: | Private Business |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | California |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | 707-241-0643 |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | Y |
| Receiving Water Name: | Adobe Creek |
| Certifier: | Allison Howlett |
| Certifier Title: | Safety And Security Manager |
| Certification Date: | 24-MAY-17 |
| Primary Sic: | 2015-Poultry Slaughtering and Processing |
| Secondary Sic: | 4222-Refrigerated Warehousing and Storage |
| Tertiary Sic: | Not reported |
| | |
| NPDES Number: | CAS000001 |
| Status: | Active |
| Agency Number: | 0 |
| Region: | 2 |
| Regulatory Measure ID: | 184843 |
| Order Number: | 97-03-DWQ |
| Regulatory Measure Type: | Enrollee |
| Place ID: | Not reported |
| WDID: | 2 49I002971 |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

| | |
|---|---|
| Program Type: | Industrial |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | 04/02/1992 |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | Petaluma Poultry Processing |
| Discharge Address: | PO Box 7368 |
| Discharge City: | PETALUMA |
| Discharge State: | California |
| Discharge Zip: | 94954 |
| Received Date: | Not reported |
| Processed Date: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Place Size: | Not reported |
| Place Size Unit: | Not reported |
| Contact: | Not reported |
| Contact Title: | Not reported |
| Contact Phone: | Not reported |
| Contact Phone Ext: | Not reported |
| Contact Email: | Not reported |
| Operator Name: | Not reported |
| Operator Address: | Not reported |
| Operator City: | Not reported |
| Operator State: | Not reported |
| Operator Zip: | Not reported |
| Operator Contact: | Not reported |
| Operator Contact Title: | Not reported |
| Operator Contact Phone: | Not reported |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | Not reported |
| Operator Type: | Not reported |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | Not reported |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | Not reported |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

| | |
|---|---|
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | Not reported |
| Receiving Water Name: | Not reported |
| Certifier: | Not reported |
| Certifier Title: | Not reported |
| Certification Date: | Not reported |
| Primary Sic: | Not reported |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |

| | |
|---|---|
| Facility Status: | Not reported |
| NPDES Number: | Not reported |
| Region: | Not reported |
| Agency Number: | Not reported |
| Regulatory Measure ID: | Not reported |
| Place ID: | Not reported |
| Order Number: | Not reported |
| WDID: | 2 49I002971 |
| Regulatory Measure Type: | Industrial |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Discharge Address: | Not reported |
| Discharge Name: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |
| Status: | Active |
| Status Date: | 04/02/1992 |
| Operator Name: | Petaluma Poultry Processing |
| Operator Address: | PO Box 7368 |
| Operator City: | PETALUMA |
| Operator State: | California |
| Operator Zip: | 94954 |

NPDES as of 03/2018:

| | |
|---|---|
| NPDES Number: | Not reported |
| Status: | Not reported |
| Agency Number: | Not reported |
| Region: | 2 |
| Regulatory Measure ID: | 184843 |
| Order Number: | Not reported |
| Regulatory Measure Type: | Industrial |
| Place ID: | Not reported |
| WDID: | 2 49I002971 |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | Not reported |
| Discharge Address: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

| | |
|---|---|
| Received Date: | 05/09/2008 |
| Processed Date: | 04/02/1992 |
| Status: | Active |
| Status Date: | 04/02/1992 |
| Place Size: | 404000 |
| Place Size Unit: | SqFt |
| Contact: | Allison Howlett |
| Contact Title: | Environmental Sustainability Manager |
| Contact Phone: | 707-283-2285 |
| Contact Phone Ext: | Not reported |
| Contact Email: | allison.howlett@perdue.com |
| Operator Name: | Petaluma Poultry Processing |
| Operator Address: | PO Box 7368 |
| Operator City: | PETALUMA |
| Operator State: | California |
| Operator Zip: | 94954 |
| Operator Contact: | Allison Howlett |
| Operator Contact Title: | Environmental Sustainability Manager |
| Operator Contact Phone: | 707-283-2285 |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | allison.howlett@perdue.com |
| Operator Type: | Private Business |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | California |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | 707-241-0643 |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | Y |
| Receiving Water Name: | Adobe Creek |
| Certifier: | Allison Howlett |
| Certifier Title: | Safety And Security Manager |
| Certification Date: | 24-MAY-17 |
| Primary Sic: | 2015-Poultry Slaughtering and Processing |
| Secondary Sic: | 4222-Refrigerated Warehousing and Storage |
| Tertiary Sic: | Not reported |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

| | |
|---|---|
| NPDES Number: | CAS000001 |
| Status: | Active |
| Agency Number: | 0 |
| Region: | 2 |
| Regulatory Measure ID: | 184843 |
| Order Number: | 97-03-DWQ |
| Regulatory Measure Type: | Enrollee |
| Place ID: | Not reported |
| WDID: | 2 49I002971 |
| Program Type: | Industrial |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | 04/02/1992 |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | Petaluma Poultry Processing |
| Discharge Address: | PO Box 7368 |
| Discharge City: | PETALUMA |
| Discharge State: | California |
| Discharge Zip: | 94954 |
| Received Date: | Not reported |
| Processed Date: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Place Size: | Not reported |
| Place Size Unit: | Not reported |
| Contact: | Not reported |
| Contact Title: | Not reported |
| Contact Phone: | Not reported |
| Contact Phone Ext: | Not reported |
| Contact Email: | Not reported |
| Operator Name: | Not reported |
| Operator Address: | Not reported |
| Operator City: | Not reported |
| Operator State: | Not reported |
| Operator Zip: | Not reported |
| Operator Contact: | Not reported |
| Operator Contact Title: | Not reported |
| Operator Contact Phone: | Not reported |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | Not reported |
| Operator Type: | Not reported |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | Not reported |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | Not reported |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

| | |
|---|---|
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | Not reported |
| Receiving Water Name: | Not reported |
| Certifier: | Not reported |
| Certifier Title: | Not reported |
| Certification Date: | Not reported |
| Primary Sic: | Not reported |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |

WDS:

| | |
|---|---|
| Facility ID: | San Francisco Bay 49I002971 |
| Facility Type: | Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping. |
| Facility Status: | Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements. |
| NPDES Number: | CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board |
| Subregion: | 2 |
| Facility Telephone: | 7077631904 |
| Facility Contact: | MERILL BURTON |
| Agency Name: | PETALUMA POULTRY PROCESSORS |
| Agency Address: | PO Box 7368 |
| Agency City,St,Zip: | Petaluma 949557368 |
| Agency Contact: | MERRILL BURTON |
| Agency Telephone: | 7077631904 |
| Agency Type: | Private |
| SIC Code: | 0 |
| SIC Code 2: | Not reported |
| Primary Waste Type: | Not reported |
| Primary Waste: | Not reported |
| Waste Type2: | Not reported |
| Waste2: | Not reported |
| Primary Waste Type: | Not reported |
| Secondary Waste: | Not reported |
| Secondary Waste Type: | Not reported |
| Design Flow: | 0 |
| Baseline Flow: | 0 |
| Reclamation: | Not reported |
| POTW: | Not reported |
| Treat To Water: | Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be |

**PETALUMA POULTRY PROCESSORS (Continued)** **U001600580**

considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.

Complexity: Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

CERS TANKS:
Site ID: 205917
CERS ID: T0609700883
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: LOP CLOSED IN RB02 - SONOMA COUNTY LOP
Entity Title: Not reported
Affiliation Address: 625 FIFTH STREET
Affiliation City: SANTA ROSA
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Regional Board Caseworker
Entity Name: Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2)
Entity Title: Not reported
Affiliation Address: 1515 CLAY ST SUITE 1400
Affiliation City: OAKLAND
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

---

**D30** **PETALUMA POULTRY PROCESS.** **LUST** **S105032572**
**NE** **2700 LAKEVILLE HWY** **N/A**
**1/4-1/2** **PETALUMA, CA 94952**
**0.256 mi.**
**1350 ft.** **Site 2 of 2 in cluster D**

**Relative:**
**Higher**

**Actual:**
**18 ft.**

LUST REG 2:
Region: 2
Facility Id: 49-0119
Facility Status: Case Closed
Case Number: 00001313
How Discovered: Not reported
Leak Cause: Not reported
Leak Source: Not reported
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 11/26/1990
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported

**PETALUMA POULTRY PROCESS. (Continued)** **S105032572**

Date Post Remedial Action Monitoring Began: Not reported

---

**31**
**West**
**1/4-1/2**
**0.337 mi.**
**1781 ft.**

**PETALUMA PRECEDENT**
**781 BAYWOOD DRIVE**
**PETALUMA, CA 94594**

**SEMS** **1014915208**
**CAN000909134**

**Relative:**
**Higher**

**Actual:**
**13 ft.**

SEMS:

| | |
|---|---|
| Site ID: | 909134 |
| EPA ID: | CAN000909134 |
| Cong District: | Not reported |
| FIPS Code: | 6097 |
| Latitude: | Not reported |
| Longitude: | Not reported |
| FF: | N |
| NPL: | Not on the NPL |
| Non NPL Status: | Removal Only Site (No Site Assessment Work Needed) |

SEMS Detail:

| | |
|---|---|
| Region: | 9 |
| Site ID: | 909134 |
| EPA ID: | CAN000909134 |
| Site Name: | PETALUMA PRECEDENT |
| NPL: | N |
| FF: | N |
| OU: | 0 |
| Action Code: | RV |
| Action Name: | RMVL |
| SEQ: | 1 |
| Start Date: | 2011-06-06 00:00:00 |
| Finish Date: | 7/16/2011 |
| Qual: | C |
| Current Action Lead: | EPA Perf |

---

**E32**
**SW**
**1/4-1/2**
**0.344 mi.**
**1814 ft.**

**HENRIS SUPPLY WAREHOUSE**
**172 LANDING**
**PETALUMA, CA 94952**

**Site 1 of 2 in cluster E**

**HIST CORTESE** **S102431309**
**N/A**

**Relative:**
**Higher**

**Actual:**
**7 ft.**

HIST CORTESE:

| | |
|---|---|
| Region: | CORTESE |
| Facility County Code: | 49 |
| Reg By: | LTNKA |
| Reg Id: | 49-0071 |

**E33**
**SW**
**1/4-1/2**
**0.344 mi.**
**1814 ft.**

**HENRIS SUPPLY WAREHOUSE**
**172 LANDING WAY**
**PETALUMA, CA 94952**

**Site 2 of 2 in cluster E**

**LUST** **S103890658**
**CERS** **N/A**

**Relative:**
**Higher**

**Actual:**
**7 ft.**

LUST:

| | |
|---|---|
| Lead Agency: | SONOMA COUNTY LOP |
| Case Type: | LUST Cleanup Site |
| Geo Track: | http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700838 |
| Global Id: | T0609700838 |
| Latitude: | 38.2215014 |
| Longitude: | -122.6051975 |
| Status: | Completed - Case Closed |
| Status Date: | 09/05/2001 |
| Case Worker: | LCW |
| RB Case Number: | 49-0071 |
| Local Agency: | SONOMA COUNTY LOP |
| File Location: | All Files are on GeoTracker or in the Local Agency Database |
| Local Case Number: | 00008856 |
| Potential Media Affect: | Aquifer used for drinking water supply |
| Potential Contaminants of Concern: | Diesel |
| Site History: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700838 |
| Contact Type: | Local Agency Caseworker |
| Contact Name: | LOP CLOSED IN RB02 |
| Organization Name: | SONOMA COUNTY LOP |
| Address: | 625 FIFTH STREET |
| City: | SANTA ROSA |
| Email: | Not reported |
| Phone Number: | Not reported |

| | |
|---|---|
| Global Id: | T0609700838 |
| Contact Type: | Regional Board Caseworker |
| Contact Name: | Regional Water Board |
| Organization Name: | SAN FRANCISCO BAY RWQCB (REGION 2) |
| Address: | 1515 CLAY ST SUITE 1400 |
| City: | OAKLAND |
| Email: | Not reported |
| Phone Number: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700838 |
| Action Type: | Other |
| Date: | 01/02/1965 |
| Action: | Leak Reported |

| | |
|---|---|
| Global Id: | T0609700838 |
| Action Type: | REMEDIATION |
| Date: | 05/17/2001 |
| Action: | Not reported |

| | |
|---|---|
| Global Id: | T0609700838 |
| Action Type: | Other |
| Date: | 07/02/1986 |
| Action: | Leak Discovery |

**HENRIS SUPPLY WAREHOUSE (Continued)** **S103890658**

LUST:
Global Id: T0609700838
Status: Completed - Case Closed
Status Date: 09/05/2001

Global Id: T0609700838
Status: Open - Case Begin Date
Status Date: 07/02/1986

Global Id: T0609700838
Status: Open - Remediation
Status Date: 01/03/1965

Global Id: T0609700838
Status: Open - Site Assessment
Status Date: 04/15/1991

LUST REG 2:
Region: 2
Facility Id: 49-0071
Facility Status: Case Closed
Case Number: 00008856
How Discovered: Not reported
Leak Cause: Not reported
Leak Source: Not reported
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 4/15/1991
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: 1/3/1965
Date Post Remedial Action Monitoring Began: Not reported

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0071
Closed or Referred: Y
Confirm Date: 09/05/2001
LOP Number: 00008856
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700838
APN: 019-220-036
Notes: CLOSED

CERS TANKS:
Site ID: 225889
CERS ID: T0609700838
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: LOP CLOSED IN RB02 - SONOMA COUNTY LOP
Entity Title: Not reported

**HENRIS SUPPLY WAREHOUSE (Continued)** **S103890658**

| | |
|---|---|
| Affiliation Address: | 625 FIFTH STREET |
| Affiliation City: | SANTA ROSA |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |
| Affiliation Type Desc: | Regional Board Caseworker |
| Entity Name: | Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2) |
| Entity Title: | Not reported |
| Affiliation Address: | 1515 CLAY ST SUITE 1400 |
| Affiliation City: | OAKLAND |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

---

**34**
**WNW**
**1/4-1/2**
**0.398 mi.**
**2102 ft.**

**BIG 4 RENTS, INC.**
**1731 LAKEVILLE HWY**
**PETALUMA, CA 94952**

**LUST** **S103817477**
**CERS** **N/A**

**Relative:**
**Higher**

**Actual:**
**12 ft.**

LUST REG 2:

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 49-0014 |
| Facility Status: | Pollution Characterization |
| Case Number: | 00002211 |
| How Discovered: | Tank Closure |
| Leak Cause: | UNK |
| Leak Source: | UNK |
| Date Leak Confirmed: | Not reported |
| Oversight Program: | LUST |
| Prelim. Site Assesment Wokplan Submitted: | Not reported |
| Preliminary Site Assesment Began: | 7/11/1988 |
| Pollution Characterization Began: | 7/16/2002 |
| Pollution Remediation Plan Submitted: | Not reported |
| Date Remediation Action Underway: | Not reported |
| Date Post Remedial Action Monitoring Began: | Not reported |

CERS TANKS:

| | |
|---|---|
| Site ID: | 207861 |
| CERS ID: | T0609700784 |
| CERS Description: | Leaking Underground Storage Tank Cleanup Site |

Affiliation:

| | |
|---|---|
| Affiliation Type Desc: | Regional Board Caseworker |
| Entity Name: | Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2) |
| Entity Title: | Not reported |
| Affiliation Address: | 1515 CLAY ST SUITE 1400 |
| Affiliation City: | OAKLAND |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

**F35**
**SSW**
**1/4-1/2**
**0.417 mi.**
**2201 ft.**

**WEST SONOMA CO DISPOSAL**
**2543 ETALUMA**
**PETALUMA, CA 94952**

**Site 1 of 3 in cluster F**

**HIST CORTESE** **S105025553**
**N/A**

**Relative:**
**Higher**

**Actual:**
**11 ft.**

HIST CORTESE:

| | |
|---|---|
| Region: | CORTESE |
| Facility County Code: | 49 |
| Reg By: | LTNKA |
| Reg Id: | 49-0210 |

---

**F36**
**SSW**
**1/4-1/2**
**0.417 mi.**
**2201 ft.**

**RECOLOGY SONOMA MARIN**
**2543 PETALUMA BLVD. SOUTH**
**PETALUMA, CA**

**Site 2 of 3 in cluster F**

**SWF/LF** **S122441658**
**N/A**

**Relative:**
**Higher**

**Actual:**
**11 ft.**

SWF/LF (SWIS):

| | |
|---|---|
| Facility ID: | 49-AA-0406 |
| Lat/Long: | 38.22283 / -122.60852 |
| Owner Name: | Recology Sonoma Marin |
| Owner Telephone: | 5307814806 |
| Owner Address: | Not reported |
| Owner Address2: | 50 California St., 24th Floor |
| Owner City,St,Zip: | San Francisco, CA 94111 |
| Operational Status: | Active |
| Operator: | Recology Sonoma Marin |
| Operator Phone: | 5307814806 |
| Operator Address: | Not reported |
| Operator Address2: | 50 California St., 24th Floor |
| Operator City,St,Zip: | San Francisco, CA 94111 |
| Permit Date: | 06/29/2011 |
| Permit Status: | Permitted |
| Permitted Acreage: | 5.4 |
| Activity: | Medium Volume Transfer/Proc Fac |
| Regulation Status: | Permitted |
| Landuse Name: | Residential,Agricultural |
| GIS Source: | Map |
| Category: | Transfer/Processing |
| Unit Number: | 01 |
| Inspection Frequency: | Monthly |
| Accepted Waste: | Mixed municipal |
| Closure Date: | Not reported |
| Closure Type: | Not reported |
| Disposal Acreage: | Not reported |
| SWIS Num: | 49-AA-0406 |
| Waste Discharge Requirement Num: | Not reported |
| Program Type: | Not reported |
| Permitted Throughput with Units: | 99 |
| Actual Throughput with Units: | Tons/day |
| Permitted Capacity with Units: | 35640 |
| Remaining Capacity: | Not reported |
| Remaining Capacity with Units: | Tons/year |
| Lat/Long: | 38.22283 / -122.60852 |

**F37**
**SSW**
**1/4-1/2**
**0.417 mi.**
**2201 ft.**

**NOVATO DISPOSAL**
**2543 PETALUMA BLVD S**
**PETALUMA, CA 94952**

**Site 3 of 3 in cluster F**

**LUST** **S101304863**
**NPDES** **N/A**
**WDS**
**CIWQS**
**CERS**

**Relative:**
**Higher**

**Actual:**
**11 ft.**

LUST:

| | |
|---|---|
| Lead Agency: | SONOMA COUNTY LOP |
| Case Type: | LUST Cleanup Site |
| Geo Track: | http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700971 |
| Global Id: | T0609700971 |
| Latitude: | 38.223820886 |
| Longitude: | -122.609399129 |
| Status: | Completed - Case Closed |
| Status Date: | 02/09/2006 |
| Case Worker: | LCW |
| RB Case Number: | 49-0210 |
| Local Agency: | SONOMA COUNTY LOP |
| File Location: | Local Agency |
| Local Case Number: | 00002493 |
| Potential Media Affect: | Aquifer used for drinking water supply |
| Potential Contaminants of Concern: | Diesel |
| Site History: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700971 |
| Contact Type: | Regional Board Caseworker |
| Contact Name: | Regional Water Board |
| Organization Name: | SAN FRANCISCO BAY RWQCB (REGION 2) |
| Address: | 1515 CLAY ST SUITE 1400 |
| City: | OAKLAND |
| Email: | Not reported |
| Phone Number: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700971 |
| Action Type: | Other |
| Date: | 06/29/1987 |
| Action: | Leak Reported |

| | |
|---|---|
| Global Id: | T0609700971 |
| Action Type: | Other |
| Date: | 06/29/1987 |
| Action: | Leak Discovery |

| | |
|---|---|
| Global Id: | T0609700971 |
| Action Type: | RESPONSE |
| Date: | 04/17/2003 |
| Action: | Sensitive Receptor Survey Report |

| | |
|---|---|
| Global Id: | T0609700971 |
| Action Type: | RESPONSE |
| Date: | 03/02/2004 |
| Action: | Request for Closure |

| | |
|---|---|
| Global Id: | T0609700971 |
| Action Type: | REMEDIATION |
| Date: | 04/05/2000 |
| Action: | Excavation |

**NOVATO DISPOSAL (Continued)** **S101304863**

Global Id: T0609700971
Action Type: ENFORCEMENT
Date: 02/09/2006
Action: Closure/No Further Action Letter

Global Id: T0609700971
Action Type: ENFORCEMENT
Date: 08/03/2000
Action: Staff Letter

Global Id: T0609700971
Action Type: ENFORCEMENT
Date: 02/02/2004
Action: LOP Case Closure Summary to RB

LUST:
Global Id: T0609700971
Status: Completed - Case Closed
Status Date: 02/09/2006

Global Id: T0609700971
Status: Open - Case Begin Date
Status Date: 06/27/1987

Global Id: T0609700971
Status: Open - Site Assessment
Status Date: 06/27/1987

Global Id: T0609700971
Status: Open - Site Assessment
Status Date: 06/27/1991

Global Id: T0609700971
Status: Open - Verification Monitoring
Status Date: 04/28/1999

LUST REG 2:
Region: 2
Facility Id: 49-0210
Facility Status: Post remedial action monitoring
Case Number: 00002493
How Discovered: Not reported
Leak Cause: Not reported
Leak Source: Not reported
Date Leak Confirmed: 6/27/1987
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 6/27/1991
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: 4/28/1999

SONOMA CO. LUST:
Region: SONOMA

**NOVATO DISPOSAL (Continued)** **S101304863**

Regional Board: 49-0210
Closed or Referred: Y
Confirm Date: 02/09/2006
LOP Number: 00002493
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700971
APN: 019-220-038
Notes: CLOSED

NPDES:
Facility Status: Terminated
NPDES Number: CAS000001
Region: 2
Agency Number: 0
Regulatory Measure ID: 184898
Place ID: Not reported
Order Number: 97-03-DWQ
WDID: 2 49I017656
Regulatory Measure Type: Enrollee
Program Type: Industrial
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: 11/25/2002
Termination Date Of Regulatory Measure: 12/26/2017
Expiration Date Of Regulatory Measure: Not reported
Discharge Address: PO Box 1916
Discharge Name: Santa Rosa Recycling Collection
Discharge City: Santa Rosa
Discharge State: California
Discharge Zip: 95402
Status: Not reported
Status Date: Not reported
Operator Name: Not reported
Operator Address: Not reported
Operator City: Not reported
Operator State: Not reported
Operator Zip: Not reported

NPDES as of 03/2018:
NPDES Number: CAS000001
Status: Terminated
Agency Number: 0
Region: 2
Regulatory Measure ID: 184898
Order Number: 97-03-DWQ
Regulatory Measure Type: Enrollee
Place ID: Not reported
WDID: 2 49I017656
Program Type: Industrial
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: 11/25/2002
Expiration Date Of Regulatory Measure: Not reported
Termination Date Of Regulatory Measure: 12/26/2017
Discharge Name: Santa Rosa Recycling Collection
Discharge Address: PO Box 1916
Discharge City: Santa Rosa
Discharge State: California

**NOVATO DISPOSAL (Continued)** **S101304863**

| | |
|---|---|
| Discharge Zip: | 95402 |
| Received Date: | Not reported |
| Processed Date: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Place Size: | Not reported |
| Place Size Unit: | Not reported |
| Contact: | Not reported |
| Contact Title: | Not reported |
| Contact Phone: | Not reported |
| Contact Phone Ext: | Not reported |
| Contact Email: | Not reported |
| Operator Name: | Not reported |
| Operator Address: | Not reported |
| Operator City: | Not reported |
| Operator State: | Not reported |
| Operator Zip: | Not reported |
| Operator Contact: | Not reported |
| Operator Contact Title: | Not reported |
| Operator Contact Phone: | Not reported |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | Not reported |
| Operator Type: | Not reported |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | Not reported |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | Not reported |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | Not reported |
| Receiving Water Name: | Not reported |
| Certifier: | Not reported |
| Certifier Title: | Not reported |
| Certification Date: | Not reported |
| Primary Sic: | Not reported |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |

**NOVATO DISPOSAL (Continued)** **S101304863**

| | |
|---|---|
| NPDES Number: | Not reported |
| Status: | Not reported |
| Agency Number: | Not reported |
| Region: | 2 |
| Regulatory Measure ID: | 184898 |
| Order Number: | Not reported |
| Regulatory Measure Type: | Industrial |
| Place ID: | Not reported |
| WDID: | 2 49I017656 |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | Not reported |
| Discharge Address: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |
| Received Date: | 05/09/2008 |
| Processed Date: | 11/25/2002 |
| Status: | Active |
| Status Date: | 11/25/2002 |
| Place Size: | 5 |
| Place Size Unit: | Acres |
| Contact: | Rick Holliday |
| Contact Title: | Not reported |
| Contact Phone: | 707-975-9960 |
| Contact Phone Ext: | Not reported |
| Contact Email: | rickmcsinc@version.net |
| Operator Name: | Santa Rosa Recycling Collection |
| Operator Address: | PO Box 1916 |
| Operator City: | Santa Rosa |
| Operator State: | California |
| Operator Zip: | 95402 |
| Operator Contact: | Rick Holliday |
| Operator Contact Title: | Not reported |
| Operator Contact Phone: | 707-975-9960 |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | rickmcsinc@version.net |
| Operator Type: | Private Business |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | California |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | Not reported |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |

**NOVATO DISPOSAL (Continued)** **S101304863**

| | |
|---|---|
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | N |
| Receiving Water Name: | Petaluma River |
| Certifier: | LOUIS RATTO |
| Certifier Title: | COO |
| Certification Date: | 05-FEB-15 |
| Primary Sic: | 5093-Scrap and Waste Materials |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |

| | |
|---|---|
| Facility Status: | Not reported |
| NPDES Number: | Not reported |
| Region: | Not reported |
| Agency Number: | Not reported |
| Regulatory Measure ID: | Not reported |
| Place ID: | Not reported |
| Order Number: | Not reported |
| WDID: | 2 49I017656 |
| Regulatory Measure Type: | Industrial |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Discharge Address: | Not reported |
| Discharge Name: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |
| Status: | Terminated |
| Status Date: | 01/09/2018 |
| Operator Name: | Santa Rosa Recycling Collection |
| Operator Address: | PO Box 1916 |
| Operator City: | Santa Rosa |
| Operator State: | California |
| Operator Zip: | 95402 |

NPDES as of 03/2018:

| | |
|---|---|
| NPDES Number: | CAS000001 |
| Status: | Terminated |
| Agency Number: | 0 |
| Region: | 2 |
| Regulatory Measure ID: | 184898 |
| Order Number: | 97-03-DWQ |
| Regulatory Measure Type: | Enrollee |
| Place ID: | Not reported |
| WDID: | 2 49I017656 |
| Program Type: | Industrial |

**NOVATO DISPOSAL (Continued)** **S101304863**

| | |
|---|---|
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | 11/25/2002 |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | 12/26/2017 |
| Discharge Name: | Santa Rosa Recycling Collection |
| Discharge Address: | PO Box 1916 |
| Discharge City: | Santa Rosa |
| Discharge State: | California |
| Discharge Zip: | 95402 |
| Received Date: | Not reported |
| Processed Date: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Place Size: | Not reported |
| Place Size Unit: | Not reported |
| Contact: | Not reported |
| Contact Title: | Not reported |
| Contact Phone: | Not reported |
| Contact Phone Ext: | Not reported |
| Contact Email: | Not reported |
| Operator Name: | Not reported |
| Operator Address: | Not reported |
| Operator City: | Not reported |
| Operator State: | Not reported |
| Operator Zip: | Not reported |
| Operator Contact: | Not reported |
| Operator Contact Title: | Not reported |
| Operator Contact Phone: | Not reported |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | Not reported |
| Operator Type: | Not reported |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | Not reported |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | Not reported |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |

**NOVATO DISPOSAL (Continued)** **S101304863**

| | |
|---|---|
| Dir Discharge Uswater Ind: | Not reported |
| Receiving Water Name: | Not reported |
| Certifier: | Not reported |
| Certifier Title: | Not reported |
| Certification Date: | Not reported |
| Primary Sic: | Not reported |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |
| | |
| NPDES Number: | Not reported |
| Status: | Not reported |
| Agency Number: | Not reported |
| Region: | 2 |
| Regulatory Measure ID: | 184898 |
| Order Number: | Not reported |
| Regulatory Measure Type: | Industrial |
| Place ID: | Not reported |
| WDID: | 2 49I017656 |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | Not reported |
| Discharge Address: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |
| Received Date: | 05/09/2008 |
| Processed Date: | 11/25/2002 |
| Status: | Active |
| Status Date: | 11/25/2002 |
| Place Size: | 5 |
| Place Size Unit: | Acres |
| Contact: | Rick Holliday |
| Contact Title: | Not reported |
| Contact Phone: | 707-975-9960 |
| Contact Phone Ext: | Not reported |
| Contact Email: | rickmcsinc@version.net |
| Operator Name: | Santa Rosa Recycling Collection |
| Operator Address: | PO Box 1916 |
| Operator City: | Santa Rosa |
| Operator State: | California |
| Operator Zip: | 95402 |
| Operator Contact: | Rick Holliday |
| Operator Contact Title: | Not reported |
| Operator Contact Phone: | 707-975-9960 |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | rickmcsinc@version.net |
| Operator Type: | Private Business |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | California |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |

**NOVATO DISPOSAL (Continued)** **S101304863**

| | |
|---|---|
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | Not reported |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | N |
| Receiving Water Name: | Petaluma River |
| Certifier: | LOUIS RATTO |
| Certifier Title: | COO |
| Certification Date: | 05-FEB-15 |
| Primary Sic: | 5093-Scrap and Waste Materials |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |

WDS:

| | |
|---|---|
| Facility ID: | San Francisco Bay 49I017656 |
| Facility Type: | Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping. |
| Facility Status: | Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements. |
| NPDES Number: | CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board |
| Subregion: | 2 |
| Facility Telephone: | 7077659995 |
| Facility Contact: | SALYERS JAMES |
| Agency Name: | NOVATO DISPOSAL |
| Agency Address: | PO Box 1916 |
| Agency City,St,Zip: | Santa Rosa 954021916 |
| Agency Contact: | SALYERS JAMES |
| Agency Telephone: | 7077659995 |
| Agency Type: | Private |
| SIC Code: | 0 |
| SIC Code 2: | Not reported |
| Primary Waste Type: | Not reported |
| Primary Waste: | Not reported |
| Waste Type2: | Not reported |
| Waste2: | Not reported |
| Primary Waste Type: | Not reported |

**NOVATO DISPOSAL (Continued)** **S101304863**

Secondary Waste: Not reported
Secondary Waste Type: Not reported
Design Flow: 0
Baseline Flow: 0
Reclamation: Not reported
POTW: Not reported
Treat To Water: Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity: Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

CIWQS:
Agency: Santa Rosa Recycling Collection
Agency Address: PO Box 1916, Santa Rosa, CA 95402
Place/Project Type: Industrial - Scrap and Waste Materials
SIC/NAICS: 5093
Region: 2
Program: INDSTW
Regulatory Measure Status: Terminated
Regulatory Measure Type: Storm water industrial
Order Number: 2014-0057-DWQ
WDID: 2 49I017656
NPDES Number: CAS000001
Adoption Date: Not reported
Effective Date: 11/25/2002
Termination Date: 12/26/2017
Expiration/Review Date: Not reported
Design Flow: Not reported
Major/Minor: Not reported
Complexity: Not reported
TTWQ: Not reported
Enforcement Actions within 5 years: 0
Violations within 5 years: 0
Latitude: 38.2246
Longitude: -122.61167

CERS TANKS:
Site ID: 246351
CERS ID: T0609700971
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Regional Board Caseworker
Entity Name: Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2)
Entity Title: Not reported
Affiliation Address: 1515 CLAY ST SUITE 1400
Affiliation City: OAKLAND
Affiliation State: CA
Affiliation Country: Not reported

**NOVATO DISPOSAL (Continued)** **S101304863**

Affiliation Zip: Not reported
Affiliation Phone: Not reported

---

**38** **DIVIDEND DEVELOPMENT CORP** **LUST** **S104405049**
**North** **1250 MCDOWELL BLVD N** **HIST CORTESE** **N/A**
**1/4-1/2** **PETALUMA, CA 94952** **CERS**
**0.418 mi.**
**2209 ft.**

**Relative:**
**Higher**

**Actual:**
**25 ft.**

LUST:
Lead Agency: SONOMA COUNTY LOP
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700817
Global Id: T0609700817
Latitude: 38.2714939
Longitude: -122.66135
Status: Completed - Case Closed
Status Date: 04/03/1997
Case Worker: LCW
RB Case Number: 49-0048
Local Agency: SONOMA COUNTY LOP
File Location: All Files are on GeoTracker or in the Local Agency Database
Local Case Number: 00002638
Potential Media Affect: Aquifer used for drinking water supply
Potential Contaminants of Concern: Gasoline, Diesel
Site History: Not reported

LUST:
Global Id: T0609700817
Contact Type: Local Agency Caseworker
Contact Name: LOP CLOSED IN RB02
Organization Name: SONOMA COUNTY LOP
Address: 625 FIFTH STREET
City: SANTA ROSA
Email: Not reported
Phone Number: Not reported

Global Id: T0609700817
Contact Type: Regional Board Caseworker
Contact Name: Regional Water Board
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

LUST:
Global Id: T0609700817
Action Type: Other
Date: 01/02/1965
Action: Leak Reported

Global Id: T0609700817
Action Type: Other
Date: 04/29/1988
Action: Leak Discovery

**DIVIDEND DEVELOPMENT CORP (Continued)** **S104405049**

Global Id: T0609700817
Action Type: REMEDIATION
Date: 02/22/1990
Action: Ex Situ Physical/Chemical Treatment (other than P&T, SVE, or Excavation)

LUST:
Global Id: T0609700817
Status: Completed - Case Closed
Status Date: 04/03/1997

Global Id: T0609700817
Status: Open - Case Begin Date
Status Date: 04/29/1988

Global Id: T0609700817
Status: Open - Remediation
Status Date: 01/03/1965

Global Id: T0609700817
Status: Open - Site Assessment
Status Date: 08/15/1988

LUST REG 2:
Region: 2
Facility Id: 49-0048
Facility Status: Case Closed
Case Number: 00002638
How Discovered: Not reported
Leak Cause: Not reported
Leak Source: Not reported
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 8/15/1988
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: 1/3/1965
Date Post Remedial Action Monitoring Began: Not reported

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0048
Closed or Referred: Y
Confirm Date: 04/03/1997
LOP Number: 00002638
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700817
APN: 137-011-019
Notes: CLOSED

HIST CORTESE:
Region: CORTESE
Facility County Code: 49

**DIVIDEND DEVELOPMENT CORP (Continued)** **S104405049**

Reg By: LTNKA
Reg Id: 49-0048

CERS TANKS:
Site ID: 250751
CERS ID: T0609700817
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: LOP CLOSED IN RB02 - SONOMA COUNTY LOP
Entity Title: Not reported
Affiliation Address: 625 FIFTH STREET
Affiliation City: SANTA ROSA
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Regional Board Caseworker
Entity Name: Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2)
Entity Title: Not reported
Affiliation Address: 1515 CLAY ST SUITE 1400
Affiliation City: OAKLAND
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

---

**39**
**SW**
**1/4-1/2**
**0.427 mi.**
**2253 ft.**

**Relative: Higher**

**Actual: 13 ft.**

**RINEHART TURCK STOP**
**2645 PETALUMA BLVD SOUTH**
**PETALUMA, CA 94952**

**CPS-SLIC** **S100872237**
**HIST UST** **N/A**
**Cortese**
**CUPA Listings**
**ENF**
**NPDES**
**CIWQS**

CPS-SLIC:
Region: STATE
**Facility Status:** **Completed - Case Closed**
Status Date: 11/04/2014
Global Id: SL0609788491
Lead Agency: SAN FRANCISCO BAY RWQCB (REGION 2)
Lead Agency Case Number: Not reported
Latitude: 38.224197
Longitude: -122.610961
Case Type: Cleanup Program Site
Case Worker: ADF
Local Agency: Not reported
RB Case Number: 2149.4073
File Location: Regional Board
Potential Media Affected: Other Groundwater (uses other than drinking water), Soil
Potential Contaminants of Concern: Benzene, Toluene, Xylene, Diesel, Gasoline
Site History: Rineharts Truck Stop is a truck fueling station, located approximately 1 mile southeast of the City of Petaluma. On May 6, 1991, Regional Board staff received a citizen complaint of oil or diesel in a drainage ditch at the rear of the Truck Stop. On May 9,

**RINEHART TURCK STOP (Continued)** **S100872237**

staff inspected the drainage ditch. The ditch runs along on side of the truck stop for a few hundred feet before entering a culvert tributary to the Petaluma River. A portion of the ditch was contaminated with a 1-2 inch thick layer of floating product. Upon sampling, the product contained about 82,000 ppm TPH as diesel. The release is believed to have occurred between an above ground product line and an underground one, associated with the Truck Stops fuel storage tanks formerly located at the site. In response to the observed discharge, Cleanup and Abatement Order No. 91-121 was adopted on August 9, 1991. The 1991 Order required the discharger to divert uncontaminated upstream water around the contaminated area, to remove all visibly stained soil, and to submit a work plan for site investigation and cleanup. The discharger had not initially responded to the above request for additional information, nor had any of the remedial action taken place as of 2001, so a new Cleanup and Abatement Order was adopted in 2001. Order No. 01-035 establishes deadlines for the resubmission and implementation of the remedial action plan, and requires continued onsite monitoring to verify whether the remedial actions were successful. In July 2001, four ASTs and associated piping, and about 2800 cubic yards of contaminated soil were removed from the site. In January 2002, new groundwater monitoring wells were installed. Semi-annual monitoring showed that GW concentrations dropped in all wells, save for persistent detections in wells MW-11 and MW-12. In 2013, 2000 gallons of hydrogen peroxide were injected into these two wells to further reduce hydrocarbons through chemical oxidation. Following two rounds of sampling, the Regional Board concurred with a rescission of CAO 01-035 on the grounds that remaining hydrocarbon concentrations would continue to decrease to below cleanup criteria in a reasonable time frame through natural attenuation. Following the rescission of the CAO, the site monitoring wells were destroyed per County requirements.
Not reported

Click here to access the California GeoTracker records for this facility:

SLIC REG 2:
Region: 2
Facility ID: 3762700
Facility Status: Remedial action (cleanup) Underway
Date Closed: Not reported
Local Case #: Not reported
How Discovered: Not reported
Leak Cause: Not reported
Leak Source: Not reported
Date Confirmed: Not reported
Date Prelim Site Assmnt Workplan Submitted: Not reported
Date Preliminary Site Assessment Began: Not reported
Date Pollution Characterization Began: Not reported
Date Remediation Plan Submitted: Not reported
Date Remedial Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

HIST UST:
File Number: 0002162B
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002162B.pdf
Region: Not reported

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Facility ID: | Not reported |
| Facility Type: | Not reported |
| Other Type: | Not reported |
| Contact Name: | Not reported |
| Telephone: | Not reported |
| Owner Name: | Not reported |
| Owner Address: | Not reported |
| Owner City,St,Zip: | Not reported |
| Total Tanks: | Not reported |
| | |
| Tank Num: | Not reported |
| Container Num: | Not reported |
| Year Installed: | Not reported |
| Tank Capacity: | Not reported |
| Tank Used for: | Not reported |
| Type of Fuel: | Not reported |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Not reported |

Click here for Geo Tracker PDF:

CORTESE:

| | |
|---|---|
| Region: | CORTESE |
| Envirostor Id: | Not reported |
| Site/Facility Type: | Not reported |
| Cleanup Status: | Not reported |
| Status Date: | Not reported |
| Site Code: | Not reported |
| Latitude: | Not reported |
| Longitude: | Not reported |
| Owner: | Not reported |
| Enf Type: | Not reported |
| Swat R: | Not reported |
| Flag: | CORTESE |
| Order No: | Not reported |
| Waste Discharge System No: | Not reported |
| Effective Date: | Not reported |
| Region 2: | 2 |
| WID Id: | 2 494073001 |
| Solid Waste Id No: | Not reported |
| Waste Management Uit Name: | Not reported |
| File Name: | Cease Desist Orders & Cleanup Abatement Orders |

CUPA SONOMA:

| | |
|---|---|
| Facility ID: | 49-000-000186 |
| Permit: | Not reported |
| Type: | Hazardous Waste |
| HMBP: | Not reported |
| UST: | Not reported |
| HWG: | Not reported |
| calarp: | Not reported |
| AST: | Not reported |
| HW Treatment: | Not reported |
| Fee Schedule: | SQG < 325 gallons/year |
| CERS ID: | 10101076 |
| Experation Date: | 05/02/2015 |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Facility ID: | 49-000-000186 |
| Permit: | Not reported |
| Type: | APSA |
| HMBP: | Not reported |
| UST: | Not reported |
| HWG: | Not reported |
| calarp: | Not reported |
| AST: | Not reported |
| HW Treatment: | Not reported |
| Fee Schedule: | Not reported |
| CERS ID: | 10101076 |
| Experation Date: | 05/02/2015 |

ENF:

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 252731 |
| Agency Name: | Rinehart Oil |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | Industrial |
| Agency Type: | Privately-Owned Business |
| # Of Agencies: | 1 |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | Not reported |
| SIC Desc 1: | Not reported |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Reg Meas |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | AGT |
| Program Category1: | TANKS |
| Program Category2: | Not reported |
| # Of Programs: | 1 |
| WDID: | 2 494073001 |
| Reg Measure Id: | 166706 |
| Reg Measure Type: | Unregulated |
| Region: | 2 |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Never Active |
| Status Date: | 02/20/2013 |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | N |
| Individual/General: | I |
| Fee Code: | Not reported |
| Direction/Voice: | Passive |
| Enforcement Id(EID): | 247092 |
| Region: | 2 |
| Order / Resolution Number: | UNKNOWN |
| Enforcement Action Type: | Notice of Violation |
| Effective Date: | 10/03/2002 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 494073001 |
| Description: | Failure to meet GW cleanup standrads per SCR. Soil removed but GW still contaminated. Failure to provide secondary cotnaiment for exisitng AGT. |
| Program: | AGT |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 252731 |
| Agency Name: | Rinehart Oil |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | Industrial |
| Agency Type: | Privately-Owned Business |
| # Of Agencies: | 1 |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | Not reported |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| SIC Desc 1: | Not reported |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Reg Meas |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | AGT |
| Program Category1: | TANKS |
| Program Category2: | Not reported |
| # Of Programs: | 1 |
| WDID: | 2 494073001 |
| Reg Measure Id: | 166706 |
| Reg Measure Type: | Unregulated |
| Region: | 2 |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Never Active |
| Status Date: | 02/20/2013 |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | N |
| Individual/General: | I |
| Fee Code: | Not reported |
| Direction/Voice: | Passive |
| Enforcement Id(EID): | 238179 |
| Region: | 2 |
| Order / Resolution Number: | UNKNOWN |
| Enforcement Action Type: | Oral Communication |
| Effective Date: | Not reported |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 494073001 |
| Description: | Not reported |
| Program: | AGT |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 252731 |
| Agency Name: | Rinehart Oil |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | Industrial |
| Agency Type: | Privately-Owned Business |
| # Of Agencies: | 1 |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | Not reported |
| SIC Desc 1: | Not reported |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Reg Meas |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | AGT |
| Program Category1: | TANKS |
| Program Category2: | Not reported |
| # Of Programs: | 1 |
| WDID: | 2 494073001 |
| Reg Measure Id: | 166706 |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Reg Measure Type: | Unregulated |
| Region: | 2 |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Never Active |
| Status Date: | 02/20/2013 |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | N |
| Individual/General: | I |
| Fee Code: | Not reported |
| Direction/Voice: | Passive |
| Enforcement Id(EID): | 235682 |
| Region: | 2 |
| Order / Resolution Number: | R2-2001-0035 |
| Enforcement Action Type: | Clean-up and Abatement Order |
| Effective Date: | 03/21/2001 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Active |
| Title: | CAO R2-2001-0035 for Rinehart Truck Stop Petaluma |
| Description: | CAO with revised deadlines for soil and groundwater investigation and cleanup. |
| Program: | AGT |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 252731 |
| Agency Name: | Rinehart Oil |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | Industrial |
| Agency Type: | Privately-Owned Business |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| # Of Agencies: | 1 |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | Not reported |
| SIC Desc 1: | Not reported |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Reg Meas |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | AGT |
| Program Category1: | TANKS |
| Program Category2: | Not reported |
| # Of Programs: | 1 |
| WDID: | 2 494073001 |
| Reg Measure Id: | 166706 |
| Reg Measure Type: | Unregulated |
| Region: | 2 |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Never Active |
| Status Date: | 02/20/2013 |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | N |
| Individual/General: | I |
| Fee Code: | Not reported |
| Direction/Voice: | Passive |
| Enforcement Id(EID): | 224697 |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Region: | 2 |
| Order / Resolution Number: | UNKNOWN |
| Enforcement Action Type: | 13267 Letter |
| Effective Date: | 07/01/1999 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 494073001 |
| Description: | Not reported |
| Program: | AGT |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |

NPDES:

| | |
|---|---|
| Facility Status: | Not reported |
| NPDES Number: | Not reported |
| Region: | Not reported |
| Agency Number: | Not reported |
| Regulatory Measure ID: | Not reported |
| Place ID: | Not reported |
| Order Number: | Not reported |
| WDID: | 2 49C380502 |
| Regulatory Measure Type: | Construction |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Discharge Address: | Not reported |
| Discharge Name: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |
| Status: | Active |
| Status Date: | 07/20/2017 |
| Operator Name: | 2645 S Petaluma Blvd LLC |
| Operator Address: | 601 Rio Grande Place |
| Operator City: | Aspen |
| Operator State: | Colorado |
| Operator Zip: | 81611 |

NPDES as of 03/2018:

| | |
|---|---|
| NPDES Number: | Not reported |
| Status: | Not reported |
| Agency Number: | Not reported |
| Region: | 2 |
| Regulatory Measure ID: | 489061 |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Order Number: | Not reported |
| Regulatory Measure Type: | Construction |
| Place ID: | Not reported |
| WDID: | 2 49C380502 |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | Not reported |
| Discharge Address: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |
| Received Date: | 07/19/2017 |
| Processed Date: | 07/20/2017 |
| Status: | Active |
| Status Date: | 07/20/2017 |
| Place Size: | 1.78 |
| Place Size Unit: | Acres |
| Contact: | Tony Sherman |
| Contact Title: | Mr |
| Contact Phone: | 415-378-3119 |
| Contact Phone Ext: | Not reported |
| Contact Email: | tshermanpetaluma@outlook.com |
| Operator Name: | 2645 S Petaluma Blvd LLC |
| Operator Address: | 601 Rio Grande Place |
| Operator City: | Aspen |
| Operator State: | Colorado |
| Operator Zip: | 81611 |
| Operator Contact: | Tony Sherman |
| Operator Contact Title: | Mr |
| Operator Contact Phone: | 415-378-3119 |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | tshermanpetaluma@outlook.com |
| Operator Type: | Private Business |
| Developer: | 2645 S Petaluma Blvd LLC |
| Developer Address: | 601 Rio Grande Place |
| Developer City: | Aspen |
| Developer State: | Colorado |
| Developer Zip: | 81611 |
| Developer Contact: | Tony Sherman |
| Developer Contact Title: | Mr |
| Constype Linear Utility Ind: | N |
| Emergency Phone: | 415-378-3119 |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | N |
| Constype Below Ground Ind: | N |
| Constype Cable Line Ind: | N |
| Constype Comm Line Ind: | N |
| Constype Commertial Ind: | Y |
| Constype Electrical Line Ind: | N |
| Constype Gas Line Ind: | N |
| Constype Industrial Ind: | N |
| Constype Other Description: | Not reported |
| Constype Other Ind: | N |
| Constype Recons Ind: | N |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Constype Residential Ind: | N |
| Constype Transport Ind: | N |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | N |
| Constype Water Sewer Ind: | N |
| Dir Discharge Uswater Ind: | N |
| Receiving Water Name: | Petaluma River |
| Certifier: | Tony Sherman |
| Certifier Title: | Mr |
| Certification Date: | 19-JUL-17 |
| Primary Sic: | Not reported |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |
| | |
| NPDES Number: | CAS000002 |
| Status: | Active |
| Agency Number: | 0 |
| Region: | 2 |
| Regulatory Measure ID: | 489061 |
| Order Number: | 2009-0009-DWQ |
| Regulatory Measure Type: | Enrollee |
| Place ID: | Not reported |
| WDID: | 2 49C380502 |
| Program Type: | Construction |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | 07/20/2017 |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | 2645 S Petaluma Blvd LLC |
| Discharge Address: | 601 Rio Grande Place |
| Discharge City: | Aspen |
| Discharge State: | Colorado |
| Discharge Zip: | 81611 |
| Received Date: | Not reported |
| Processed Date: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Place Size: | Not reported |
| Place Size Unit: | Not reported |
| Contact: | Not reported |
| Contact Title: | Not reported |
| Contact Phone: | Not reported |
| Contact Phone Ext: | Not reported |
| Contact Email: | Not reported |
| Operator Name: | Not reported |
| Operator Address: | Not reported |
| Operator City: | Not reported |
| Operator State: | Not reported |
| Operator Zip: | Not reported |
| Operator Contact: | Not reported |
| Operator Contact Title: | Not reported |
| Operator Contact Phone: | Not reported |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | Not reported |
| Operator Type: | Not reported |
| Developer: | Not reported |
| Developer Address: | Not reported |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Developer City: | Not reported |
| Developer State: | Not reported |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | Not reported |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | Not reported |
| Receiving Water Name: | Not reported |
| Certifier: | Not reported |
| Certifier Title: | Not reported |
| Certification Date: | Not reported |
| Primary Sic: | Not reported |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |

| | |
|---|---|
| Facility Status: | Active |
| NPDES Number: | CAS000002 |
| Region: | 2 |
| Agency Number: | 0 |
| Regulatory Measure ID: | 489061 |
| Place ID: | Not reported |
| Order Number: | 2009-0009-DWQ |
| WDID: | 2 49C380502 |
| Regulatory Measure Type: | Enrollee |
| Program Type: | Construction |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | 07/20/2017 |
| Termination Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Discharge Address: | 601 Rio Grande Place |
| Discharge Name: | 2645 S Petaluma Blvd LLC |
| Discharge City: | Aspen |
| Discharge State: | Colorado |
| Discharge Zip: | 81611 |
| Status: | Not reported |
| Status Date: | Not reported |
| Operator Name: | Not reported |
| Operator Address: | Not reported |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Operator City: | Not reported |
| Operator State: | Not reported |
| Operator Zip: | Not reported |

NPDES as of 03/2018:

| | |
|---|---|
| NPDES Number: | Not reported |
| Status: | Not reported |
| Agency Number: | Not reported |
| Region: | 2 |
| Regulatory Measure ID: | 489061 |
| Order Number: | Not reported |
| Regulatory Measure Type: | Construction |
| Place ID: | Not reported |
| WDID: | 2 49C380502 |
| Program Type: | Not reported |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | Not reported |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | Not reported |
| Discharge Address: | Not reported |
| Discharge City: | Not reported |
| Discharge State: | Not reported |
| Discharge Zip: | Not reported |
| Received Date: | 07/19/2017 |
| Processed Date: | 07/20/2017 |
| Status: | Active |
| Status Date: | 07/20/2017 |
| Place Size: | 1.78 |
| Place Size Unit: | Acres |
| Contact: | Tony Sherman |
| Contact Title: | Mr |
| Contact Phone: | 415-378-3119 |
| Contact Phone Ext: | Not reported |
| Contact Email: | tshermanpetaluma@outlook.com |
| Operator Name: | 2645 S Petaluma Blvd LLC |
| Operator Address: | 601 Rio Grande Place |
| Operator City: | Aspen |
| Operator State: | Colorado |
| Operator Zip: | 81611 |
| Operator Contact: | Tony Sherman |
| Operator Contact Title: | Mr |
| Operator Contact Phone: | 415-378-3119 |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | tshermanpetaluma@outlook.com |
| Operator Type: | Private Business |
| Developer: | 2645 S Petaluma Blvd LLC |
| Developer Address: | 601 Rio Grande Place |
| Developer City: | Aspen |
| Developer State: | Colorado |
| Developer Zip: | 81611 |
| Developer Contact: | Tony Sherman |
| Developer Contact Title: | Mr |
| Constype Linear Utility Ind: | N |
| Emergency Phone: | 415-378-3119 |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | N |
| Constype Below Ground Ind: | N |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Constype Cable Line Ind: | N |
| Constype Comm Line Ind: | N |
| Constype Commertial Ind: | Y |
| Constype Electrical Line Ind: | N |
| Constype Gas Line Ind: | N |
| Constype Industrial Ind: | N |
| Constype Other Description: | Not reported |
| Constype Other Ind: | N |
| Constype Recons Ind: | N |
| Constype Residential Ind: | N |
| Constype Transport Ind: | N |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | N |
| Constype Water Sewer Ind: | N |
| Dir Discharge Uswater Ind: | N |
| Receiving Water Name: | Petaluma River |
| Certifier: | Tony Sherman |
| Certifier Title: | Mr |
| Certification Date: | 19-JUL-17 |
| Primary Sic: | Not reported |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |
| | |
| NPDES Number: | CAS000002 |
| Status: | Active |
| Agency Number: | 0 |
| Region: | 2 |
| Regulatory Measure ID: | 489061 |
| Order Number: | 2009-0009-DWQ |
| Regulatory Measure Type: | Enrollee |
| Place ID: | Not reported |
| WDID: | 2 49C380502 |
| Program Type: | Construction |
| Adoption Date Of Regulatory Measure: | Not reported |
| Effective Date Of Regulatory Measure: | 07/20/2017 |
| Expiration Date Of Regulatory Measure: | Not reported |
| Termination Date Of Regulatory Measure: | Not reported |
| Discharge Name: | 2645 S Petaluma Blvd LLC |
| Discharge Address: | 601 Rio Grande Place |
| Discharge City: | Aspen |
| Discharge State: | Colorado |
| Discharge Zip: | 81611 |
| Received Date: | Not reported |
| Processed Date: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Place Size: | Not reported |
| Place Size Unit: | Not reported |
| Contact: | Not reported |
| Contact Title: | Not reported |
| Contact Phone: | Not reported |
| Contact Phone Ext: | Not reported |
| Contact Email: | Not reported |
| Operator Name: | Not reported |
| Operator Address: | Not reported |
| Operator City: | Not reported |
| Operator State: | Not reported |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Operator Zip: | Not reported |
| Operator Contact: | Not reported |
| Operator Contact Title: | Not reported |
| Operator Contact Phone: | Not reported |
| Operator Contact Phone Ext: | Not reported |
| Operator Contact Email: | Not reported |
| Operator Type: | Not reported |
| Developer: | Not reported |
| Developer Address: | Not reported |
| Developer City: | Not reported |
| Developer State: | Not reported |
| Developer Zip: | Not reported |
| Developer Contact: | Not reported |
| Developer Contact Title: | Not reported |
| Constype Linear Utility Ind: | Not reported |
| Emergency Phone: | Not reported |
| Emergency Phone Ext: | Not reported |
| Constype Above Ground Ind: | Not reported |
| Constype Below Ground Ind: | Not reported |
| Constype Cable Line Ind: | Not reported |
| Constype Comm Line Ind: | Not reported |
| Constype Commertial Ind: | Not reported |
| Constype Electrical Line Ind: | Not reported |
| Constype Gas Line Ind: | Not reported |
| Constype Industrial Ind: | Not reported |
| Constype Other Description: | Not reported |
| Constype Other Ind: | Not reported |
| Constype Recons Ind: | Not reported |
| Constype Residential Ind: | Not reported |
| Constype Transport Ind: | Not reported |
| Constype Utility Description: | Not reported |
| Constype Utility Ind: | Not reported |
| Constype Water Sewer Ind: | Not reported |
| Dir Discharge Uswater Ind: | Not reported |
| Receiving Water Name: | Not reported |
| Certifier: | Not reported |
| Certifier Title: | Not reported |
| Certification Date: | Not reported |
| Primary Sic: | Not reported |
| Secondary Sic: | Not reported |
| Tertiary Sic: | Not reported |

CIWQS:

| | |
|---|---|
| Agency: | 2645 S Petaluma Blvd LLC |
| Agency Address: | 601 Rio Grande Place Suite 117, Aspen, CO 81611 |
| Place/Project Type: | Construction - Commercial |
| SIC/NAICS: | Not reported |
| Region: | 2 |
| Program: | CONSTW |
| Regulatory Measure Status: | Active |
| Regulatory Measure Type: | Storm water construction |
| Order Number: | 2009-0009-DWQ |
| WDID: | 2 49C380502 |
| NPDES Number: | CAS000002 |
| Adoption Date: | Not reported |
| Effective Date: | 07/20/2017 |

**RINEHART TURCK STOP (Continued)** **S100872237**

| | |
|---|---|
| Termination Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Design Flow: | Not reported |
| Major/Minor: | Not reported |
| Complexity: | Not reported |
| TTWQ: | Not reported |
| Enforcement Actions within 5 years: | 0 |
| Violations within 5 years: | 0 |
| Latitude: | 38.224369 |
| Longitude: | -122.610927 |

---

**G40** **STERO DISHWASHING MACHINE** **LUST** **S105026671**
**ENE** **3200 LAKEVILLE HWY** **HIST CORTESE** **N/A**
**1/4-1/2** **PETALUMA, CA 94952** **CERS**
**0.447 mi.**
**2359 ft.** **Site 1 of 2 in cluster G**

**Relative:** **Higher**
**Actual:** **25 ft.**

LUST:

| | |
|---|---|
| Lead Agency: | SONOMA COUNTY LOP |
| Case Type: | LUST Cleanup Site |
| Geo Track: | http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700949 |
| Global Id: | T0609700949 |
| Latitude: | 38.233407 |
| Longitude: | -122.596147 |
| Status: | Completed - Case Closed |
| Status Date: | 04/15/1997 |
| Case Worker: | LCW |
| RB Case Number: | 49-0187 |
| Local Agency: | SONOMA COUNTY LOP |
| File Location: | All Files are on GeoTracker or in the Local Agency Database |
| Local Case Number: | 00002500 |
| Potential Media Affect: | Soil |
| Potential Contaminants of Concern: | Gasoline |
| Site History: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700949 |
| Contact Type: | Local Agency Caseworker |
| Contact Name: | LOP CLOSED IN RB02 |
| Organization Name: | SONOMA COUNTY LOP |
| Address: | 625 FIFTH STREET |
| City: | SANTA ROSA |
| Email: | Not reported |
| Phone Number: | Not reported |

| | |
|---|---|
| Global Id: | T0609700949 |
| Contact Type: | Regional Board Caseworker |
| Contact Name: | Regional Water Board |
| Organization Name: | SAN FRANCISCO BAY RWQCB (REGION 2) |
| Address: | 1515 CLAY ST SUITE 1400 |
| City: | OAKLAND |
| Email: | Not reported |
| Phone Number: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700949 |
| Action Type: | Other |
| Date: | 01/02/1965 |

**STERO DISHWASHING MACHINE (Continued)** **S105026671**

Action: Leak Reported

Global Id: T0609700949
Action Type: Other
Date: 02/27/1987
Action: Leak Discovery

LUST:
Global Id: T0609700949
Status: Completed - Case Closed
Status Date: 04/15/1997

Global Id: T0609700949
Status: Open - Case Begin Date
Status Date: 02/27/1987

Global Id: T0609700949
Status: Open - Site Assessment
Status Date: 02/01/1991

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0187
Closed or Referred: Y
Confirm Date: 04/15/1997
LOP Number: 00002500
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700949
APN: 005-040-039
Notes: CLOSED

HIST CORTESE:
Region: CORTESE
Facility County Code: 49
Reg By: LTNKA
Reg Id: 49-0187

CERS TANKS:
Site ID: 246011
CERS ID: T0609700949
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: LOP CLOSED IN RB02 - SONOMA COUNTY LOP
Entity Title: Not reported
Affiliation Address: 625 FIFTH STREET
Affiliation City: SANTA ROSA
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Regional Board Caseworker

**STERO DISHWASHING MACHINE (Continued)** **S105026671**

| | |
|---|---|
| Entity Name: | Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2) |
| Entity Title: | Not reported |
| Affiliation Address: | 1515 CLAY ST SUITE 1400 |
| Affiliation City: | OAKLAND |
| Affiliation State: | CA |
| Affiliation Country: | Not reported |
| Affiliation Zip: | Not reported |
| Affiliation Phone: | Not reported |

---

**G41** **THE STERO COMPANY** **LUST S100610155**
**ENE** **3200 LAKEVILLE HWY** **EMI N/A**
**1/4-1/2** **PETALUMA, CA 94952** **WDS**
**0.447 mi.**
**2359 ft.** **Site 2 of 2 in cluster G**

**Relative:**
**Higher**

**Actual:**
**25 ft.**

LUST REG 2:

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 49-0187 |
| Facility Status: | Case Closed |
| Case Number: | 00002500 |
| How Discovered: | Not reported |
| Leak Cause: | Not reported |
| Leak Source: | Not reported |
| Date Leak Confirmed: | Not reported |
| Oversight Program: | LUST |
| Prelim. Site Assesment Wokplan Submitted: | Not reported |
| Preliminary Site Assesment Began: | 2/1/1991 |
| Pollution Characterization Began: | Not reported |
| Pollution Remediation Plan Submitted: | Not reported |
| Date Remediation Action Underway: | Not reported |
| Date Post Remedial Action Monitoring Began: | Not reported |

EMI:

| | |
|---|---|
| Year: | 1995 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 1611 |
| Air District Name: | BA |
| SIC Code: | 3589 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 2 |
| Reactive Organic Gases Tons/Yr: | 1 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 1996 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 1611 |
| Air District Name: | BA |
| SIC Code: | 3589 |

**THE STERO COMPANY (Continued)** **S100610155**

| | |
|---|---|
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 2 |
| Reactive Organic Gases Tons/Yr: | 1 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 1997 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 1611 |
| Air District Name: | BA |
| SIC Code: | 3589 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 3 |
| Reactive Organic Gases Tons/Yr: | 2 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 1998 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 1611 |
| Air District Name: | BA |
| SIC Code: | 3589 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 2 |
| Reactive Organic Gases Tons/Yr: | 1 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 1999 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 1611 |
| Air District Name: | BA |
| SIC Code: | 3589 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 2 |
| Reactive Organic Gases Tons/Yr: | 1 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |

**THE STERO COMPANY (Continued)** **S100610155**

NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

Year: 2000
County Code: 49
Air Basin: SF
Facility ID: 1611
Air District Name: BA
SIC Code: 3589
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 2
Reactive Organic Gases Tons/Yr: 1
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

Year: 2001
County Code: 49
Air Basin: SF
Facility ID: 1611
Air District Name: BA
SIC Code: 3589
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 2
Reactive Organic Gases Tons/Yr: 1
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

WDS:
Facility ID: San Francisco Bay 49I007350
Facility Type: Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status: Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number: CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion: 2
Facility Telephone: 7077620071
Facility Contact: PAUL BRUNETTA
Agency Name: STERO CO
Agency Address: 3200 Lakeville Hwy
Agency City,St,Zip: Petaluma 949545675

**THE STERO COMPANY (Continued)** **S100610155**

| | |
|---|---|
| Agency Contact: | PAUL BRUNETTA |
| Agency Telephone: | 7077620071 |
| Agency Type: | Private |
| SIC Code: | 0 |
| SIC Code 2: | Not reported |
| Primary Waste Type: | Not reported |
| Primary Waste: | Not reported |
| Waste Type2: | Not reported |
| Waste2: | Not reported |
| Primary Waste Type: | Not reported |
| Secondary Waste: | Not reported |
| Secondary Waste Type: | Not reported |
| Design Flow: | 0 |
| Baseline Flow: | 0 |
| Reclamation: | Not reported |
| POTW: | Not reported |
| Treat To Water: | Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality. |
| Complexity: | Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds. |

---

**42**
**WNW**
**1/4-1/2**
**0.456 mi.**
**2409 ft.**

**Relative:**
**Higher**

**Actual:**
**12 ft.**

**BIG 4 RENTS PETALUMA**
**1731 LAKEVILLE HWY**
**PETALUMA, CA 94952**

**RCRA-SQG** **1000818847**
**LUST** **CAD983647611**
**SWEEPS UST**
**HIST UST**
**CA FID UST**
**HIST CORTESE**
**WDS**
**CIWQS**

RCRA-SQG:

| | |
|---|---|
| Date form received by agency: | 09/09/1992 |
| Facility name: | BIG 4 RENTS PETALUMA |
| Facility address: | 1731 LAKEVILLE HWY<br>PETALUMA, CA 94952 |
| EPA ID: | CAD983647611 |
| Contact: | MARDELL SARKELA |
| Contact address: | P O BOX 2939<br>ROHNERT PARK, CA 94927 |
| Contact country: | US |
| Contact telephone: | 707-586-4413 |
| Contact email: | Not reported |
| EPA Region: | 09 |
| Classification: | Small Small Quantity Generator |
| Description: | Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time |

**BIG 4 RENTS PETALUMA (Continued)** **1000818847**

Owner/Operator Summary:
- Owner/operator name: CHARLES BRADLEY
- Owner/operator address: P O BOX 2939
  ROHNERT PARK, CA 94927
- Owner/operator country: Not reported
- Owner/operator telephone: 707-526-4413
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Violation Status: No violations found

LUST:
- Lead Agency: SONOMA COUNTY LOP
- Case Type: LUST Cleanup Site
- Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700784
- Global Id: T0609700784
- Latitude: 38.233282466
- Longitude: -122.615083503
- Status: Completed - Case Closed
- Status Date: 09/29/2011
- Case Worker: LCW
- RB Case Number: 49-0014
- Local Agency: SONOMA COUNTY LOP
- File Location: Local Agency Warehouse
- Local Case Number: 00002211
- Potential Media Affect: Other Groundwater (uses other than drinking water)
- Potential Contaminants of Concern: Gasoline
- Site History: Excerpts of site history from file reports: In 1988 six underground storage tanks (USTs) were removed from the site. Investigation has taken place from 1990 through 2007. Case closed 9/29/2011. Contingency planning is required for worker safety and waste disposal if excavationg in areas of residual contamination. The City of Petalum Building Department has been notified. Newly proposed water supply wells may require siting and design by a qualified professional engineer or geologist. Sonoma County Permit and Resource

**BIG 4 RENTS PETALUMA (Continued)** **1000818847**

Mngmt. Dept. has been notified.

LUST:
Global Id: T0609700784
Contact Type: Regional Board Caseworker
Contact Name: Regional Water Board
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

LUST:
Global Id: T0609700784
Action Type: Other
Date: 07/01/1988
Action: Leak Reported

Global Id: T0609700784
Action Type: Other
Date: 02/18/1988
Action: Leak Discovery

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 04/20/2011
Action: Staff Letter

Global Id: T0609700784
Action Type: REMEDIATION
Date: 09/11/1998
Action: Excavation

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 03/22/2011
Action: Notification - Public Notice of Case Closure

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 03/24/2011
Action: Staff Letter

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 03/24/2011
Action: Staff Letter

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 12/07/2010
Action: File Review - Closure

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 05/15/2008
Action: Staff Letter

**BIG 4 RENTS PETALUMA (Continued)** **1000818847**

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 05/19/2010
Action: Technical Correspondence / Assistance / Other

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 08/06/2009
Action: Staff Letter

Global Id: T0609700784
Action Type: RESPONSE
Date: 01/18/2011
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0609700784
Action Type: RESPONSE
Date: 08/03/2009
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0609700784
Action Type: REMEDIATION
Date: 10/13/2000
Action: Excavation

Global Id: T0609700784
Action Type: Other
Date: 01/15/1988
Action: Leak Stopped

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 12/20/2010
Action: File Review - Closure

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 09/29/2011
Action: Closure/No Further Action Letter

Global Id: T0609700784
Action Type: ENFORCEMENT
Date: 03/24/2011
Action: LOP Case Closure Summary to RB

LUST:
Global Id: T0609700784
Status: Completed - Case Closed
Status Date: 09/29/2011

Global Id: T0609700784
Status: Open - Case Begin Date
Status Date: 12/22/1987

Global Id: T0609700784
Status: Open - Site Assessment
Status Date: 07/11/1988

**BIG 4 RENTS PETALUMA (Continued)** **1000818847**

Global Id: T0609700784
Status: Open - Site Assessment
Status Date: 07/16/2002

Global Id: T0609700784
Status: Open - Verification Monitoring
Status Date: 05/15/2008

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0014
Closed or Referred: Y
Confirm Date: 09/29/2011
LOP Number: 00002211
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700784
APN: 005-060-036
Notes: CLOSED

SWEEPS UST:
Status: Active
Comp Number: 2211
Number: 9
Board Of Equalization: Not reported
Referral Date: 03-31-89
Action Date: Not reported
Created Date: 03-31-89
Owner Tank Id: Not reported
SWRCB Tank Id: Not reported
Tank Status: Not reported
Capacity: Not reported
Active Date: Not reported
Tank Use: Not reported
STG: Not reported
Content: Not reported
Number Of Tanks: Not reported

HIST UST:
File Number: 000214C3
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/000214C3.pdf
Region: STATE
Facility ID: 00000050377
Facility Type: Other
Other Type: RENTAL
Contact Name: RAOUL POLLOCK
Telephone: 7077624444
Owner Name: BIG 4 RENTS INC
Owner Address: 7613 SO. SANTA ROSA AVE
Owner City,St,Zip: COTATI, CA 94928
Total Tanks: 0004

Tank Num: 001
Container Num: 1
Year Installed: Not reported

**BIG 4 RENTS PETALUMA (Continued)** **1000818847**

Tank Capacity: 00010000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Container Construction Thickness: Not reported
Leak Detection: None

Tank Num: 002
Container Num: 2
Year Installed: Not reported
Tank Capacity: 00010000
Tank Used for: PRODUCT
Type of Fuel: PREMIUM
Container Construction Thickness: Not reported
Leak Detection: None

Tank Num: 003
Container Num: 3
Year Installed: Not reported
Tank Capacity: 00002000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: Not reported
Leak Detection: None

Tank Num: 004
Container Num: 4
Year Installed: Not reported
Tank Capacity: 00005000
Tank Used for: Not reported
Type of Fuel: Not reported
Container Construction Thickness: Not reported
Leak Detection: None

Click here for Geo Tracker PDF:

CA FID UST:
Facility ID: 49000495
Regulated By: UTNKA
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 7077624444
Mail To: Not reported
Mailing Address: 7613 SANTA ROSA S
Mailing Address 2: Not reported
Mailing City,St,Zip: PETALUMA 94952
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

HIST CORTESE:
Region: CORTESE

**BIG 4 RENTS PETALUMA (Continued)** **1000818847**

Facility County Code: 49
Reg By: LTNKA
Reg Id: 49-0014

WDS:
Facility ID: San Francisco Bay 49I014662
Facility Type: Not reported
Facility Status: Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number: CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion: 2
Facility Telephone: Not reported
Facility Contact: Not reported
Agency Name: BIG 4 RENTS INC
Agency Address: Not reported
Agency City,St,Zip: 0
Agency Contact: Not reported
Agency Telephone: Not reported
Agency Type: Not reported
SIC Code: 0
SIC Code 2: Not reported
Primary Waste Type: Not reported
Primary Waste: Not reported
Waste Type2: Not reported
Waste2: Not reported
Primary Waste Type: Not reported
Secondary Waste: Not reported
Secondary Waste Type: Not reported
Design Flow: 0
Baseline Flow: 0
Reclamation: Not reported
POTW: Not reported
Treat To Water: Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity: Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

CIWQS:
Agency: Big 4 Rents Inc
Agency Address: PO Box 2939, Rohnert Park, CA 94927
Place/Project Type: Industrial - General Warehousing and Storage
SIC/NAICS: 4225
Region: 2
Program: INDSTW
Regulatory Measure Status: Terminated
Regulatory Measure Type: Storm water industrial
Order Number: 2014-0057-DWQ

**BIG 4 RENTS PETALUMA (Continued)** **1000818847**

| | |
|---|---|
| WDID: | 2 49I014662 |
| NPDES Number: | CAS000001 |
| Adoption Date: | Not reported |
| Effective Date: | 10/15/1998 |
| Termination Date: | 11/14/2003 |
| Expiration/Review Date: | Not reported |
| Design Flow: | Not reported |
| Major/Minor: | Not reported |
| Complexity: | Not reported |
| TTWQ: | Not reported |
| Enforcement Actions within 5 years: | 0 |
| Violations within 5 years: | 0 |
| Latitude: | 38.23303 |
| Longitude: | -122.6138 |

---

**H43** **METRON SUPER GAS** **LUST** **S102436954**
**WNW** **910 BAYWOOD DR** **HIST CORTESE** **N/A**
**1/4-1/2** **PETALUMA, CA 94952** **CERS**
**0.463 mi.**
**2446 ft.** **Site 1 of 3 in cluster H**

**Relative:**
**Higher**

**Actual:**
**13 ft.**

LUST:

| | |
|---|---|
| Lead Agency: | SONOMA COUNTY LOP |
| Case Type: | LUST Cleanup Site |
| Geo Track: | http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700992 |
| Global Id: | T0609700992 |
| Latitude: | 38.234341 |
| Longitude: | -122.614344 |
| Status: | Completed - Case Closed |
| Status Date: | 11/20/1997 |
| Case Worker: | LCW |
| RB Case Number: | 49-0231 |
| Local Agency: | SONOMA COUNTY LOP |
| File Location: | All Files are on GeoTracker or in the Local Agency Database |
| Local Case Number: | 00001436 |
| Potential Media Affect: | Aquifer used for drinking water supply |
| Potential Contaminants of Concern: | Waste Oil / Motor / Hydraulic / Lubricating |
| Site History: | Not reported |

LUST:

| | |
|---|---|
| Global Id: | T0609700992 |
| Contact Type: | Local Agency Caseworker |
| Contact Name: | LOP CLOSED IN RB02 |
| Organization Name: | SONOMA COUNTY LOP |
| Address: | 625 FIFTH STREET |
| City: | SANTA ROSA |
| Email: | Not reported |
| Phone Number: | Not reported |

| | |
|---|---|
| Global Id: | T0609700992 |
| Contact Type: | Regional Board Caseworker |
| Contact Name: | Regional Water Board |
| Organization Name: | SAN FRANCISCO BAY RWQCB (REGION 2) |
| Address: | 1515 CLAY ST SUITE 1400 |
| City: | OAKLAND |
| Email: | Not reported |
| Phone Number: | Not reported |

**METRON SUPER GAS (Continued)** **S102436954**

LUST:
Global Id: T0609700992
Action Type: Other
Date: 01/02/1965
Action: Leak Reported

Global Id: T0609700992
Action Type: Other
Date: 08/18/1993
Action: Leak Discovery

LUST:
Global Id: T0609700992
Status: Completed - Case Closed
Status Date: 11/20/1997

Global Id: T0609700992
Status: Open - Case Begin Date
Status Date: 08/18/1993

Global Id: T0609700992
Status: Open - Site Assessment
Status Date: 09/20/1994

Lead Agency: SONOMA COUNTY LOP
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609766367
Global Id: T0609766367
Latitude: 38.234328003
Longitude: -122.614444839
Status: Completed - Case Closed
Status Date: 08/07/2018
Case Worker: LCW
RB Case Number: 49-0314
Local Agency: SONOMA COUNTY LOP
File Location: All Files are on GeoTracker or in the Local Agency Database
Local Case Number: 00024331
Potential Media Affect: Aquifer used for drinking water supply
Potential Contaminants of Concern: Gasoline
Site History: The property is an operating gas station. A Phase II Site Assessment was performed in September 2001 and found soil and groundwater contamination. Investigation of the plume has been completed.The site was entered into the LOP in December 2001 based on the results of an environmental assessment that reported both soil and groundwater contamination. 18 monitoring wells and 8 remediation wells have been installed at the site. No wells have been destroyed. A Dual Phase Extraction (DPE) pilot test occurred from 2/3/10 through 4/6/10. Approximately 215,300 gallons of groundwater was removed, treated and properly disposed of. It was reported that approximately 19,500 pounds of contamination was removed by vapor extraction. Additional DPE events with concurrent Air Sparging (AS) occurred for short periods in 6/2013, 11/2013 and 5/2014. During those events approximately 361,380 gallons of groundwater was removed, treated and properly disposed of. It was reported that approximately 20,500 pounds of contamination was removed by vapor extraction. Groundwater

**METRON SUPER GAS (Continued)** **S102436954**

flow direction has been predominantly westerly. The site meets the Low Threat Closure Policy as follows: General Criteria are met. Groundwater Specific Criteria is met by 5a. Vapor Intrusion to Indoor Air Criteria is met by the exemption as the site is an active fueling station. Direct Contact and Outdoor Air Criteria is met by 3a. Site Management Requirements: Contingency planning is required for worker safety and waste disposal if excavating in area(s) of residual contamination. The Building Department has been notified. Newly proposed water supply wells may require siting and design by a qualified professional engineer or geologist. Sonoma County Permit and Resource Management Department has been notified. A Soil and Groundwater Management Plan has been submitted and is on Geotracker. Corrective action should be reviewed if land use changes. SITE CLOSED 8/7/18

LUST:

| | |
|---|---|
| Global Id: | T0609766367 |
| Action Type: | ENFORCEMENT |
| Date: | 04/17/2008 |
| Action: | Staff Letter |
| Global Id: | T0609766367 |
| Action Type: | ENFORCEMENT |
| Date: | 05/21/2003 |
| Action: | Staff Letter |
| Global Id: | T0609766367 |
| Action Type: | Other |
| Date: | 09/18/2001 |
| Action: | Leak Reported |
| Global Id: | T0609766367 |
| Action Type: | ENFORCEMENT |
| Date: | 10/24/2013 |
| Action: | Staff Letter |
| Global Id: | T0609766367 |
| Action Type: | RESPONSE |
| Date: | 02/09/2016 |
| Action: | Request for Closure - Regulator Responded |
| Global Id: | T0609766367 |
| Action Type: | RESPONSE |
| Date: | 02/09/2016 |
| Action: | Request for Closure - Regulator Responded |
| Global Id: | T0609766367 |
| Action Type: | ENFORCEMENT |
| Date: | 09/20/2016 |
| Action: | LOP Case Closure Summary to RB |
| Global Id: | T0609766367 |
| Action Type: | ENFORCEMENT |
| Date: | 09/20/2016 |
| Action: | Staff Letter |
| Global Id: | T0609766367 |
| Action Type: | RESPONSE |

**METRON SUPER GAS (Continued)** **S102436954**

Date: 12/31/2009
Action: Soil and Water Investigation Report

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 08/07/2018
Action: Closure/No Further Action Letter

Global Id: T0609766367
Action Type: RESPONSE
Date: 06/23/2013
Action: CAP/RAP - Feasibility Study Report

Global Id: T0609766367
Action Type: RESPONSE
Date: 07/21/2003
Action: Soil and Water Investigation Workplan

Global Id: T0609766367
Action Type: RESPONSE
Date: 09/03/2008
Action: Other Workplan

Global Id: T0609766367
Action Type: RESPONSE
Date: 02/15/2008
Action: Soil and Water Investigation Report

Global Id: T0609766367
Action Type: RESPONSE
Date: 12/31/2009
Action: Corrective Action Plan / Remedial Action Plan

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 07/07/2009
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 12/21/2009
Action: Staff Letter

Global Id: T0609766367
Action Type: RESPONSE
Date: 09/16/2013
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0609766367
Action Type: RESPONSE
Date: 10/19/2011
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 03/01/2016
Action: Staff Letter

**METRON SUPER GAS (Continued)** **S102436954**

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 04/12/2016
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/07/2017
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 08/12/2008
Action: Staff Letter

Global Id: T0609766367
Action Type: RESPONSE
Date: 04/02/2010
Action: Interim Remedial Action Report

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 05/26/2005
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/04/2008
Action: Staff Letter

Global Id: T0609766367
Action Type: REMEDIATION
Date: 02/03/2010
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0609766367
Action Type: RESPONSE
Date: 03/06/2006
Action: Soil and Water Investigation Workplan

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 01/26/2011
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 10/29/2013
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 03/30/2011
Action: Staff Letter

Global Id: T0609766367
Action Type: RESPONSE

**METRON SUPER GAS (Continued)** **S102436954**

Date: 02/13/2005
Action: Soil and Water Investigation Workplan

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 01/06/2006
Action: Staff Letter

Global Id: T0609766367
Action Type: RESPONSE
Date: 07/15/2003
Action: Sensitive Receptor Survey Report

Global Id: T0609766367
Action Type: RESPONSE
Date: 03/03/2014
Action: Well Installation Workplan - Regulator Responded

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 11/24/2009
Action: Warning Letter

Global Id: T0609766367
Action Type: RESPONSE
Date: 03/31/2011
Action: Final Remedial Action Report / Corrective Action Report

Global Id: T0609766367
Action Type: RESPONSE
Date: 06/29/2011
Action: CAP/RAP - Feasibility Study Report

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 11/10/2015
Action: Email Correspondence

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 12/07/2011
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 04/25/2013
Action: Notification - Public Notice of ROD/RAP/CAP

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 08/28/2012
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 11/05/2012
Action: Staff Letter

**METRON SUPER GAS (Continued)** **S102436954**

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 12/11/2012
Action: Staff Letter

Global Id: T0609766367
Action Type: Other
Date: 09/04/2001
Action: Leak Discovery

Global Id: T0609766367
Action Type: RESPONSE
Date: 12/29/2013
Action: Well Installation Workplan

Global Id: T0609766367
Action Type: RESPONSE
Date: 11/19/2013
Action: CAP/RAP - Other Report

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/20/2016
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/20/2016
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/20/2016
Action: Notification - Public Notice of Case Closure

Global Id: T0609766367
Action Type: RESPONSE
Date: 05/01/2012
Action: Conceptual Site Model

Global Id: T0609766367
Action Type: RESPONSE
Date: 08/18/2010
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0609766367
Action Type: RESPONSE
Date: 08/17/2010
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0609766367
Action Type: RESPONSE
Date: 08/17/2010
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

Global Id: T0609766367
Action Type: RESPONSE

**METRON SUPER GAS (Continued)** **S102436954**

Date: 10/29/2012
Action: CAP/RAP - Feasibility Study Report - Regulator Responded

Global Id: T0609766367
Action Type: RESPONSE
Date: 04/09/2013
Action: Corrective Action Plan / Remedial Action Plan - Addendum - Regulator Responded

Global Id: T0609766367
Action Type: RESPONSE
Date: 02/11/2013
Action: CAP/RAP - Final Remediation / Design Plan

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 12/13/2004
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/19/2013
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 11/21/2002
Action: Staff Letter

Global Id: T0609766367
Action Type: RESPONSE
Date: 03/31/2011
Action: Monitoring Report - Other

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 12/15/2016
Action: Staff Letter

Global Id: T0609766367
Action Type: REMEDIATION
Date: 06/01/2013
Action: Dual Phase Extraction

Global Id: T0609766367
Action Type: REMEDIATION
Date: 11/18/2013
Action: Dual Phase Extraction

Global Id: T0609766367
Action Type: REMEDIATION
Date: 05/06/2014
Action: Dual Phase Extraction

Global Id: T0609766367
Action Type: RESPONSE
Date: 03/21/2016
Action: Well Destruction Workplan - Regulator Responded

**METRON SUPER GAS (Continued)** **S102436954**

Global Id: T0609766367
Action Type: RESPONSE
Date: 08/24/2017
Action: Well Destruction Workplan - Regulator Responded

Global Id: T0609766367
Action Type: RESPONSE
Date: 06/21/2018
Action: Request for Closure - Regulator Responded

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 03/11/2014
Action: Staff Letter

Global Id: T0609766367
Action Type: Other
Date: 09/04/2001
Action: Leak Stopped

Global Id: T0609766367
Action Type: RESPONSE
Date: 02/13/2005
Action: Soil and Water Investigation Workplan

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/13/2004
Action: Staff Letter

Global Id: T0609766367
Action Type: RESPONSE
Date: 03/02/2014
Action: Well Installation Workplan

Global Id: T0609766367
Action Type: RESPONSE
Date: 06/12/2014
Action: Remedial Progress Report

Global Id: T0609766367
Action Type: RESPONSE
Date: 07/26/2005
Action: Soil and Water Investigation Report

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/13/2001
Action: Notification - Proposition 65

Global Id: T0609766367
Action Type: RESPONSE
Date: 05/11/2014
Action: Well Installation Report

Global Id: T0609766367
Action Type: ENFORCEMENT

**METRON SUPER GAS (Continued)** **S102436954**

Date: 03/12/2014
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 05/05/2015
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 09/24/2007
Action: Staff Letter

Global Id: T0609766367
Action Type: ENFORCEMENT
Date: 01/02/2014
Action: Staff Letter

LUST:
Global Id: T0609766367
Status: Completed - Case Closed
Status Date: 08/07/2018

Global Id: T0609766367
Status: Open - Case Begin Date
Status Date: 09/04/2001

Global Id: T0609766367
Status: Open - Eligible for Closure
Status Date: 09/20/2016

Global Id: T0609766367
Status: Open - Remediation
Status Date: 02/03/2010

Global Id: T0609766367
Status: Open - Site Assessment
Status Date: 01/10/2002

Global Id: T0609766367
Status: Open - Site Assessment
Status Date: 01/21/2002

Global Id: T0609766367
Status: Open - Site Assessment
Status Date: 10/30/2002

Global Id: T0609766367
Status: Open - Site Assessment
Status Date: 03/05/2004

Global Id: T0609766367
Status: Open - Site Assessment
Status Date: 04/27/2005

Global Id: T0609766367
Status: Open - Site Assessment

**METRON SUPER GAS (Continued)** **S102436954**

Status Date: 04/05/2007

Global Id: T0609766367
Status: Open - Site Assessment
Status Date: 03/21/2008

Global Id: T0609766367
Status: Open - Verification Monitoring
Status Date: 07/30/2014

LUST REG 2:
Region: 2
Facility Id: 49-0231
Facility Status: Case Closed
Case Number: 00001436
How Discovered: Not reported
Leak Cause: Not reported
Leak Source: Not reported
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 9/20/1994
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SONOMA CO. LUST:
Region: SONOMA
Regional Board: 49-0231
Closed or Referred: Y
Confirm Date: 11/20/1997
LOP Number: 00001436
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609700992
APN: 005-202-001
Notes: CLOSED

Region: SONOMA
Regional Board: 49-0314
Closed or Referred: Y
Confirm Date: 08/07/2018
LOP Number: 00024331
Staff: Not reported
Decode of Staff: Not reported
Global ID: T0609766367
APN: 005-202-001
Notes: Not reported

HIST CORTESE:
Region: CORTESE
Facility County Code: 49
Reg By: LTNKA
Reg Id: 49-0231

**METRON SUPER GAS (Continued)** **S102436954**

CERS TANKS:
Site ID: 214649
CERS ID: T0609700992
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: LOP CLOSED IN RB02 - SONOMA COUNTY LOP
Entity Title: Not reported
Affiliation Address: 625 FIFTH STREET
Affiliation City: SANTA ROSA
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Regional Board Caseworker
Entity Name: Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2)
Entity Title: Not reported
Affiliation Address: 1515 CLAY ST SUITE 1400
Affiliation City: OAKLAND
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

---

**H44** **METRON SUPER GAS** **LUST** **S103977289**
**WNW** **910 BAYWOOD DR** **N/A**
**1/4-1/2** **PETALUMA, CA 94952**
**0.463 mi.**
**2446 ft.** **Site 2 of 3 in cluster H**

**Relative:**
**Higher**

**Actual:**
**13 ft.**

LUST REG 2:
Region: 2
Facility Id: 49-0314
Facility Status: Pollution Characterization
Case Number: 00024331
How Discovered: Not reported
Leak Cause: UNK
Leak Source: UNK
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: 1/10/2002
Preliminary Site Assesment Began: 1/21/2002
Pollution Characterization Began: 10/30/2002
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

**H45** **METRON SUPER GAS** **HAZNET** **S112911643**
**WNW** **910 BAYWOOD DR** **Notify 65** **N/A**
**1/4-1/2** **PETALUMA, CA 94952**
**0.463 mi.**
**2446 ft.** **Site 3 of 3 in cluster H**

**Relative:**
**Higher**

**Actual:**
**13 ft.**

HAZNET:

| | |
|---|---|
| envid: | S112911643 |
| Year: | 2001 |
| GEPAID: | CAC002316353 |
| Contact: | MOHAMMAD - OWNER |
| Telephone: | 5104901453 |
| Mailing Name: | Not reported |
| Mailing Address: | 910 BAYWOOD DR |
| Mailing City,St,Zip: | PETALUMA, CA 949520000 |
| Gen County: | Not reported |
| TSD EPA ID: | CAL000161741 |
| TSD County: | Not reported |
| Waste Category: | Unspecified oil-containing waste |
| Disposal Method: | Recycler |
| Tons: | 0.91 |
| Cat Decode: | Not reported |
| Method Decode: | Not reported |
| Facility County: | Sonoma |

NOTIFY 65:

| | |
|---|---|
| Date Reported: | Not reported |
| Staff Initials: | Not reported |
| Board File Number: | Not reported |
| Facility Type: | Not reported |
| Discharge Date: | Not reported |
| Issue Date: | Not reported |
| Incident Description: | Not reported |

---

**I46** **SOLA OPTICAL USA, INC** **CHMIRS** **S100833472**
**ENE** **1500 CADER LANE** **CA BOND EXP. PLAN** **N/A**
**1/2-1** **PETALUMA, CA 94952** **EMI**
**0.574 mi.**
**3032 ft.** **Site 1 of 5 in cluster I**

**Relative:**
**Higher**

**Actual:**
**32 ft.**

CHMIRS:

| | |
|---|---|
| OES Incident Number: | 17057 |
| OES notification: | Not reported |
| OES Date: | 12/20/1996 |
| OES Time: | 05:25:04 AM |
| **Date Completed:** | **Not reported** |
| Property Use: | Not reported |
| Agency Id Number: | Not reported |
| Agency Incident Number: | Not reported |
| Time Notified: | Not reported |
| Time Completed: | Not reported |
| Surrounding Area: | Not reported |
| Estimated Temperature: | Not reported |
| Property Management: | Not reported |
| More Than Two Substances Involved?: | Not reported |
| Resp Agncy Personel # Of Decontaminated: | Not reported |
| Responding Agency Personel # Of Injuries: | Not reported |
| Responding Agency Personel # Of Fatalities: | Not reported |
| Others Number Of Decontaminated: | Not reported |

**SOLA OPTICAL USA, INC (Continued)** **S100833472**

| | |
|---|---|
| Others Number Of Injuries: | Not reported |
| Others Number Of Fatalities: | Not reported |
| Vehicle Make/year: | Not reported |
| Vehicle License Number: | Not reported |
| Vehicle State: | Not reported |
| Vehicle Id Number: | Not reported |
| CA DOT PUC/ICC Number: | Not reported |
| Company Name: | Not reported |
| Reporting Officer Name/ID: | Not reported |
| Report Date: | Not reported |
| Facility Telephone: | Not reported |
| Waterway Involved: | YES |
| Waterway: | Not reported |
| Spill Site: | Not reported |
| Cleanup By: | Not reported |
| Containment: | Not reported |
| What Happened: | Not reported |
| Type: | CHEMICAL VAPOR |
| Measure: | Not reported |
| Other: | Not reported |
| Date/Time: | Not reported |
| Year: | 1996 |
| Agency: | co oes |
| Incident Date: | 0430/12-20-96 |
| Admin Agency: | Not reported |
| Amount: | 55 gallons |
| Contained: | NO |
| Site Type: | OTHER |
| E Date: | Not reported |
| Substance: | urathane acurlate |
| Unknown: | Not reported |
| Substance #2: | Not reported |
| Substance #3: | Not reported |
| Evacuations: | NO |
| Number of Injuries: | NO |
| Number of Fatalities: | NO |
| #1 Pipeline: | Not reported |
| #2 Pipeline: | Not reported |
| #3 Pipeline: | Not reported |
| #1 Vessel >= 300 Tons: | Not reported |
| #2 Vessel >= 300 Tons: | Not reported |
| #3 Vessel >= 300 Tons: | Not reported |
| Evacs: | Not reported |
| Injuries: | Not reported |
| Fatals: | Not reported |
| Comments: | Not reported |
| Description: | product being moved overheated and auto ignited. sitting in container burning. |

CA BOND EXP. PLAN:

| | |
|---|---|
| Reponsible Party: | RWQCB REFERRAL SITE |
| Project Revenue Source Company: | Not reported |
| Project Revenue Source Addr: | Not reported |
| Project Revenue Source City,St,Zip: | Not reported |
| Project Revenue Source Desc: | The Sola Optical site is proposed for the NPL. The RWQCB is the lead regulatory agency involved in site cleanup. Sola Optical USA, Inc., is the responsible party (RP). Until such time as the RWQCB refers the site to DHS for follow-up |

**SOLA OPTICAL USA, INC (Continued)** **S100833472**

using Bond funds, no money will be budgeted from the fund for this site.

Site Description: Since 1978, Sola Optical USA, Inc. has produced optical lenses at its Petaluma facility.

Hazardous Waste Desc: The soil near the underground storage tanks was found to be contaminated with trichloroethane and methylene chloride, which are both use in the facility's manufacturing processes. These chemicals were stored in tanks from 1978 to 1982. Investigations show extensive contamination of ground water under the site by dichloroethene (DCE), trichloroethane (TCA), trichloroethylene (TCE) and methylene chloride (MCL).

Threat To Public Health & Env: The nearest public water supply well which draws from the aquifer of concern is located 300 feet from the contaminated wells onsite. It supplies approximately 50,000 people of the City of Petaluma with domestic water supply. Hydraulic connection between the well discussed above and several contaminated onsite wells was observed in November, 1986.

Site Activity Status: Contamination in soil and ground water near six underground storage tanks was discovered onsite in 1984. The underground tanks, along with soil to a depth of two feet beneath them, were excavated in 1985 and disposed of offsite. The RWQCB issued waste discharge requirements to Sola Optical in May, 1985. In April, 1987 the RWQCB issued a cleanup and abatement order. The current stage of the site cleanup is remedial investigation and feasibility study.

EMI:

| | |
|---|---|
| Year: | 1995 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 6083 |
| Air District Name: | BA |
| SIC Code: | 3851 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 12 |
| Reactive Organic Gases Tons/Yr: | 6 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 1996 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 6083 |
| Air District Name: | BA |
| SIC Code: | 3851 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 12 |
| Reactive Organic Gases Tons/Yr: | 6 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

Year: 1997

**SOLA OPTICAL USA, INC (Continued)** **S100833472**

| | |
|---|---|
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 6083 |
| Air District Name: | BA |
| SIC Code: | 3851 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 17 |
| Reactive Organic Gases Tons/Yr: | 10 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 1998 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 6083 |
| Air District Name: | BA |
| SIC Code: | 3851 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 32 |
| Reactive Organic Gases Tons/Yr: | 22 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 1999 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 6083 |
| Air District Name: | BA |
| SIC Code: | 3851 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 20 |
| Reactive Organic Gases Tons/Yr: | 12 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 2000 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 6083 |
| Air District Name: | BA |
| SIC Code: | 3851 |
| Air District Name: | BAY AREA AQMD |

**SOLA OPTICAL USA, INC (Continued)** **S100833472**

| | |
|---|---|
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 20 |
| Reactive Organic Gases Tons/Yr: | 12 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

| | |
|---|---|
| Year: | 2001 |
| County Code: | 49 |
| Air Basin: | SF |
| Facility ID: | 6083 |
| Air District Name: | BA |
| SIC Code: | 3851 |
| Air District Name: | BAY AREA AQMD |
| Community Health Air Pollution Info System: | Not reported |
| Consolidated Emission Reporting Rule: | Not reported |
| Total Organic Hydrocarbon Gases Tons/Yr: | 14 |
| Reactive Organic Gases Tons/Yr: | 8 |
| Carbon Monoxide Emissions Tons/Yr: | 0 |
| NOX - Oxides of Nitrogen Tons/Yr: | 0 |
| SOX - Oxides of Sulphur Tons/Yr: | 0 |
| Particulate Matter Tons/Yr: | 0 |
| Part. Matter 10 Micrometers and Smllr Tons/Yr: | 0 |

---

**I47** **NISSON RANCH** **Notify 65** **S100353566**
**ENE** **3597 LAKEVILLE HWY** **N/A**
**1/2-1** **PETALUMA, CA 94954**
**0.581 mi.**
**3068 ft.** **Site 2 of 5 in cluster I**

**Relative:** **Higher**
**Actual:** **34 ft.**

NOTIFY 65:

| | |
|---|---|
| Date Reported: | 19921026 |
| Staff Initials: | Not reported |
| Board File Number: | 0LG921242 |
| Facility Type: | Leak Rpt |
| Discharge Date: | Not reported |
| Issue Date: | Not reported |
| Incident Description: | Not reported |

---

**I48** **NISSON RANCH** **Notify 65** **S100453840**
**ENE** **3597 LAKEVILLE HWY** **N/A**
**1/2-1** **PETALUMA, CA 94954**
**0.581 mi.**
**3068 ft.** **Site 3 of 5 in cluster I**

**Relative:** **Higher**
**Actual:** **34 ft.**

NOTIFY 65:

| | |
|---|---|
| Date Reported: | 19921026 |
| Staff Initials: | Not reported |
| Board File Number: | 0LG921242 |
| Facility Type: | Leak Rpt |
| Discharge Date: | Not reported |
| Issue Date: | Not reported |
| Incident Description: | Not reported |

**I49** **NISSON RANCH** **Notify 65** **S100453877**
**ENE** **3597 LAKEVILLE HWY** **N/A**
**1/2-1** **PETALUMA, CA 94954**
**0.581 mi.**
**3068 ft.** **Site 4 of 5 in cluster I**

**Relative: Higher**

**Actual: 34 ft.**

NOTIFY 65:

| | |
|---|---|
| Date Reported: | Not reported |
| Staff Initials: | Not reported |
| Board File Number: | Not reported |
| Facility Type: | Not reported |
| Discharge Date: | Not reported |
| Issue Date: | Not reported |
| Incident Description: | Not reported |

---

**I50** **SOLA OPTICAL USA, INC.** **ENVIROSTOR** **S100848244**
**ENE** **3600 LAKEVILLE HWY** **CPS-SLIC** **N/A**
**1/2-1** **PETALUMA, CA 94954** **HIST Cal-Sites**
**0.586 mi.** **HIST UST**
**3094 ft.** **Site 5 of 5 in cluster I** **ENF**
**CIWQS**

**Relative: Higher** **NON-CASE INFO**

**Actual: 33 ft.**

ENVIROSTOR:

| | |
|---|---|
| Facility ID: | 49300001 |
| Status: | Refer: RWQCB |
| Status Date: | 02/15/1990 |
| Site Code: | 200129 |
| Site Type: | Federal Superfund |
| Site Type Detailed: | State Response or NPL |
| Acres: | Not reported |
| NPL: | YES |
| Regulatory Agencies: | US EPA |
| Lead Agency: | US EPA |
| Program Manager: | Not reported |
| Supervisor: | Referred - Not Assigned |
| Division Branch: | Cleanup Berkeley |
| Assembly: | 10 |
| Senate: | 03 |
| Special Program: | * Rural County Survey Program |
| Restricted Use: | NO |
| Site Mgmt Req: | NONE SPECIFIED |
| Funding: | Responsible Party |
| Latitude: | 38.23375 |
| Longitude: | -122.5918 |
| APN: | NONE SPECIFIED |
| Past Use: | NONE SPECIFIED |
| Potential COC: | NONE SPECIFIED |
| Confirmed COC: | NONE SPECIFIED |
| Potential Description: | NONE SPECIFIED |
| Alias Name: | CAD981171523 |
| Alias Type: | EPA Identification Number |
| Alias Name: | 110000783377 |
| Alias Type: | EPA (FRS #) |
| Alias Name: | 110033615835 |
| Alias Type: | EPA (FRS #) |
| Alias Name: | P23082 |
| Alias Type: | PCode |
| Alias Name: | 200129 |
| Alias Type: | Project Code (Site Code) |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

Alias Name: 49300001
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 02/15/1988
Comments: FACILITY IDENTIFIED SONOMA COUNTY EH - WASTE SPILLS, LEAKING UG TANKS

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 04/22/1988
Comments: SITE SCREENING DONE RWQCB MITIGATING SITE

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SLIC REG 2:
Region: 2
Facility ID: 49S0001
Facility Status: Preliminary site assessment workplan submitted
Date Closed: Not reported
Local Case #: Not reported
How Discovered: Tank Closure
Leak Cause: UNK
Leak Source: UNK
Date Confirmed: Not reported
Date Prelim Site Assmnt Workplan Submitted: 4/22/1992
Date Preliminary Site Assessment Began: Not reported
Date Pollution Characterization Began: Not reported
Date Remediation Plan Submitted: Not reported
Date Remedial Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

Region: 2
Facility ID: 49S0001
Facility Status: Leak being confirmed
Date Closed: Not reported
Local Case #: Not reported
How Discovered: UNK
Leak Cause: Not reported
Leak Source: Not reported
Date Confirmed: Not reported
Date Prelim Site Assmnt Workplan Submitted: Not reported
Date Preliminary Site Assessment Began: Not reported
Date Pollution Characterization Began: Not reported
Date Remediation Plan Submitted: Not reported
Date Remedial Action Underway: Not reported

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

Date Post Remedial Action Monitoring Began: Not reported

Calsite:

| | |
|---|---|
| Region: | BERKELEY |
| Facility ID: | 49300001 |
| Facility Type: | NPRP |
| Type: | NPL SITE, RP-FUNDED |
| Branch: | NC |
| Branch Name: | NORTH COAST |
| File Name: | Not reported |
| State Senate District: | 02151990 |
| Status: | DOES NOT REQUIRE DTSC ACTION. REFERRED TO REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) LEAD |
| Status Name: | PROPERTY/SITE REFERRED TO RWQCB |
| Lead Agency: | ENVIRONMENTAL PROTECTION AGENCY |
| NPL: | Listed |
| SIC Code: | 30 |
| SIC Name: | MANU - RUBBER & MISC PLASTICS PRODUCTS |
| Access: | Not reported |
| Cortese: | Not reported |
| Hazardous Ranking Score: | Not reported |
| Date Site Hazard Ranked: | Not reported |
| Groundwater Contamination: | Confirmed |
| Staff Member Responsible for Site: | Not reported |
| Supervisor Responsible for Site: | Not reported |
| Region Water Control Board: | SF |
| Region Water Control Board Name: | SAN FRANCISCO BAY |
| Lat/Long Direction: | Not reported |
| Lat/Long (dms): | 0 0 0 / 0 0 0 |
| Lat/long Method: | Not reported |
| Lat/Long Description: | Not reported |
| State Assembly District Code: | 06 |
| State Senate District Code: | 03 |
| Facility ID: | 49300001 |
| Activity: | DISC |
| Activity Name: | DISCOVERY |
| AWP Code: | Not reported |
| Proposed Budget: | 0 |
| AWP Completion Date: | Not reported |
| Revised Due Date: | Not reported |
| Comments Date: | 02151988 |
| Est Person-Yrs to complete: | 0 |
| Estimated Size: | Not reported |
| Request to Delete Activity: | Not reported |
| Activity Status: | REFRW |
| Definition of Status: | PROPERTY/SITE REFERRED TO RWQCB |
| Liquids Removed (Gals): | 0 |
| Liquids Treated (Gals): | 0 |
| Action Included Capping: | Not reported |
| Well Decommissioned: | Not reported |
| Action Included Fencing: | Not reported |
| Removal Action Certification: | Not reported |
| Activity Comments: | Not reported |
| For Commercial Reuse: | 0 |
| For Industrial Reuse: | 0 |
| For Residential Reuse: | 0 |
| Unknown Type: | 0 |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

| | |
|---|---|
| Facility ID: | 49300001 |
| Activity: | SS |
| Activity Name: | SITE SCREENING |
| AWP Code: | Not reported |
| Proposed Budget: | 0 |
| AWP Completion Date: | Not reported |
| Revised Due Date: | Not reported |
| Comments Date: | 04221988 |
| Est Person-Yrs to complete: | 0 |
| Estimated Size: | Not reported |
| Request to Delete Activity: | Not reported |
| Activity Status: | REFRW |
| Definition of Status: | PROPERTY/SITE REFERRED TO RWQCB |
| Liquids Removed (Gals): | 0 |
| Liquids Treated (Gals): | 0 |
| Action Included Capping: | Not reported |
| Well Decommissioned: | Not reported |
| Action Included Fencing: | Not reported |
| Removal Action Certification: | Not reported |
| Activity Comments: | Not reported |
| For Commercial Reuse: | 0 |
| For Industrial Reuse: | 0 |
| For Residential Reuse: | 0 |
| Unknown Type: | 0 |
| Alternate Address: | 1500 CADER LANE |
| Alternate City,St,Zip: | PETALUMA, CA 94952 |
| Alternate Address: | FORMER: 3600 LAKEVILLE HWY |
| Alternate City,St,Zip: | PETALUMA, CA |
| Alternate Address: | 1500 CADER LANE |
| Alternate City,St,Zip: | PETALUMA, CA 94952 |
| Alternate Address: | 3600 LAKEVILLE HWY |
| Alternate City,St,Zip: | PETALUMA, CA 94952 |
| Alternate Address: | 3600 LAKEVILLE HWY |
| Alternate City,St,Zip: | PETALUMA, CA 94954 |
| Background Info: | Not reported |
| Comments Date: | 01011989 |
| Comments: | This is the date the site was first listed AWP pursuant to |
| Comments Date: | 01011989 |
| Comments: | Section 25356. |
| Comments Date: | 02151988 |
| Comments: | FACILITY IDENTIFIED SONOMA COUNTY EH - WASTE SPILLS, LEAKING |
| Comments Date: | 02151988 |
| Comments: | UG TANKS |
| Comments Date: | 04221988 |
| Comments: | SITE SCREENING DONE RWQCB MITIGATING SITE |
| Comments Date: | 06011987 |
| Comments: | INSPECTION(FED) PA1, SI1, HR1, CERCLIS/EPA |
| Comments Date: | 08161989 |
| Comments: | Groundwater and soil contain various VOCs including acetone. |
| Comments Date: | 08161989 |
| Comments: | If contaminants migrate off-site, people who touch or ingest |
| Comments Date: | 08161989 |
| Comments: | contaminated groundwater or soil may be at risk. |
| ID Name: | CALSTARS CODE |
| ID Value: | 200129 |
| ID Name: | BEP DATABASE PCODE |
| ID Value: | P23082 |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

ID Name: EPA IDENTIFICATION NUMBER
ID Value: CAD981171523
Alternate Name: SOLA OPTICAL USA, INC.
Alternate Name: Not reported
Special Programs Code: RCSP
Special Programs Name: RURAL COUNTY SURVEY PROGRAM

HIST UST:

| | |
|---|---|
| File Number: | 00021759 |
| URL: | http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021759.pdf |
| Region: | Not reported |
| Facility ID: | Not reported |
| Facility Type: | Not reported |
| Other Type: | Not reported |
| Contact Name: | Not reported |
| Telephone: | Not reported |
| Owner Name: | Not reported |
| Owner Address: | Not reported |
| Owner City,St,Zip: | Not reported |
| Total Tanks: | Not reported |
| | |
| Tank Num: | Not reported |
| Container Num: | Not reported |
| Year Installed: | Not reported |
| Tank Capacity: | Not reported |
| Tank Used for: | Not reported |
| Type of Fuel: | Not reported |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Not reported |

Click here for Geo Tracker PDF:

ENF:

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 257633 |
| Agency Name: | Not reported |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | Industrial |
| Agency Type: | Not reported |
| # Of Agencies: | Not reported |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | 3674 |
| SIC Desc 1: | Semiconductors and Related Devices |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

| | |
|---|---|
| Source Of Facility: | Enf Action |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | Not reported |
| Program Category1: | Not reported |
| Program Category2: | Not reported |
| # Of Programs: | Not reported |
| WDID: | Not reported |
| Reg Measure Id: | Not reported |
| Reg Measure Type: | Not reported |
| Region: | Not reported |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | Not reported |
| Individual/General: | Not reported |
| Fee Code: | Not reported |
| Direction/Voice: | Not reported |
| Enforcement Id(EID): | 223065 |
| Region: | 2 |
| Order / Resolution Number: | 87-038 |
| Enforcement Action Type: | Clean-up and Abatement Order |
| Effective Date: | 04/15/1987 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | 1990-02-21 |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 494054001 |
| Description: | GROUNDWATER CLEANUP WDR |
| Program: | NPDESWW |
| Latest Milestone Completion Date: | 1990-02-21 |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

| | |
|---|---|
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |
| | |
| Region: | 2 |
| Facility Id: | 257633 |
| Agency Name: | Not reported |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | Industrial |
| Agency Type: | Not reported |
| # Of Agencies: | Not reported |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | 3674 |
| SIC Desc 1: | Semiconductors and Related Devices |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Enf Action |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | Not reported |
| Program Category1: | Not reported |
| Program Category2: | Not reported |
| # Of Programs: | Not reported |
| WDID: | Not reported |
| Reg Measure Id: | Not reported |
| Reg Measure Type: | Not reported |
| Region: | Not reported |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

| | |
|---|---|
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | Not reported |
| Individual/General: | Not reported |
| Fee Code: | Not reported |
| Direction/Voice: | Not reported |
| Enforcement Id(EID): | 223064 |
| Region: | 2 |
| Order / Resolution Number: | 87-008 |
| Enforcement Action Type: | Formal Refer to Attorney Gen |
| Effective Date: | 05/20/1987 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 494054001 |
| Description: | COMP 87-08-REFER MATTER TO EPA |
| Program: | NPDESWW |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |

| | |
|---|---|
| Region: | 2 |
| Facility Id: | 257633 |
| Agency Name: | Not reported |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | Industrial |
| Agency Type: | Not reported |
| # Of Agencies: | Not reported |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | 3674 |
| SIC Desc 1: | Semiconductors and Related Devices |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

| | |
|---|---|
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Enf Action |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | Not reported |
| Program Category1: | Not reported |
| Program Category2: | Not reported |
| # Of Programs: | Not reported |
| WDID: | Not reported |
| Reg Measure Id: | Not reported |
| Reg Measure Type: | Not reported |
| Region: | Not reported |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | Not reported |
| Individual/General: | Not reported |
| Fee Code: | Not reported |
| Direction/Voice: | Not reported |
| Enforcement Id(EID): | 222733 |
| Region: | 2 |
| Order / Resolution Number: | 89-116 |
| Enforcement Action Type: | Admin Civil Liability |
| Effective Date: | 11/15/1989 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | 1989-12-11 |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 494054001 |
| Description: | ENF ORDER |
| Program: | NPDESWW |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

| | |
|---|---|
| Latest Milestone Completion Date: | 1989-12-11 |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 2000 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 2000 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 2000 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 2000 |
| | |
| Region: | 2 |
| Facility Id: | 257633 |
| Agency Name: | Not reported |
| Place Type: | Facility |
| Place Subtype: | Not reported |
| Facility Type: | Industrial |
| Agency Type: | Not reported |
| # Of Agencies: | Not reported |
| Place Latitude: | Not reported |
| Place Longitude: | Not reported |
| SIC Code 1: | 3674 |
| SIC Desc 1: | Semiconductors and Related Devices |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Enf Action |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | Not reported |
| Program Category1: | Not reported |
| Program Category2: | Not reported |
| # Of Programs: | Not reported |
| WDID: | Not reported |
| Reg Measure Id: | Not reported |
| Reg Measure Type: | Not reported |
| Region: | Not reported |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

| | |
|---|---|
| Application Fee Amt Received: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | Not reported |
| Individual/General: | Not reported |
| Fee Code: | Not reported |
| Direction/Voice: | Not reported |
| Enforcement Id(EID): | 222729 |
| Region: | 2 |
| Order / Resolution Number: | 90-030 |
| Enforcement Action Type: | Clean-up and Abatement Order |
| Effective Date: | 02/21/1990 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | Not reported |
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 2 494054001 |
| Description: | SCR-RECISION OF ORDER #87-038 |
| Program: | NPDESWW |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | 0 |
| Initial Assessed Amount: | 0 |
| Liability $ Amount: | 0 |
| Project $ Amount: | 0 |
| Liability $ Paid: | 0 |
| Project $ Completed: | 0 |
| Total $ Paid/Completed Amount: | 0 |

CIWQS:

| | |
|---|---|
| Agency: | Sola Optical USA Inc |
| Agency Address: | 1500 Cader Lane, Petaluma, CA 94954 |
| Place/Project Type: | Other |
| SIC/NAICS: | 3674 |
| Region: | 2 |
| Program: | NPDESWW |
| Regulatory Measure Status: | Historical |
| Regulatory Measure Type: | WDR |
| Order Number: | 98-0822 |
| WDID: | 2 494054001 |
| NPDES Number: | Not reported |
| Adoption Date: | 08/19/1998 |
| Effective Date: | 08/19/1998 |
| Termination Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Design Flow: | 0.0001 |

**SOLA OPTICAL USA, INC. (Continued)** **S100848244**

| | |
|---|---|
| Major/Minor: | Not reported |
| Complexity: | B |
| TTWQ: | 2 |
| Enforcement Actions within 5 years: | 0 |
| Violations within 5 years: | 0 |
| Latitude: | Not reported |
| Longitude: | Not reported |

NON-CASE INFO:

| | |
|---|---|
| Global ID: | SLT2O370260 |
| Case Type: | Non-Case Information |
| Status: | Informational Item |
| Status Date: | 01/01/2011 |
| Lead Agency: | SAN FRANCISCO BAY RWQCB (REGION 2) |
| Case Worker: | UUU |
| Local Agency: | US ENVIRONMENTAL PROTECTION AGENCY |
| RB Case Number: | 49S0001 |
| Loc Case Number: | Not reported |
| File Location: | Not reported |
| Potential Contaminants of Concern: | Not reported |
| Potential Media Affected: | Not reported |
| Site History: | Not reported |
| Begin Date: | 2001-03-08 00:00:00 |
| How Discovered: | * UNK |
| How Discovered Description: | Not reported |
| Stop Method: | Not reported |
| Stop Description: | Not reported |
| Latitude: | 38.234508 |
| Longitude: | -122.590772 |
| Geotracker: | http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SLT2O370260 |

---

**51** **QUARRY HEIGHTS** **ENVIROSTOR** **S120052838**
**WSW** **1600 PETALUMA BOULEVARD SOUTH** **VCP** **N/A**
**1/2-1** **PETALUMA, CA 94942**
**0.607 mi.**
**3204 ft.**

**Relative:**
**Higher**

**Actual:**
**36 ft.**

ENVIROSTOR:

| | |
|---|---|
| Facility ID: | 60002395 |
| Status: | Active |
| Status Date: | 07/22/2016 |
| Site Code: | 202111 |
| Site Type: | Voluntary Cleanup |
| Site Type Detailed: | Voluntary Cleanup |
| Acres: | 5 |
| NPL: | NO |
| Regulatory Agencies: | SMBRP |
| Lead Agency: | SMBRP |
| Program Manager: | Mustapha Guerbaz |
| Supervisor: | Maryam Tasnif-Abbasi |
| Division Branch: | Cleanup Cypress |
| Assembly: | , 10 |
| Senate: | , 03 |
| Special Program: | Not reported |
| Restricted Use: | NO |
| Site Mgmt Req: | NONE SPECIFIED |
| Funding: | Responsible Party |

**QUARRY HEIGHTS (Continued)** **S120052838**

Latitude: 38.22622
Longitude: -122.6177
APN: NONE SPECIFIED
Past Use: NONE
Potential COC: Mercury and compounds
Confirmed COC: Mercury and compounds
Potential Description: SOIL
Alias Name: 202111
Alias Type: Project Code (Site Code)
Alias Name: 60002395
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 01/06/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Consultative Service Agreement
Completed Date: 11/29/2016
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

VCP:
Facility ID: 60002395
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: NONE SPECIFIED
Acres: 5
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Mustapha Guerbaz
Supervisor: Maryam Tasnif-Abbasi
Division Branch: Cleanup Cypress
Site Code: 202111
Assembly: , 10
Senate: , 03
Special Programs Code: Not reported
Status: Active
Status Date: 07/22/2016
Restricted Use: NO
Funding: Responsible Party
Lat/Long: 38.22622 / -122.6177

**QUARRY HEIGHTS (Continued)** **S120052838**

APN: NONE SPECIFIED
Past Use: NONE
Potential COC: 30357
Confirmed COC: 30357
Potential Description: SOIL
Alias Name: 202111
Alias Type: Project Code (Site Code)
Alias Name: 60002395
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 01/06/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Consultative Service Agreement
Completed Date: 11/29/2016
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

---

**52** **MCPHAIL'S INC.** **ENVIROSTOR** **S102008410**
**WNW** **1006 LAKEVILLE ST** **VCP** **N/A**
**1/2-1** **PETALUMA, CA 94952** **DEED**
**0.830 mi.**
**4383 ft.**

**Relative: Higher**

**Actual: 11 ft.**

ENVIROSTOR:
Facility ID: 49420003
Status: Certified / Operation & Maintenance
Status Date: 09/07/1999
Site Code: 200667
Site Type: Voluntary Cleanup
Site Type Detailed: Voluntary Cleanup
Acres: 1
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Claude Jemison
Supervisor: Mark Piros
Division Branch: Cleanup Berkeley
Assembly: 10
Senate: 03
Special Program: Voluntary Cleanup Program
Restricted Use: YES
Site Mgmt Req: ASP, DAY, ELD, HOS, GW, NOWN, NDAM, NUSE, NDEV, NSUB, SCH, FOOD, RES

**MCPHAIL'S INC. (Continued)** **S102008410**

Funding: Responsible Party
Latitude: 38.23528
Longitude: -122.6212
APN: 005-060-015-000
Past Use: FOUNDRY
Potential COC: Lead
Confirmed COC: Lead
Potential Description: SOIL
Alias Name: MacPhail Properties Inc.
Alias Type: Alternate Name
Alias Name: 005-060-015-000
Alias Type: APN
Alias Name: 110033610288
Alias Type: EPA (FRS #)
Alias Name: 200667
Alias Type: Project Code (Site Code)
Alias Name: 49420003
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/15/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 08/25/2014
Comments: As required by the O & M plan an inspection was performed on Sunday, 8/24/2014 to insure that there was no impact to the cap integrity because of the 8/24/2014 earthquake in Napa.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 12/22/2008
Comments: DTSC conducted its annual inspection of the cap and to verify compliance with the land use restrictions that were placed on the Site through a Land Use Covenant. Upon observing the current site conditions, DTSC concluded that the selected removal action remains protective of human health and the environment. Impacted soil remains under the original asphalt surfaces, which are in good shape and remain an effective barrier which prevents human exposure.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 11/17/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operation & Maintenance Order/Agreement
Completed Date: 09/07/1999
Comments: An Operation and Maintenance Agreement was signed.

**MCPHAIL'S INC. (Continued)** **S102008410**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 06/22/2007
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/22/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/18/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/05/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/16/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 08/31/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/19/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 12/24/1998
Comments: DEED - Deed restriction recorded on the consolidation area of the property to restrict damage to the cap.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Initial Study/ Neg. Declaration
Completed Date: 08/21/1998
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

**MCPHAIL'S INC. (Continued)** **S102008410**

Completed Document Type: Certification
Completed Date: 09/07/1999
Comments: Site certified.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 03/12/1996
Comments: VCA - Voluntary Cleanup Agreement was signed. The purpose of this agreement is for McPhail's Inc. to determine the extent of the contamination and conduct a removal action under the oversight of DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 12/16/2016
Comments: The environmental consultant for the site owner sent an email requesting an extension from DTSC of the submittal date for the annual site inspection report to allow time for additional work to clear the culvert and drainage ditch along the eastern side of the cap to be completed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 04/06/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Amendment - Order/Agreement
Completed Date: 12/04/1998
Comments: VCA Amendment - DTSC and McPhails signed an amendment to the Voluntary Agreement which allows work to continue under Chapter 6.5 of the Health and Safety Code.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/07/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/19/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 12/04/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

**MCPHAIL'S INC. (Continued)** **S102008410**

Completed Document Type: *Correspondence - Received
Completed Date: 01/07/2011
Comments: DTSC received and reviewed a letter from McPhail Properties, Inc., dated October 18, 2010, that proposed development on the site is consistent with the Land Use Covenant. DTSC agreed that the proposed 15,000- 20,000 square foot retail building is consistent with the Land Use Covenant. The site will continue to be subject to the Land Use Covenant requirements. A Soil Management Plan must be submitted and approved by DTSC before the construction of the retail building. When construction is done a completion report and as-built drawing will be submitted to DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 06/15/2011
Comments: The property owner will be receiving new parcel numbers from the County of Sonoma, and will notify DTSC once they are received so DTSC can remove the deed restrictions from the parcel previously identified as APN 005-060-087.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Financial Assurance Documentation
Completed Date: 04/03/2014
Comments: The cost estimate includes costs for performing annual inspections, site maintenance, and Five-Year Reviews for a period of 30-years. The estimated net present value for performing these activities is $66,204.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 12/09/2014
Comments: The Report summarizes an annual inspection that was performed on behalf of the site owner on November 22, 2014. The surface of the cap was observed to be in good condition and no signs of unevenness in the asphalt or buckling were noted. No weeds or other vegetation were growing anywhere on the cap. DTSC concurred with the observations of the inspection report, and had no comments.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/06/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/13/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/04/2018

**MCPHAIL'S INC. (Continued)** **S102008410**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Financial Assurance Documentation
Completed Date: 01/21/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 03/23/2010
Comments: No comments

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 12/30/2008
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 05/19/2004
Comments: Five-Year review was performed. It recommends to continue the yearly cap inspections.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 05/28/1999
Comments: RA - Removal Implementation Report approved. Approximately 3,000 cubic yards of lead-contaminated soil was excavated. The soil was consolidated in a 136-foot by 76-foot by 9-foot consolidation pit located in the southern portion of the property. The capped area is approximately 1/4 of an acre.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 08/21/1998
Comments: RAW - Approved a Removal Action Workplan and Negative Declaration. The removal activities include excavation and consolidation onsite of lead contaminated soils. The consolidation area will be capped with asphalt and a deed restriction recorded to prevent use of the area in a way which may damage the cap.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 12/02/2004
Comments: Minor modifications to the remedy were added through this Removal Action Workplan Amendment . During recent site development activities, additional lead-containing soil was found during demolition of the former warehouse at 1006 Lakeville Highway. The RAW Amendment adds to the scope of the removal action excavation and placement of approximately 100 cubic yards of lead-containing soil

**MCPHAIL'S INC. (Continued)** **S102008410**

into an 4 feet and 100 feet long extension on the west side of the current consolidation pit.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan
Completed Date: 12/17/1998
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 09/26/2005
Comments: Cap Inspection Report signed off 9/26/05.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/05/2007
Comments: Approval of the Cap Inspection Report.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 12/21/2005
Comments: Completion of RP Annual Cap Inspection.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 09/16/2005
Comments: The the cap was expanded about 14 to 16.5 feet wide by 95 feet long and 8 feet deep adjacent to the southwestern side of the original consolidation pit to accommodate lead contaminated soil recently found during development activities at the site.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 02/22/2008
Comments: 2007 Annual Summary Report satisfies the requirements of the O&MA between DTSC and the RP.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 02/14/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 02/02/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

**MCPHAIL'S INC. (Continued)** **S102008410**

Completed Document Type: CEQA - Notice of Exemption
Completed Date: 12/02/2004
Comments: The NOE was approved in conjunction with the Removal Action Workplan Amendment.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: PROJECT WIDE
Schedule Sub Area Name: Not reported
Schedule Document Type: 5 Year Review Reports
Schedule Due Date: 03/14/2019
Schedule Revised Date: Not reported

VCP:
Facility ID: 49420003
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: ASP, DAY, ELD, HOS, GW, NOWN, NDAM, NUSE, NDEV, NSUB, SCH, FOOD, RES
Acres: 1
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Claude Jemison
Supervisor: Mark Piros
Division Branch: Cleanup Berkeley
Site Code: 200667
Assembly: 10
Senate: 03
Special Programs Code: Voluntary Cleanup Program
Status: Certified / Operation & Maintenance
Status Date: 09/07/1999
Restricted Use: YES
Funding: Responsible Party
Lat/Long: 38.23528 / -122.6212
APN: 005-060-015-000
Past Use: FOUNDRY
Potential COC: 30013
Confirmed COC: 30013
Potential Description: SOIL
Alias Name: MacPhail Properties Inc.
Alias Type: Alternate Name
Alias Name: 005-060-015-000
Alias Type: APN
Alias Name: 110033610288
Alias Type: EPA (FRS #)
Alias Name: 200667
Alias Type: Project Code (Site Code)
Alias Name: 49420003
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate

**MCPHAIL'S INC. (Continued)** **S102008410**

Completed Date: 12/15/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 08/25/2014
Comments: As required by the O & M plan an inspection was performed on Sunday, 8/24/2014 to insure that there was no impact to the cap integrity because of the 8/24/2014 earthquake in Napa.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 12/22/2008
Comments: DTSC conducted its annual inspection of the cap and to verify compliance with the land use restrictions that were placed on the Site through a Land Use Covenant. Upon observing the current site conditions, DTSC concluded that the selected removal action remains protective of human health and the environment. Impacted soil remains under the original asphalt surfaces, which are in good shape and remain an effective barrier which prevents human exposure.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 11/17/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operation & Maintenance Order/Agreement
Completed Date: 09/07/1999
Comments: An Operation and Maintenance Agreement was signed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 06/22/2007
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/22/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/18/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/05/2014

**MCPHAIL'S INC. (Continued)** **S102008410**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/16/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 08/31/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/19/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 12/24/1998
Comments: DEED - Deed restriction recorded on the consolidation area of the property to restrict damage to the cap.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Initial Study/ Neg. Declaration
Completed Date: 08/21/1998
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 09/07/1999
Comments: Site certified.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 03/12/1996
Comments: VCA - Voluntary Cleanup Agreement was signed. The purpose of this agreement is for McPhail's Inc. to determine the extent of the contamination and conduct a removal action under the oversight of DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 12/16/2016
Comments: The environmental consultant for the site owner sent an email requesting an extension from DTSC of the submittal date for the annual site inspection report to allow time for additional work to clear the culvert and drainage ditch along the eastern side of the cap to be completed.

**MCPHAIL'S INC. (Continued)** **S102008410**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 04/06/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Amendment - Order/Agreement
Completed Date: 12/04/1998
Comments: VCA Amendment - DTSC and McPhails signed an amendment to the Voluntary Agreement which allows work to continue under Chapter 6.5 of the Health and Safety Code.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/07/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/19/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 12/04/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 01/07/2011
Comments: DTSC received and reviewed a letter from McPhail Properties, Inc., dated October 18, 2010, that proposed development on the site is consistent with the Land Use Covenant. DTSC agreed that the proposed 15,000- 20,000 square foot retail building is consistent with the Land Use Covenant. The site will continue to be subject to the Land Use Covenant requirements. A Soil Management Plan must be submitted and approved by DTSC before the construction of the retail building. When construction is done a completion report and as-built drawing will be submitted to DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 06/15/2011
Comments: The property owner will be receiving new parcel numbers from the County of Sonoma, and will notify DTSC once they are received so DTSC can remove the deed restrictions from the parcel previously identified as APN 005-060-087.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

**MCPHAIL'S INC. (Continued)** **S102008410**

Completed Document Type: Financial Assurance Documentation
Completed Date: 04/03/2014
Comments: The cost estimate includes costs for performing annual inspections, site maintenance, and Five-Year Reviews for a period of 30-years. The estimated net present value for performing these activities is $66,204.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 12/09/2014
Comments: The Report summarizes an annual inspection that was performed on behalf of the site owner on November 22, 2014. The surface of the cap was observed to be in good condition and no signs of unevenness in the asphalt or buckling were noted. No weeds or other vegetation were growing anywhere on the cap. DTSC concurred with the observations of the inspection report, and had no comments.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/06/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/13/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 01/04/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Financial Assurance Documentation
Completed Date: 01/21/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 03/23/2010
Comments: No comments

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 12/30/2008
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports

**MCPHAIL'S INC. (Continued)** **S102008410**

| | |
|---|---|
| Completed Date: | 05/19/2004 |
| Comments: | Five-Year review was performed. It recommends to continue the yearly cap inspections. |
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |
| Completed Document Type: | Removal Action Completion Report |
| Completed Date: | 05/28/1999 |
| Comments: | RA - Removal Implementation Report approved. Approximately 3,000 cubic yards of lead-contaminated soil was excavated. The soil was consolidated in a 136-foot by 76-foot by 9-foot consolidation pit located in the southern portion of the property. The capped area is approximately 1/4 of an acre. |
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |
| Completed Document Type: | Removal Action Workplan |
| Completed Date: | 08/21/1998 |
| Comments: | RAW - Approved a Removal Action Workplan and Negative Declaration. The removal activities include excavation and consolidation onsite of lead contaminated soils. The consolidation area will be capped with asphalt and a deed restriction recorded to prevent use of the area in a way which may damage the cap. |
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |
| Completed Document Type: | Removal Action Workplan |
| Completed Date: | 12/02/2004 |
| Comments: | Minor modifications to the remedy were added through this Removal Action Workplan Amendment . During recent site development activities, additional lead-containing soil was found during demolition of the former warehouse at 1006 Lakeville Highway. The RAW Amendment adds to the scope of the removal action excavation and placement of approximately 100 cubic yards of lead-containing soil into an 4 feet and 100 feet long extension on the west side of the current consolidation pit. |
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |
| Completed Document Type: | Operations and Maintenance Plan |
| Completed Date: | 12/17/1998 |
| Comments: | Not reported |
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |
| Completed Document Type: | Operations and Maintenance Report |
| Completed Date: | 09/26/2005 |
| Comments: | Cap Inspection Report signed off 9/26/05. |
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |
| Completed Document Type: | Operations and Maintenance Report |
| Completed Date: | 01/05/2007 |
| Comments: | Approval of the Cap Inspection Report. |
| Completed Area Name: | PROJECT WIDE |
| Completed Sub Area Name: | Not reported |

**MCPHAIL'S INC. (Continued)** **S102008410**

Completed Document Type: Operations and Maintenance Report
Completed Date: 12/21/2005
Comments: Completion of RP Annual Cap Inspection.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 09/16/2005
Comments: The the cap was expanded about 14 to 16.5 feet wide by 95 feet long and 8 feet deep adjacent to the southwestern side of the original consolidation pit to accommodate lead contaminated soil recently found during development activities at the site.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 02/22/2008
Comments: 2007 Annual Summary Report satisfies the requirements of the O&MA between DTSC and the RP.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 02/14/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 02/02/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Notice of Exemption
Completed Date: 12/02/2004
Comments: The NOE was approved in conjunction with the Removal Action Workplan Amendment.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: PROJECT WIDE
Schedule Sub Area Name: Not reported
Schedule Document Type: 5 Year Review Reports
Schedule Due Date: 03/14/2019
Schedule Revised Date: Not reported

DEED:
Envirostor ID: 49420003
Area: PROJECT WIDE
Sub Area: Not reported
Site Type: VOLUNTARY CLEANUP
Status: CERTIFIED / OPERATION & MAINTENANCE
Agency: Not reported
Covenant Uploaded: Not reported

**MCPHAIL'S INC. (Continued)** **S102008410**

Deed Date(s): Not reported
File Name: Envirostor Land Use Restrictions

Envirostor ID: 49420003
Area: PROJECT WIDE
Sub Area: Not reported
Site Type: VOLUNTARY CLEANUP
Status: CERTIFIED / OPERATION & MAINTENANCE
Agency: Not reported
Covenant Uploaded: Not reported
Deed Date(s): Not reported
File Name: Envirostor Land Use Restrictions

Count: 0 records. ORPHAN SUMMARY

| City | EDR ID | Site Name | Site Address | Zip | Database(s) |
|---|---|---|---|---|---|
| | | NO SITES FOUND | | | |

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

**STANDARD ENVIRONMENTAL RECORDS**

***Federal NPL site list***

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

***Federal Delisted NPL site list***

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

***Federal CERCLIS list***

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

***Federal RCRA CORRACTS facilities list***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

***Federal RCRA generators list***

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

***Federal institutional controls / engineering controls registries***

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

***Federal ERNS list***

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/18/2018
Date Data Arrived at EDR: 06/27/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 79

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

***State- and tribal - equivalent NPL***

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 07/30/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

***State- and tribal - equivalent CERCLIS***

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 07/30/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/08/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 14

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Quarterly

***State and tribal leaking storage tank lists***

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/08/2018
Number of Days to Update: 26

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

***State and tribal registered storage tank lists***

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/10/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 21
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 09/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

***State and tribal voluntary cleanup sites***

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 07/30/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

***State and tribal Brownfields sites***

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 10/15/2018
Number of Days to Update: 20

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

**ADDITIONAL ENVIRONMENTAL RECORDS**

***Local Brownfield lists***

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Semi-Annually

***Local Lists of Landfill / Solid Waste Disposal Sites***

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/15/2018
Number of Days to Update: 33

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/29/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 48

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/07/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/03/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

***Local Lists of Hazardous waste / Contaminated Sites***

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 07/30/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/12/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 55

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Quarterly

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 07/23/2018
Date Data Arrived at EDR: 07/25/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 42

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 10/23/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Quarterly

***Local Lists of Registered Storage Tanks***

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 03/28/2018
Date Data Arrived at EDR: 05/25/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 46

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 10/09/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/11/2018
Number of Days to Update: 29

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 07/23/2018
Date Data Arrived at EDR: 07/25/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 42

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/23/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Quarterly

***Local Land Records***

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 08/30/2018
Date Made Active in Reports: 10/01/2018
Number of Days to Update: 32

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 27

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Semi-Annually

***Records of Emergency Release Reports***

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 51

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/08/2018
Number of Days to Update: 26

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

***Other Ascertainable Records***

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/27/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/03/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/21/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/24/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 57

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/23/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 126

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/11/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 10/09/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 10/11/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 09/07/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/04/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 10/26/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/02/2018
Date Data Arrived at EDR: 07/05/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 92
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/03/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/17/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 80

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/09/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 09/11/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/20/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/29/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 37

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/07/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 30

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 06/19/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 87

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 44

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/22/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 10/16/2018
Number of Days to Update: 21

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 7

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 04/03/2018
Date Data Arrived at EDR: 05/07/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 39

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 08/24/2018
Date Data Arrived at EDR: 08/30/2018
Date Made Active in Reports: 10/01/2018
Number of Days to Update: 32

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 10/05/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 06/25/2018
Date Data Arrived at EDR: 06/28/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 39

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 47

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 47

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/21/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 36

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/14/2018
Date Data Arrived at EDR: 08/16/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 25

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/07/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 97

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 10/10/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Annually

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/20/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 20

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/21/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/20/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/21/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/09/2018
Date Data Arrived at EDR: 07/11/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 44

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/10/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/28/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 28

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 08/09/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 31
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 28
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/15/2018
Number of Days to Update: 33
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/19/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/19/2018
Number of Days to Update: 29
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 04/27/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/13/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 07/11/2018
Date Made Active in Reports: 09/13/2018
Number of Days to Update: 64
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

CIWQS: California Integrated Water Quality System
The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 09/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)
Other Oil & Gas Projects sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data
The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 07/23/2018
Date Data Arrived at EDR: 07/25/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 42

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/23/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)
Non-Case Information sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/09/2018
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Varies

**EDR HIGH RISK HISTORICAL RECORDS**

***EDR Exclusive Records***

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

**EDR RECOVERED GOVERNMENT ARCHIVES**

***Exclusive Recovered Govt. Archives***

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

**COUNTY RECORDS**

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 08/03/2018
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 30

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/05/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 07/06/2018
Date Data Arrived at EDR: 07/10/2018
Date Made Active in Reports: 09/11/2018
Number of Days to Update: 63

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/05/2018
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List

Cupa Facility List

Date of Government Version: 07/01/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 08/20/2018
Number of Days to Update: 27

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

BUTTE COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 10/05/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 08/02/2018
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 08/20/2018
Number of Days to Update: 14

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 05/23/2018
Date Data Arrived at EDR: 05/24/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 50

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 08/20/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/11/2018
Number of Days to Update: 21

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 10/29/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 04/27/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 44

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 09/18/2018
Number of Days to Update: 13

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/30/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 07/11/2018
Date Data Arrived at EDR: 07/17/2018
Date Made Active in Reports: 08/30/2018
Number of Days to Update: 44

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/11/2018
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/22/2018
Number of Days to Update: 40

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/20/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 43

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

INYO COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/20/2018
Date Data Arrived at EDR: 07/25/2018
Date Made Active in Reports: 09/12/2018
Number of Days to Update: 49

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/20/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/23/2018
Date Data Arrived at EDR: 08/24/2018
Date Made Active in Reports: 09/18/2018
Number of Days to Update: 25

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 08/08/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 08/22/2018
Number of Days to Update: 13

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/27/2018
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 30

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

LOS ANGELES COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AOCONCERN: San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/02/2018
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 59

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 10/05/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 37

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/16/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 05/14/2018
Number of Days to Update: 13

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 04/17/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 63

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/16/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Semi-Annually

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Annually

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/05/2018
Date Made Active in Reports: 01/18/2018
Number of Days to Update: 13

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/05/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/30/2018
Date Data Arrived at EDR: 09/04/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 15

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 07/11/2018
Date Data Arrived at EDR: 07/17/2018
Date Made Active in Reports: 09/12/2018
Number of Days to Update: 57

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 08/31/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 19

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 07/18/2018
Date Data Arrived at EDR: 09/04/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 15

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/30/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 34

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 08/27/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 36

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 34

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 07/13/2018
Date Data Arrived at EDR: 08/08/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 07/13/2018
Date Data Arrived at EDR: 08/08/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/03/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 07/13/2018
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 09/12/2018
Number of Days to Update: 37

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/06/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/06/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 27

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 07/19/2018
Date Data Arrived at EDR: 07/25/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 42

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 10/16/2018
Number of Days to Update: 4

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/09/2018
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 09/12/2018
Number of Days to Update: 61

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/07/2018
Date Data Arrived at EDR: 07/03/2018
Date Made Active in Reports: 08/13/2018
Number of Days to Update: 41

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/02/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 07/03/2018
Date Made Active in Reports: 08/13/2018
Number of Days to Update: 41

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/02/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 08/07/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 27

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 07/27/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 41

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/24/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/06/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 41

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 09/06/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56
Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing
A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 31
Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

SAN DIEGO CO. SAM: Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 09/17/2018
Date Data Arrived at EDR: 09/18/2018
Date Made Active in Reports: 10/03/2018
Number of Days to Update: 15
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 08/20/2018
Date Data Arrived at EDR: 08/21/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 17

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/12/2018
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 52

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 09/18/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/17/2018
Number of Days to Update: 27

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 08/17/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 16

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Annually

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 09/11/2018
Number of Days to Update: 36
Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90
Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51
Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 09/04/2018
Date Made Active in Reports: 10/17/2018
Number of Days to Update: 43
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 09/04/2018
Date Made Active in Reports: 10/18/2018
Number of Days to Update: 44
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 10/16/2018
Number of Days to Update: 21

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/02/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 10/25/2018
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 08/14/2018
Date Data Arrived at EDR: 08/16/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 8

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 09/18/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/25/2018
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 36

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 09/13/2018
Date Data Arrived at EDR: 09/14/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 5

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 09/13/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 07/02/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 41

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Annually

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/07/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Quarterly

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 07/02/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 29
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/04/2018
Number of Days to Update: 22
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/12/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/20/2018
Date Data Arrived at EDR: 07/03/2018
Date Made Active in Reports: 07/12/2018
Number of Days to Update: 9
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/10/2018
Date Data Arrived at EDR: 05/15/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 31
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 10/25/2018
Next Scheduled EDR Contact: 02/11/2019
Data Release Frequency: Varies

**OTHER DATABASE(S)**

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/10/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 31
Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/01/2018
Number of Days to Update: 19

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/09/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 07/01/2018
Date Data Arrived at EDR: 08/01/2018
Date Made Active in Reports: 08/31/2018
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/21/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/06/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

**STREET AND ADDRESS INFORMATION**

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

# APPENDIX D

# HISTORICAL SOURCES




Date: **2016**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204




Date: **2014**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204



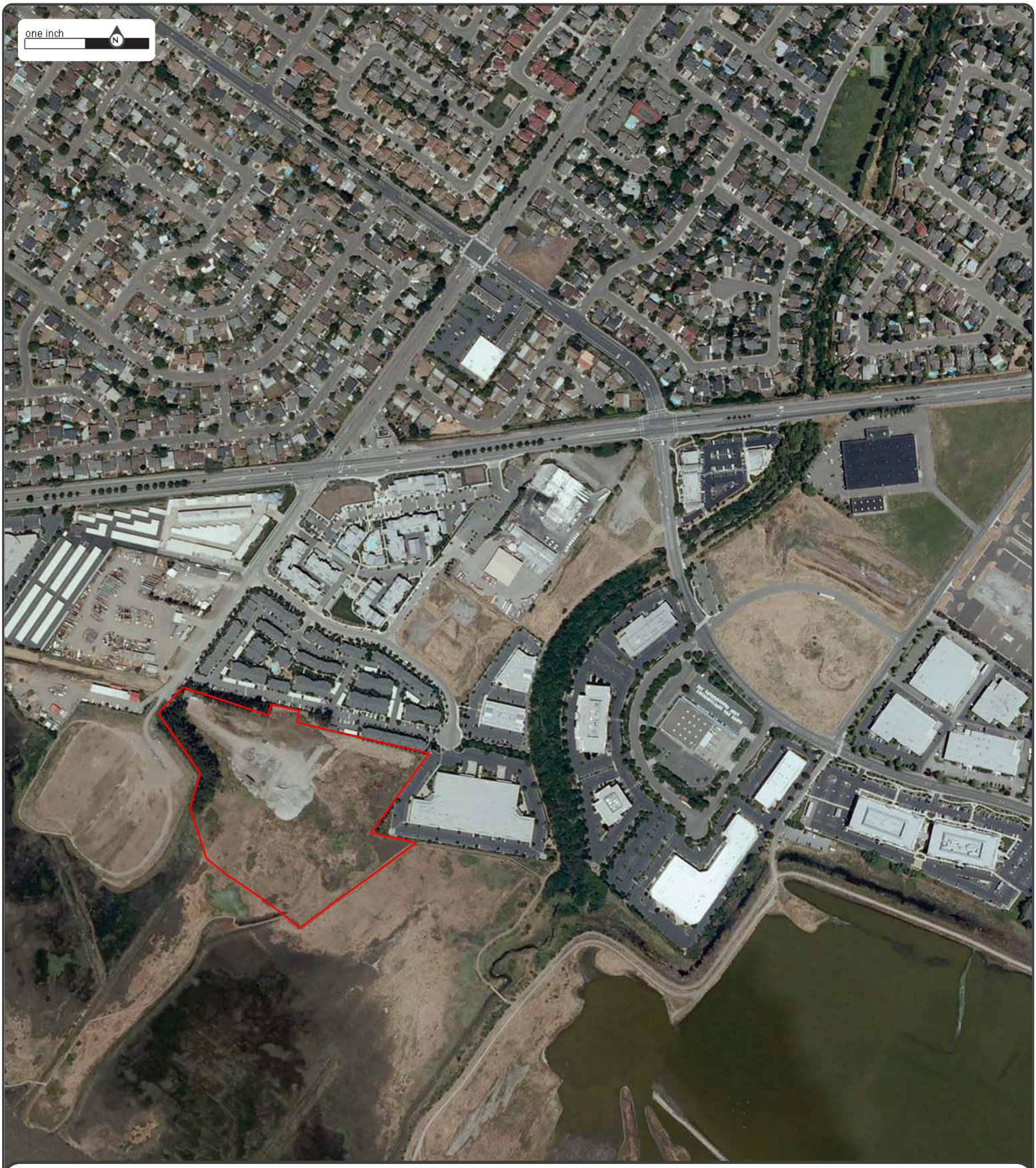

Date: **2012**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204




Date: **2010**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204



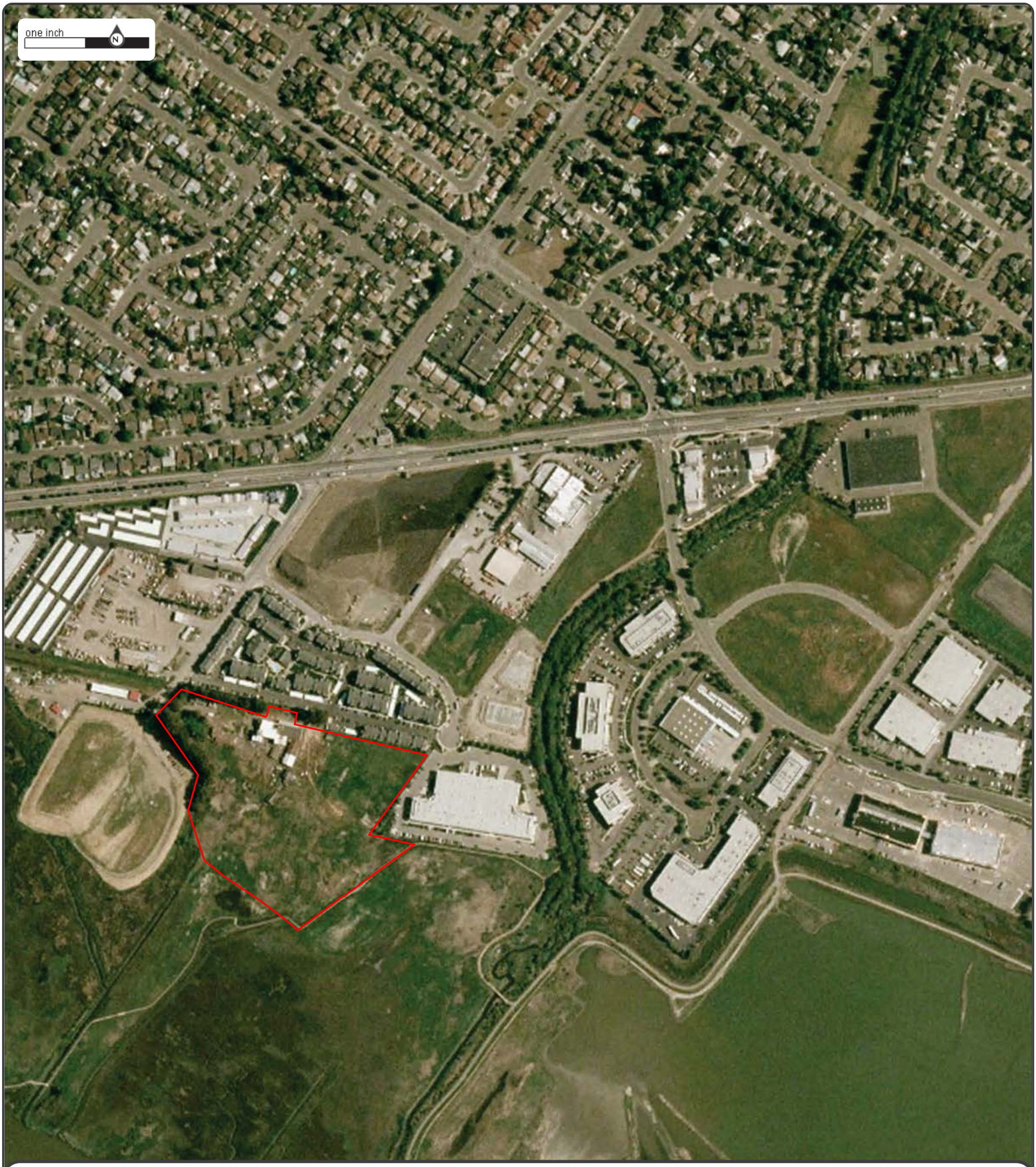

Date: **2009**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204




Date: **2006**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204



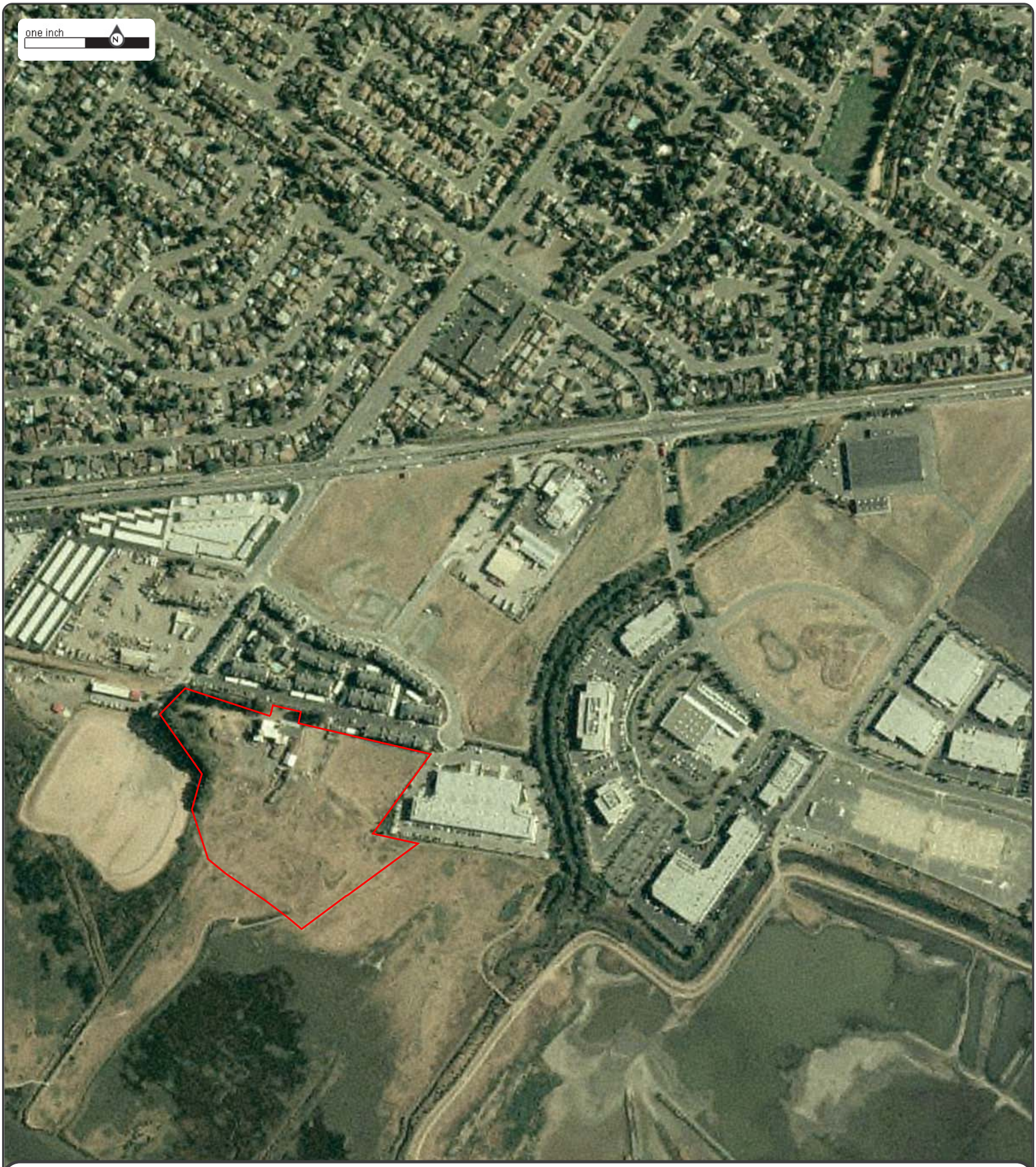

Date: **2005**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204




Date: **2004**
Source: **NAIP**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204




Date: **1993**
Source: **USGS**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204




Date: **1982**
Source: **USGS**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204



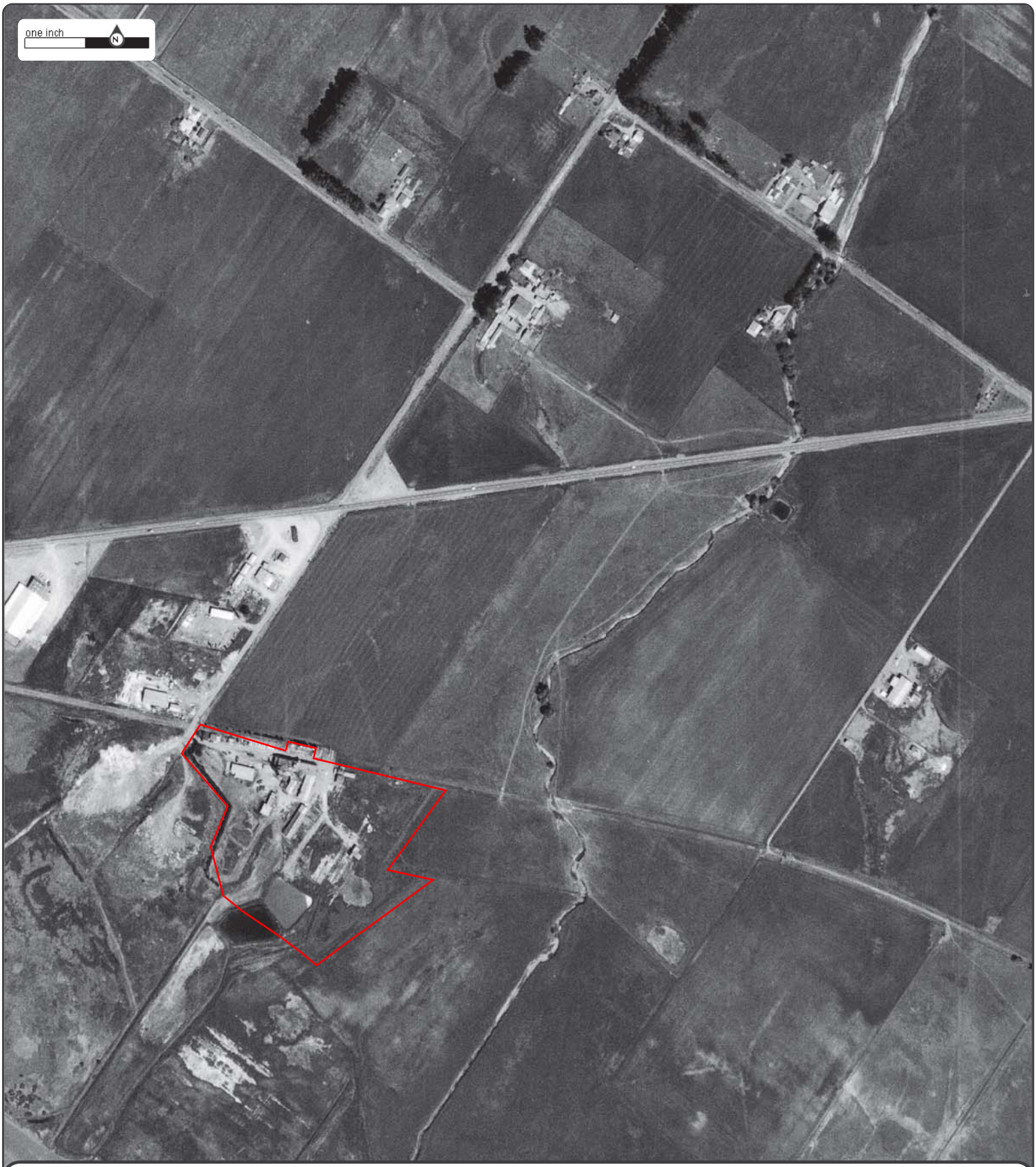

Date: **1973**
Source: **USGS**
Scale: **1" to 500'**
Comments:

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019




Date: **1968**
Source: **USGS**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204




Date: **1952**
Source: **USGS**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204




Date: **1942**
Source: **ASCS**
Scale: **1" to 500'**
Comments:

*Subject: 2592 Lakeville Hwy Petaluma CA*
Approx Center: 38.23133 / -122.6019

N

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

www.erisinfo.com | 1.866.517.5204

# Certified Sanborn® Map Report

10/30/18

**Site Name:**

396580
2592 Lakeville Highway
Petaluma, CA 94954
EDR Inquiry # 5469509.5

**Client Name:**

AEI Consultants
2500 Camino Diablo
Walnut Creek, CA 94597
Contact: Brooke

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by AEI Consultants were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

## *Certified Sanborn Results:*

**Certification #** 0390-4519-8635

**PO #** 177243

**Project** 396580

### UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 0390-4519-8635

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

*The Sanborn Library LLC Since 1866™*

### Limited Permission To Make Copies

AEI Consultants (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.


**Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2018 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

# APPENDIX E

# REGULATORY AGENCY RECORDS

# COUNTY ASSESSOR'S PARCEL MAP

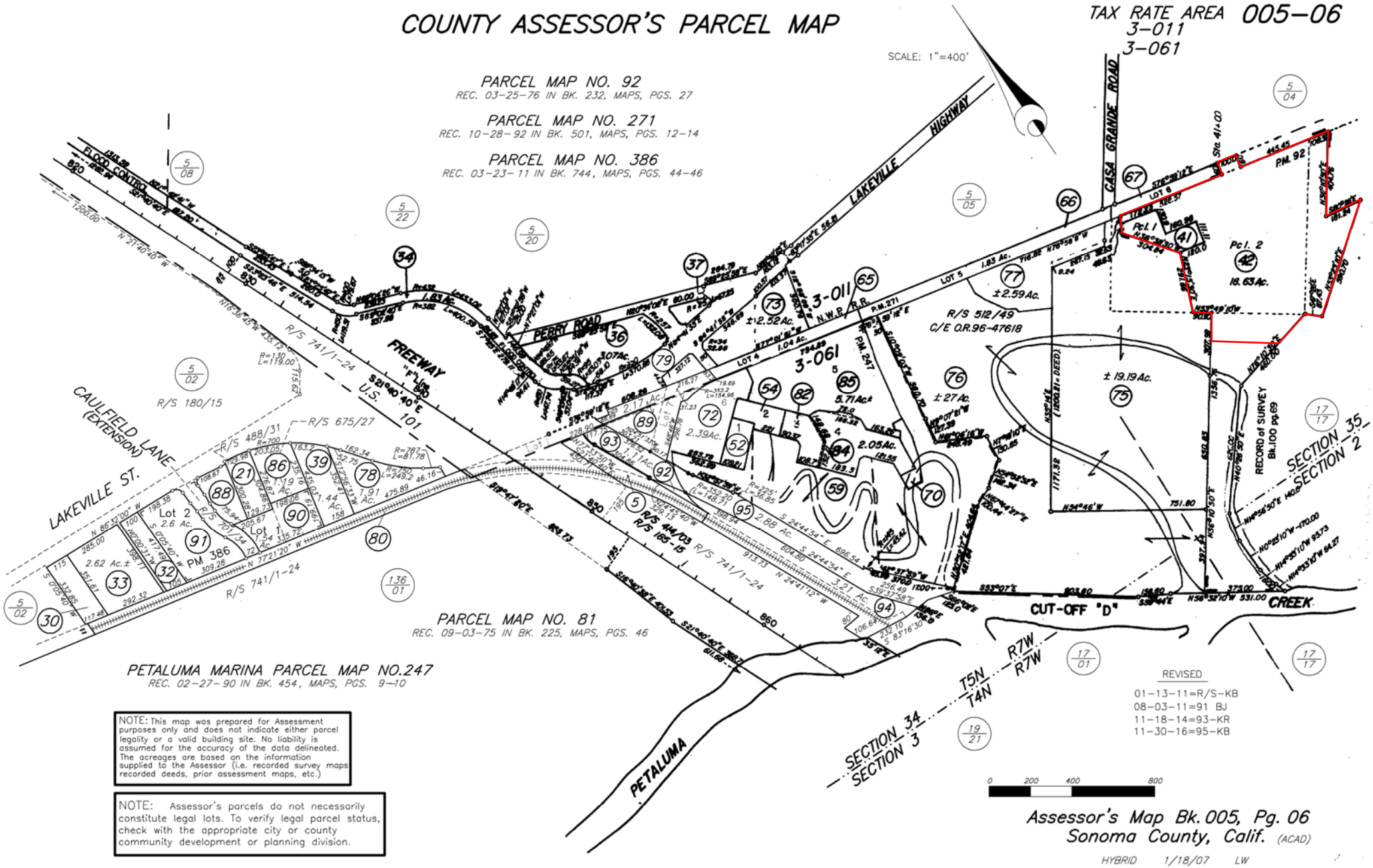
TAX RATE AREA 005-06
3-011
3-061

SCALE: 1"=400'

PARCEL MAP NO. 92
REC. 03-25-76 IN BK. 232, MAPS, PGS. 27

PARCEL MAP NO. 271
REC. 10-28-92 IN BK. 501, MAPS, PGS. 12-14

PARCEL MAP NO. 386
REC. 03-23-11 IN BK. 744, MAPS, PGS. 44-46




PARCEL MAP NO. 81
REC. 09-03-75 IN BK. 225, MAPS, PGS. 46

PETALUMA MARINA PARCEL MAP NO.247
REC. 02-27-90 IN BK. 454, MAPS, PGS. 9-10

NOTE: This map was prepared for Assessment purposes only and does not indicate either parcel legality or a valid building site. No liability is assumed for the accuracy of the data delineated. The acreages are based on the information supplied to the Assessor (i.e. recorded survey maps recorded deeds, prior assessment maps, etc.)

NOTE: Assessor's parcels do not necessarily constitute legal lots. To verify legal parcel status, check with the appropriate city or county community development or planning division.

REVISED
01-13-11=R/S-KB
08-03-11=91 BJ
11-18-14=93-KR
11-30-16=95-KB

0 200 400 800

Assessor's Map Bk. 005, Pg. 06
Sonoma County, Calif. (ACAD)

HYBRID 1/18/07 LW

LOP # 00001359 (JM)

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment/LOP Lead

*For Office Use Only*
Amount Paid Exempt
Receipt Number PE 1425
Payment Date Rev Code nw
Site ID# FA0003176 PREDA237dd
Permit # SR0015634

HEALTH SVCS
SEP 07 2018
ENVIRONMENTAL HEALTH & SAFETY

**Permit Type:**

☐ Monitoring Well ☐ Borings ■ Destruct ☐ Environmental Assessment

**Well Type:** ☐ Remediation Well ☐ Extraction Well ☐ Soil Vapor
■ Other Monitoring Well utilized for collection of GW samples with regards to dissolved phase COC delineation.

# On-Site Well 4 ID # GW-1, GW-2, GW-3, GW-4 # Off-Site Well ____ ID # ____

# On-Site Boring ____ ID # ____ # Off-Site Boring ____ ID # ____

**Submit legal right-of-entry/off-site well address/encroachment permit**

Site Address 2592 Lakeville Highway Petaluma, California AP# 005-060-042-000

Facility Name Former Darling International Inc. property

Site Owner Baywood LLC. Phone ____

Street 414 Aviation Blvd. City Santa Rosa State CA Zip 95403

Responsible Party Darling Ingredients Phone ____

Street 251 O'Conner Ridge Suite 300 City Irving State TX Zip 75038

Consultant Chris Berg License#/Type 9428 P.G. Phone ____

Street 2525 Natomas Park Dr Suit 350 City Sacramento State CA Zip 95833

License #/Type ____ Email Christopher.Berg@erm.com

Drilling Contractor Gregg Drilling & Testing, Inc. Phone 925-313-5800

Street 950 Howe Road City Martinez State CA Zip 94553

C-57 License 485165

Disposal method for soil cuttings Store in DOT drums, profile, and dispose of accordingly

Disposal method for development water wells are being abandoned no development needed.

Drilling method Hollow Stem Auger

Method of drill equipment rinsate containment and disposal Store in DOT drums, profile, and dispose of accordingly

If destroying a well, abandonment method overdrilled to total depth of original borehole and grouted 0.5 foot of ground surface.

SCANNED

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leach field? ○Yes ◉No
50 feet of any sanitary sewer line? ○Yes ◉No
25 feet of any private sanitary sewer line? ○Yes ◉No

In addition, all monitoring wells must include an ***identification system*** affixed to the interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

*For Office Use Only*

Address _____

_____

Site ID# _____

Permit # _____

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Environmental Health and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by the Department of Health Services, Environmental Health and Safety Section within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

_____ Date 8/29/18

Signature of Well Driller—***no proxies (Wet Signature Required)***

Insurance Carrier JLT Specialty WC0235381-01 Expiration Date 8/31/19

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by _____ Date 9/11/2018

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ____/____/____

RWQCB/LOP approval _____ Date 9/11/2018



Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp Party

DEPT. OF HEALTH SVCS

9m

NOV 17 2016

ENVIRONMENTAL HEALTH & SAFETY

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonomacounty.org

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment/LOP Lead

*For Office Use Only*
Amount Paid exempt
Receipt Number _____ PE 1425
Payment Date _____ Rev. Code _____
Site ID# PRDO137606 / FA0003178
Permit # SR0013971

**Permit Type:**

☒ Monitoring Well ☐ Borings ☐ Destruct ☐ Environmental Assessment

Well Type: ☐ Remediation Well ☐ Extraction Well ☒ Soil Vapor
☐ Other _____

# On-Site Well 10 ID # W-1 through W-10 # Off-Site Well 0 ID # _____

# On-Site Boring 0 ID # _____ # Off-Site Boring 0 ID # _____

**Submit legal right-of-entry/off-site well address/encroachment permit**

Site Address 2592 Lakeville Highway Petaluma, California AP# 005-060-042-000

Facility Name Former Darling International Inc. property

Site Owner Baywood LLC. Phone _____

Street 414 Aviation Blvd. City Santa Rosa State CA Zip 95403

Responsible Party Darling Ingredients Inc. Phone _____

Street 251 O'Conner Ridge Suite 300 City Irving State TX Zip 75038

Consultant Matt Scheeline, P.G. License#/Type 8987 Phone 1-916-924-9378

Street 2525 Natomas Park Dr Suite 350 City Sacramento State CA Zip 95833

License #/Type _____ Email Matt.Scheeline@ERM.com

Drilling Contractor Cascade Drilling, L.P. Phone 916-638-1169

Street 3000 Duluth Street City West Sacramento State CA Zip 95691

C-57 License 938110

Disposal method for soil cuttings Stored in DOT drums, profiled, and disposed of accordingly

Disposal method for development water not applicable

Drilling method Determined by groundwater level. If more than 5 ft below ground surface Direct push. If less than 5 ft hand auger

Method of drill equipment rinsate containment and disposal Stored in DOT drums, profiled, and disposed of accordingly

If destroying a well, abandonment method not applicable

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leach field? ○Yes ◉No
50 feet of any sanitary sewer line? ○Yes ◉No
25 feet of any private sanitary sewer line? ○Yes ◉No

In addition, all monitoring wells must include an ***identification system*** affixed to the interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

| *For Office Use Only* |
|---|
| Address _____ |
| _____ |
| Site ID# _____ |
| Permit # _____ |

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Environmental Health and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by the Department of Health Services, Environmental Health and Safety Section within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

_____ Date 11/18/16

Signature of Well Driller—***no proxies (Wet Signature Required)***

Insurance Carrier Aon Risk Services Southwest, Inc. Expiration Date 11/1/2017

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by _____ Date 11/17/2016

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ___/___/___

RWQCB/LOP approval _____ Date 11/17/2016



Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party

# CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 10/28/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Aon Risk Services Southwest, Inc.
Houston TX Office
5555 San Felipe
Suite 1500
Houston TX 77056 USA

DEPT. OF HEALTH SVCS

CONTACT NAME:
PHONE (A/C, No, Ext): (866) 283-7122 FAX (A/C, No.): (800) 363-0105
E-MAIL ADDRESS:

| INSURER(S) AFFORDING COVERAGE | | NAIC # |
|---|---|---|
| INSURER A: | ACE American Insurance Company | 22667 |
| INSURER B: | ACE Fire Underwriters Insurance Co. | 20702 |
| INSURER C: | Aspen Specialty Insurance Company | 10717 |
| INSURER D: | | |
| INSURER E: | | |
| INSURER F: | | |

INSURED
Cascade Drilling, L.P.
3000 Duluth St.
West Sacramento CA 95691 USA

NOV 17 2016

ENVIRONMENTAL HEALTH & SAFETY

Holder Identifier :

**COVERAGES** **CERTIFICATE NUMBER:** 570064273818 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. Limits shown are as requested

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| C | X COMMERCIAL GENERAL LIABILITY | | | ERAFXLW16 | 11/01/2016 | 11/01/2017 | EACH OCCURRENCE | $1,000,000 |
| | CLAIMS-MADE X OCCUR | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $300,000 |
| | | | | | | | MED EXP (Any one person) | $25,000 |
| | | | | | | | PERSONAL & ADV INJURY | $1,000,000 |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $2,000,000 |
| | X POLICY PRO-JECT LOC | | | | | | PRODUCTS - COMP/OP AGG | $2,000,000 |
| | OTHER: | | | | | | Professional Liability | $1,000,000 |
| A | AUTOMOBILE LIABILITY | | | ISA H09052094 | 11/01/2016 | 11/01/2017 | COMBINED SINGLE LIMIT (Ea accident) | $2,000,000 |
| | X ANY AUTO | | | | | | BODILY INJURY (Per person) | |
| | OWNED AUTOS ONLY / SCHEDULED AUTOS | | | | | | BODILY INJURY (Per accident) | |
| | HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY | | | | | | PROPERTY DAMAGE (Per accident) | |
| C | UMBRELLA LIAB X OCCUR | | | EXAFXLY16 | 11/01/2016 | 11/01/2017 | EACH OCCURRENCE | $15,000,000 |
| | X EXCESS LIAB CLAIMS-MADE | | | | | | AGGREGATE | $15,000,000 |
| | DED RETENTION | | | | | | | |
| A | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY | | | WLRC49106075 | 11/01/2016 | 11/01/2017 | X PER STATUTE OTH-ER | |
| B | ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N / N/A | | | SCFC49106087 | 11/01/2016 | 11/01/2017 | E.L. EACH ACCIDENT | $1,000,000 |
| | If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE-EA EMPLOYEE | $1,000,000 |
| | | | | | | | E.L. DISEASE-POLICY LIMIT | $1,000,000 |
| C | Env Contr Poll | | | ERAFXLW16 | 11/01/2016 | 11/01/2017 | Each Pollution Incl | $1,000,000 |

Certificate No : 570064273818

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Certificate Holder is included as Additional Insured in accordance with the policy provisions of the Auto, General and Excess Liability policy. A Waiver of Subrogation is granted in favor of Certificate Holder in accordance with the policy provisions of the AL GL WC policy. Insurance evidenced herein is Primary to other insurance available to an Additional Insured, but only in accordance with the policy's provisions.

**CERTIFICATE HOLDER**

Sonoma County Environmental Health
625 5th Street
Santa Rosa CA 94504 USA

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services Southwest Inc

©1988-2015 ACORD CORPORATION. All rights reserved.



The ACORD name and logo are registered marks of ACORD

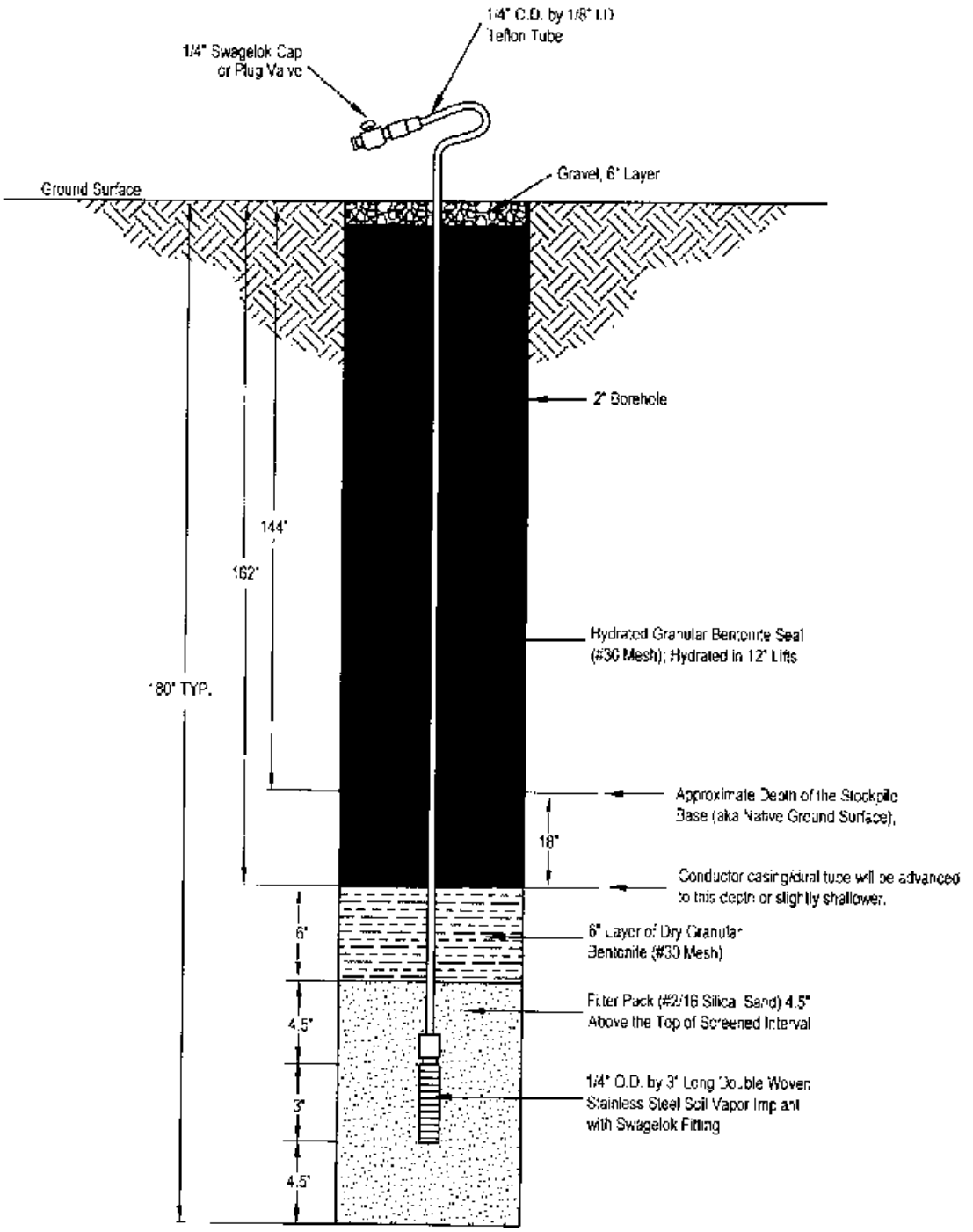



Figure 5

*Temporary Soil Vapor Probe Construction Diagram*
*2952 Lakeville Highway*
*Petaluma, California*

NOT TO SCALE

Environmental Resources Management
www.erm.com

ERM

J. Estrada 8/10/2016 0334845.04 C:\DWGS\0334845 Lakeville Highway\04\0334845G04-01.dwg

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Barbie Robinson, MPP, JD – Director
Ellen Bauer, PhD, MPP – Division Director

September 13, 2017

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Additional Site Characterization Workplan – August 2017
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

This Department is in receipt of the referenced work plan prepared by Environmental Resource Management (ERM) on behalf of Darling International. This Department generally concurs with the work proposed, subject to the following:

- An acceptable Site Safety Plan (SSP) must be submitted for review prior to implementation of the work plan. The Application for Drilling Permit cannot be approved without submittal of an acceptable SSP. A hard copy of the SSP does not need to be submitted if a PDF copy is uploaded to Geotracker at the time the Application for Drilling permit is submitted.

- All contaminated or potentially contaminated materials generated from the investigation or cleanup of this site must be properly disposed and accounted for. Please retain all shipping documents and receipts of disposal of these materials for submittal to this Department.

- This Department requires notification at least 48 hours prior to conducting any work at the site related to the release from the underground tanks.

- Soil samples must be collected and examined at changes in lithology, the groundwater interface, and at obvious signs of contamination in addition to at every five feet. Should collected soil samples indicate signs of contamination (odor, discoloration, etc.) such samples shall be analyzed in an approved laboratory for constituents of concern.

January 8, 2018 is hereby established as a deadline to complete the proposed work and submit a report of findings to this office. Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,

J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC., 414 Aviation Boulevard, Santa Rosa, CA 95403
ERM, 1277 Treat Blvd., Suite 500, Walnut Creek, CA 94596

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Barbie Robinson, MPP, JD – Director
Ellen Bauer, PhD, MPP – Division Director

July 25, 2017

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Additional Site Characterization Workplan – June 2017
June 22nd Correspondence Miller Starr Regalia on behalf of Baywood LLC
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

This Department is in receipt of the referenced report/work plan prepared by Environmental Resource Management (ERM) on behalf of Darling International. We are also in receipt of a letter by Miller Starr Regalia on behalf of Baywood LLC as owner of the subject property with comments and input to such work plan, noting as a property owner, Baywood is also considered a responsible party relative to the site and has a legitimate interest in the work being proposed. In the future, it is respectfully requested of both parties that information regarding future work be presented / shared at least two weeks before any submittal to this regulatory agency. Ideally, Baywood would provide a technical representative to work concurrently/in cooperation with the selected consultant ERM so that work is not duplicative and delays are avoided. This said, this Department generally concurs with the work proposed, with certain caveats, taking into consideration input by Baywood LLC. As such, you are hereby directed to provide an amendment to your work plan to address the following items, of which, once approved, work may proceed on site.

1) Please provide a site map indicating the limits of the investigation and approximate locations of all borings, wells, etc. to be installed on site.

2) A construction diagram for proposed wells is required.

3) While this Department will not require a full 8260 analyses be performed on all samples, we are directing that PCE, 1,2 DCA, and EBB be included in the initial round of groundwater sampling. Based on the findings presented, these analytes may be added to future sampling events.

4) We concur that existing soil vapor probes should remain in place unless such presence would interfere with the upcoming investigation, noting that while it is likely they will need to be taken out, there is no detriment to wait until such time a remedial course of action is decided, upon which they can be properly destroyed under permit.

5) Low flow sampling is not approved for this site. Please include in your plan amendment provisions to reflect the industry standard three volume purge method of sampling.

6) The analyses for Hexavalent chromium will be required for your bench test. Should significant formation take place, this Department will be unlikely to approve an oxidizing remedial solution unless an attenuation model is performed as part of the study.

The following general requirements will be in place once your amendment is approved.

- An acceptable Site Safety Plan (SSP) must be submitted for review prior to implementation of the work plan. The Application for Drilling Permit cannot be approved without submittal of an acceptable SSP. A hard copy of the SSP does not need to be submitted if a PDF copy is uploaded to Geotracker at the time the Application for Drilling permit is submitted.

- All contaminated or potentially contaminated materials generated from the investigation or cleanup of this site must be properly disposed and accounted for. Please retain all shipping documents and receipts of disposal of these materials for submittal to this Department.

- This Department requires notification at least 48 hours prior to conducting any work at the site related to the release from the underground tanks.

- Soil samples must be collected and examined at changes in lithology, the groundwater interface, and at obvious signs of contamination in addition to at every five feet. Should collected soil samples indicate signs of contamination (odor, discoloration, etc.) such samples shall be analyzed in an approved laboratory for constituents of concern.

August 18, 2017 is hereby established as a deadline to submit an amendment to your work plan. Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,

J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC., 414 Aviation Boulevard, Santa Rosa, CA 95403
Ben Leslie-Bole, ERM, 1218 3rd Ave. Suite 1412, Seattle Washington 98101

LOP # 00001359

9M

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

DEPT. OF HEALTH SVCS
OCT 06 2017
ENVIRONMENTAL HEALTH & SAFETY

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment/LOP Lead

*For Office Use Only*
Amount Paid Exempt
Receipt Number _____ PE 1425
Payment Date _____ Rev. Code _____
Site ID# PR0013704 FA0003178
Permit # SR0014361

#2

**Permit Type:**

■ Monitoring Well ☐ Borings ☐ Destruct ☐ Environmental Assessment

**Well Type:** ☐ Remediation Well ☐ Extraction Well ☐ Soil Vapor
■ Other Monitoring well utilized for collection of GW samples with regards to dissolved phase COC delineation.

# On-Site Well 4 ID # GW-1 through GW-4 # Off-Site Well _____ ID # _____

# On-Site Boring _____ ID # _____ # Off-Site Boring _____ ID # _____

**Submit legal right-of-entry/off-site well address/encroachment permit**

Site Address 2592 Lakeville Highway Petaluma, California AP# 005-060-042-000

Facility Name Former Darling International Inc. property

Site Owner Baywood LLC. Phone _____

Street 414 Aviation Blvd. City Santa Rosa State CA Zip 95403

Responsible Party Darling Ingredients Inc. Phone _____

Street 251 O'Conner Ridge Suite 300 City Irving State TX Zip 75038

Consultant Chris Berg License#/Type 9428 P.G. Phone 1-916-924-9378

Street 2525 Natomas Park Dr Suite 350 City Sacramento State CA Zip 95833

License #/Type _____ Email Christopher.Berg@erm.com

Drilling Contractor Cascade Drilling, L.P. Phone 530-662-2829

Street 2086 East Main Street City Woodland State CA Zip 95776

C-57 License 938110

Disposal method for soil cuttings Store in DOT drums, profiled, and disposed of accordingly

Disposal method for development water Store in DOT drums, profiled, and disposed of accordingly

Drilling method Direct push with auger; utilizing a DPT 7730 rig

Method of drill equipment rinsate containment and disposal Store in DOT drums, profiled, and disposed of accordingly

If destroying a well, abandonment method not applicable

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leach field? ○Yes ◉No
50 feet of any sanitary sewer line? ○Yes ◉No
25 feet of any private sanitary sewer line? ○Yes ◉No

In addition, all monitoring wells must include an ***identification system*** affixed to the interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

| *For Office Use Only* |
|---|
| Address _____ |
| _____ |
| Site ID# _____ |
| Permit # _____ |

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Environmental Health and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by the Department of Health Services, Environmental Health and Safety Section within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

_____ Date 9/28/17

Signature of Well Driller—***no proxies (Wet Signature Required)***

Insurance Carrier Aspen Specialty Insurance Company Expiration Date 11/01/17

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

---

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by _____ Date 10/18/17

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ____/____/____

RWQCB/LOP approval _____ Date 10/18/17



Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party

9M

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

DEPT OF HEALTH SVCS
OCT 06 2017
ENVIRONMENTAL HEALTH & SAFETY

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment/LOP Lead

*For Office Use Only*
Amount Paid exempt
Receipt Number _____ PE _____
Payment Date _____ Rev. Code _____
Site ID# PR0013706 FA0003178
Permit # SR0014360

#1

**Permit Type:**

☐ Monitoring Well ■ Borings ☐ Destruct ☐ Environmental Assessment

**Well Type:** ☐ Remediation Well ☐ Extraction Well ☐ Soil Vapor
☐ Other _____

# On-Site Well _____ ID # _____ # Off-Site Well _____ ID # _____

# On-Site Boring 4 ID # MiHPT-1 through MiHPT-4 # Off-Site Boring _____ ID # _____

**Submit legal right-of-entry/off-site well address/encroachment permit**

Site Address 2592 Lakeville Highway Petaluma, California AP# 005-060-042-000

Facility Name Former Darling International Inc. property

Site Owner Baywood LLC. Phone _____

Street 414 Aviation Blvd. City Santa Rosa State CA Zip 95403

Responsible Party Darling Ingredients Inc. Phone _____

Street 251 O'Conner Ridge Suite 300 City Irving State TX Zip 75038

Consultant Chris Berg License#/Type 9428 P.G. Phone 1-916-924-9378

Street 2525 Natomas Park Dr Suite 350 City Sacramento State CA Zip 95833

License #/Type _____ Email Christopher.Berg@erm.com

Drilling Contractor Cascade Drilling, L.P. Phone 530-662-2829

Street 2086 East Main Street City Woodland State CA Zip 95776

C-57 License 938110

Disposal method for soil cuttings Store in DOT drums, profiled, and disposed of accordingly

Disposal method for development water not applicable

Drilling method Direct push

Method of drill equipment rinsate containment and disposal Store in DOT drums, profiled, and disposed of accordingly

If destroying a well, abandonment method not applicable

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leach field? ○Yes ◉No
50 feet of any sanitary sewer line? ○Yes ◉No
25 feet of any private sanitary sewer line? ○Yes ◉No

In addition, all monitoring wells must include an ***identification system*** affixed to the interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

***For Office Use Only***

Address _____

_____

Site ID# _____

Permit # _____

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Environmental Health and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by the Department of Health Services, Environmental Health and Safety Section within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

_____ Date 9/28/17

Signature of Well Driller—***no proxies (Wet Signature Required)***

Insurance Carrier Aspen Specialty Insurance Company Expiration Date 11/01/17

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

---

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by _____ Date 10/18/17

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ____/____/____

RWQCB/LOP approval _____ Date 10/18/17



Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party

## Darcy Bering

**From:** Sheehan, Caryl@Waterboards <Caryl.Sheehan@Waterboards.ca.gov>
**Sent:** Tuesday, December 08, 2015 10:19 AM
**To:** Darcy Bering; Cullen, Pat@Waterboards; Brasher, Bill@Waterboards
**Subject:** 2592 Lakeville Highway, Petaluma
**Attachments:** 2592 Lakeville Hwy, Petaluma Site Notes for Discussion.pdf

Hi Darcy,

Attached are our informal notes and key information that will be helpful in the call later today.

Thank you,

Caryl F. Sheehan, P.G.
Engineering Geologist
SWRCB Clean Up Fund
DFA Technical Review Unit
916.341.5742
Caryl.Sheehan@Waterboards.ca.gov

**IMPORTANT!!!**

**Sign up to get email alerts:** The State Water Board communicates by email to subscribers of electronic mailing lists. We encourage you to subscribe to UST lists of most interest found at: http://www.waterboards.ca.gov/resources/email_subscriptions/ust_subscribe.shtml. To receive important UST Cleanup Fund, be sure to select the "Cleanup Fund" list .

**Find Fund Information:** For Fund information, go to: www.waterboards.ca.gov/water_issues/programs/ustcf. Information includes reimbursement requests, budgets, claim applications, Emergency Abandoned or Recalcitrant Program, Orphan Site Cleanup Fund, and SB 445 implementation that includes Expedited Cleanup Account Program; and Site Cleanup Subaccount Program (SCAP). If you cannot find the information you are seeking, please email your detailed question to USTcleanupfund@waterboards.ca.gov.

**Single Tank Owners**: Deadline to remove single wall tanks is December 31, 2015. RUST Program funding is available for small businesses to removal, replacement, and upgrade of petroleum USTs. Apply **prior** to UST removal. For more information, go to: http://www.waterboards.ca.gov/water_issues/programs/ustcf/rust.shtml. If petroleum releases are found, apply early to the UST Cleanup Fund for potential reimbursement of eligible corrective action costs. For more information, go to: http://www.waterboards.ca.gov/water_issues/programs/ustcf/#. DO NOT DELAY.

**Groundwater Funding Programs:** New laws created additional funding programs. For new information regarding SB 445 SCAP and Proposition 1, go to: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/#.

**Talking Point for Discussion**
**Petaluma Site, 2592 Lakeville Highway**
**Petaluma, CA**

Phase II was prepared for Denova Homes – a developer
A 2008 article indicated the property was zoned for residential land use. In addition, relatively recently they filled in the pond at the south end of the property, so redevelopment is a likely scenario.

I researched the Royal Tallow and Soap Company (RTSC), and their primary activity was rendering – "recycling" animals to produce meat, bone meal, tallow and yellow grease. They also had a hog farm there. No indication of use of hazardous materials, but pesticides may have been used in weed control. This statement is in agreement with the documented conversation with the RTSC employee.

The property was previously the City dump.

A railroad spur runs along the north boundary; as indicated in the Phase II assessment, there could be creosote, PCBs, heavy petroleum hydrocarbons, arsenic as a result of railroad activities.

The Site was in USTCF (Claim 6550) opened in 1989 and was closed in 2004.
There were two gasoline USTs (1K, 2K) at an auto maintenance yard in the NW corner of the site. 2,400 cubic yards of contaminated soil was excavated with the USTs in 1990.
88,000 gallons of stormwater and groundwater were extracted and pumped to a storm drain.
9 monitoring wells – most wells were completely ND, one well indicated 1,2-DCA (max of 6.8 ug/l).
Wells were apparently destroyed.
At closure elevated petroleum hydrocarbons in soil were reported as remaining in place. A Soil and GW Management plan was prepared at that time.

Groundwater was first encountered at 12 ft bgs, equilibrates at ~ 3 ft bgs. GW flow is southerly/southeast

**LTCP Evaluation**

**GW: - Fails** Plume appears to be defined in downgradient direction, not defined in upgradient direction. High BTEX in area of former USTs and septic tank. Residual source is present and contributing to GW impact. Recommend limited overexcavation, confirmation soil sampling, followed by hydropunch sampling (wait about 3 months after excavation to allow GW conditions to equilibrate after excavation). Note they will have to get rid of the enormous stock pile before they can overexcavate the former UST and septic tank areas.

**Direct Contact: Passes**

**Vapor Intrusion:** Fails due to shallow depth to GW and elevated BTEX in UST area. However, if development will NOT include housing in the area of the former USTs /septic tanks but at least 30 feet away, VI may not be an issue.

To give the developer greatest freedom in developing the site, recommend additional source removal followed by Hydropunch sampling in all directions around the UST/septic tank area. Septic tank soils may be hazardous due to elevated metals in addition to petroleum hydrocarbons.



# A Day at the Park

Story and Photos By Norris (Bob) Dyer

## Nature

## Barn Owls Without Barns



*Figure 1. Royal Tallow & Soap Company (2002)*



*Figure 2. Barn Owl. Its heart-shaped face helps focus light and sound*



*Figure 3. Barn Owl, in profile*

Petaluma used to have a rendering plant, The Royal Tallow & Soap Company, which has been out of business now for several decades. It was located next to Rocky Dog Park and Alman Marsh and is remembered less than fondly by those who lived in the area when it operated because it was not exactly olfactory-friendly. Thousands of dead cattle, sheep, horses and some of poultry were recycled into such by-products as meat and bone meal, tallow, and yellow grease. A 1987 *Argus-Courier* article said the 19.5 acres were for sale then for $2.2 million. This year it was finally purchased and the buildings pictured in Figure 1 were demolished. The new owner, Baywood Partners, L.L.C., is having the ground raised because of past flooding problems. The property is zoned for apartment houses, so we may eventually see them there.

In 2003, the caretaker at the time, Pete Terribilini, took me around the property and into one of the barns occupied by Barn Owls. These creatures are now without a home, at least until they find different accommodations. Barn Owls also nest in other buildings, tree cavities and nest boxes.

Several months ago, people who visited Shollenberger began seeing Barn Owls, sometimes even in the middle of the day (Figure 2 & 3). Great Horned Owls were also disturbed by this demolition and were probably resident in trees close to the tallow works. They are also seen now in the park, though between sunset and dawn. I am concentrating on the more diminutive Barn Owl in this article, however. Here are some factoids about the Barn Owl:

1. 16" long, they weigh only about one pound;

2. The cup or heart-shaped face allows them to focus light and sound;

3. They mainly eat small mammals, such as mice, voles and gophers;

4. They are nocturnal hunters;

5. They have *two* stomachs. The first captures fur and bones. The soft parts are passed on to the second stomach and then to the intestinal tract;

6. The fur and bones are regurgitated as "pellets"; and the pellets can be dissected to find out what the owl(s) ate.

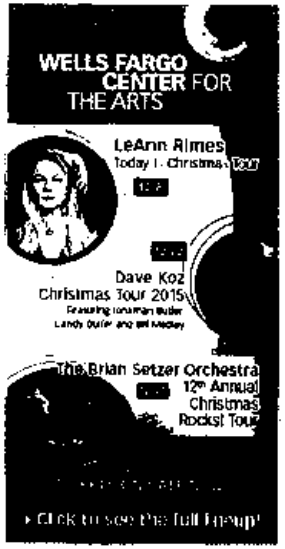
Those who have been to Shollenberger lately know how dry it is. One of the educational activities we normally put on for local elementary school children has been "Mud and Water" looking at mud-creatures and testing water salinity. Without mud or water this is tough to do so now we have a new activity. Children take Barn Owl pellets apart and look for fur, and especially small bones. Docent Gerald Moore fashioned this educational experience and the kids really enjoy the discoveries it provides. The pellets are purchased commercially and sanitized.

So the Barn Owls have inspired a new learning experience but the local owls are still evictees. Trying to make up for what man has done, several park docents have erected a Barn Owl box at the park (Figure 4). Andy LeCasse built it and Gary Compart helped him raise the heavy home. We're hoping a pair discover it and nest there in the future. You can see the house set back in a clearing before trail marker #3, walkingcounterclockwise from the entrance.



*Figure 4. Andy LeCasse (right) and Gary Compart raise a Barn Owl nesting box at Shollenberger Park*






*BY HARLAN OSBORNE*
*ARGUS-COURIER COLUMNIST*
*March 11, 2009, 9:47PM*

The vital importance the tallow and rendering industry played in this largely agricultural community in providing a needy service to the many dairy farms and chicken ranches that surrounded us cannot be overlooked.

Known as the ?invisible industry,? the tallow business wasn?t as glamorous as its agricultural cousins, but its importance in solving which otherwise would be a major disposal problem and providing a long list of widely used products can?t be denied. Rendering has been carried out for many centuries, primarily for soap and candle making, and the use of tallow, the rendered fat, is used in everything from cosmetics to concrete production and tire manufacturing.

Although there were other tallow plants in the vicinity, none reached the level of Royal Tallow, which got its start in Petaluma as the Biltmore Plant, at 531 Lakeville St., owned by Royal Tallow of San Francisco.

In 1912, Agostino ?Emilio? Ricci and his oldest son, Eugenio, emigrated from Italy and took jobs at Royal Tallow in San Francisco. Eugenio was later offered a job at the Petaluma plant and one-by-one he sponsored his younger brothers, Angelo, Edoardo and Duilio, known as Mos? to come over and work at the plant. Mos?was the last to do so in 1953. At that time, the plant did wet rendering, or tanking. It was a smelly operation that often rankled local townsfolk and at the urging of the city, in 1941, the company built a new plant on 17 acres out by the old city dump near the end of Casa Grande Road, with Mos?and Edoardo Ricci becoming part-owners.

At the new plant, which included a railroad spur, they installed dry rendering, which utilized a steam process, and converted half the property to a 3,000-pig hog ranch. To feed the hogs, five trucks picked up swill from markets, military bases, state hospitals and San Quentin. In addition to the hog ranch?s eight workers, Royal Tallow employed 14 plant workers, 15 truck drivers and two office workers, two-thirds of whom were Italian immigrants or their children. And the pay was good, with most employees belonging to either the butcher?s union or the teamsters. The hog ranch was closed in 1957.

Mos?and his wife, Angiolina, raised two children, Ed and Adele, and spoke

Order Article Reprint

More Videos

A Powerful New 2-Step Method Can Eliminate Credit Card Debt. Really
LendingTree

How To: Repair Crepey Skin
Crepe Correction Skincare

Overstock Clearance: Brand New UGG Boots Being Sold for Next to Nothing
Outlook

Stephen Curry at Warriors practice
Press Democrat

Lorem Ipsi Grinder pulls through Santa Rosa
Press Democrat

Meeting on Raiders' future: Fans speak, part 1
Press Democrat

Sponsored Links by Taboola

Complete Coverage

North Coast Wildfires
Napa Earthquake
North Bay's extreme drought
Historic El Capitan Climb
Homelessness in Sonoma County

Columnists

Kerry Benefield
Pete Golis
Paul Gullixson
Chris Smith
Gaye LeBaron
Bob Padecky
Lowell Cohn
Michele Anne Jordan
Jeff Cox
Dan Beyer
Rosemary McCreary

Our Network

only Italian at home. As a kid, Ed Ricci learned the entire business from his father, and when he turned 15 he got the job he wanted, as the designated dead-stock driver, collecting dead livestock from local ranches. After graduating from the University of San Francisco, he became a manager for the firm.

Besides the carcasses and the daily 7,000 dead hens, the plant picked up discards from local slaughterhouses, meat packers, Reif and Brody, Fulton Processors, Reichardt's Duck Farm and Bodega Bay fisheries. In a period of heavy flooding in 1965, the plant processed 800 beef cattle that had perished. But probably the most surprising animal rendered at the only plant on the West Coast to do so were the 175-ton whales annually trucked in from Richmond in 15-ton chunks. Whale meat went into pet food while the carcass, bone, blood and viscera were converted to other products. Among its finished products, Royal Tallow produced yellow and brown greases, whale oils, meat and bone meal, protein meals, feather meal, blood meal, fish meal and others from by-products of other industries.

With the downturn in the dairy and chicken industries, and as raw materials became scarce without the slaughterhouses, butchers and whaling, along with stringent new laws regarding air and water pollution, the plant, which was sold to Darling Delaware in 1964, became a transfer station in the mid-1970s and closed completely in 1994. It was finally demolished in 2008. Ed Ricci stayed on in management and is today part owner of Petaluma By-Products.

(Harlan Osborne's column, Tootin' Around Town, appears every two weeks. Contact him at harlan@sonic.net)

You May Like

Sponsored Links by Taboola



3 Credit Cards are Offering 0% Interest Until 2017



These Pics Are Hilarious



How To: Fix Dark Eye Circles [Watch]



9 Movies That Shouldn't Have Been Rated PG



Why Wait for Black Friday? UGG Boots are Being Sold for Next to...



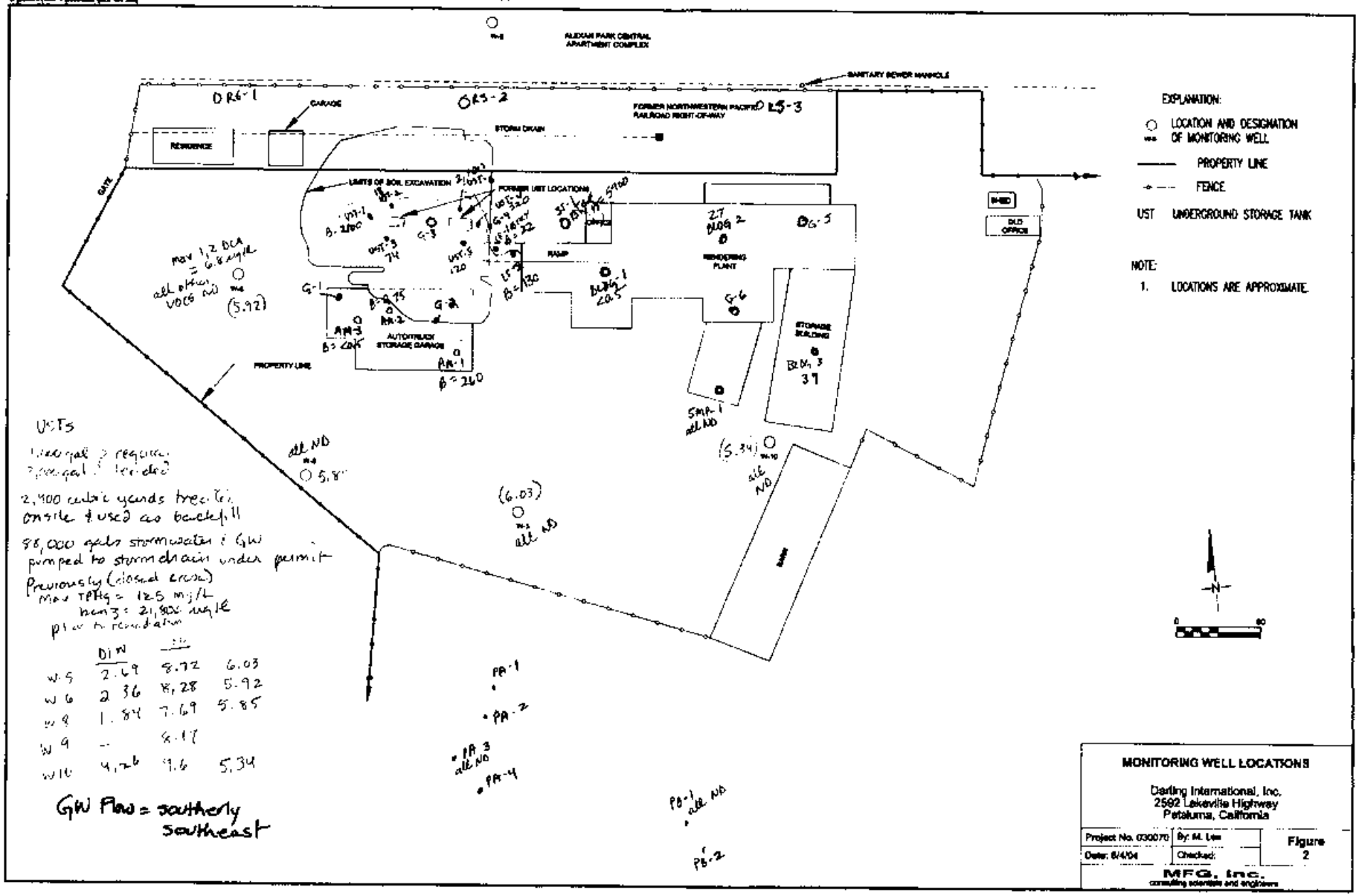
Jaw Dropping Child Star Transformations!!

From The Web

- The Fastest Way To Pay Off $10,000 In Credit ... (LendingTree)
- Holiday Tech Gift Ideas and Shopping G... (Digital Trends for LG)
- Superhero Costumes That Will Make Your Jaw Drop! (Buzzle)

You May Also Like

No GW data in Geo T




MW 1,2 DCA = 6.8 ug/L all other VOCs ND (5.92)

all ND 5.8'

(6.03) all ND

(5.34) all ND

USTs

1,000 gal ? regular
? gal ? leaded

2,400 cubic yards treated onsite & used as backfill

$8,000 spoils stormwater & GW pumped to storm drain under permit

Previously (closed area)
Max TPHg = 125 mg/L
benz = 21,800 ug/L
plan to remediate

| | DTW | | |
|---|---|---|---|
| W-5 | 2.69 | 8.72 | 6.03 |
| W-6 | 2.36 | 8.28 | 5.92 |
| W-8 | 1.84 | 7.69 | 5.85 |
| W-9 | -- | 8.17 | |
| W-10 | 4.26 | 9.6 | 5.34 |

GW Flow = southerly southeast

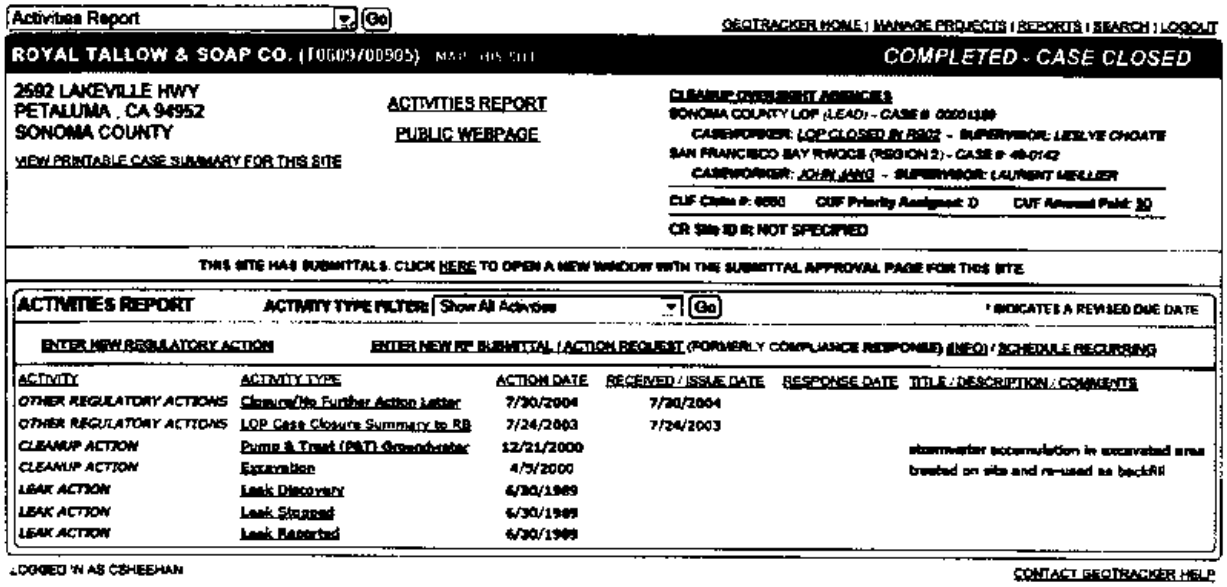
**MONITORING WELL LOCATIONS**

Darling International, Inc.
2592 Lakeville Highway
Petaluma, California

| | | |
|---|---|---|
| Project No. 030076 | By: M. Lee | Figure 2 |
| Date: 6/4/04 | Checked: | |

MFG, Inc.
consulting scientists and engineers

2592 LAKEVILLE HIGHWAY, PETALUMA, CA



Activities Report Go

GEOTRACKER HOME | MANAGE PROJECTS | REPORTS | SEARCH | LOGOUT

ROYAL TALLOW & SOAP CO. (T0609700905) [illegible] COMPLETED - CASE CLOSED

2592 LAKEVILLE HWY
PETALUMA , CA 94952
SONOMA COUNTY

VIEW PRINTABLE CASE SUMMARY FOR THIS SITE

ACTIVITIES REPORT

PUBLIC WEBPAGE

CLEANUP OVERSIGHT AGENCIES
SONOMA COUNTY LOP (LEAD) - CASE # 00001189
CASEWORKER: LOP CLOSED IN RBCT - SUPERVISOR: LESLYE CHOATE
SAN FRANCISCO BAY RWQCB (REGION 2) - CASE # 48-0142
CASEWORKER: JOHN JANG - SUPERVISOR: LAURENT MEILLIER

CUF Claim #: 6560 CUF Priority Assigned: 0 CUF Amount Paid: $0

CR Site ID #: NOT SPECIFIED

THIS SITE HAS SUBMITTALS. CLICK HERE TO OPEN A NEW WINDOW WITH THE SUBMITTAL APPROVAL PAGE FOR THIS SITE

ACTIVITIES REPORT ACTIVITY TYPE FILTER: Show All Activities Go * INDICATES A REVISED DUE DATE

ENTER NEW REGULATORY ACTION ENTER NEW RP SUBMITTAL / ACTION REQUEST (FORMERLY COMPLIANCE RESPONSE) (INFO) / SCHEDULE RECURRING

| ACTIVITY | ACTIVITY TYPE | ACTION DATE | RECEIVED / ISSUE DATE | RESPONSE DATE | TITLE / DESCRIPTION / COMMENTS |
|---|---|---|---|---|---|
| OTHER REGULATORY ACTIONS | Closure/No Further Action Letter | 7/30/2004 | 7/30/2004 | | |
| OTHER REGULATORY ACTIONS | LOP Case Closure Summary to RB | 7/24/2003 | 7/24/2003 | | |
| CLEANUP ACTION | Pump & Treat (P&T) Groundwater | 12/21/2000 | | | stormwater accumulation in excavated area |
| CLEANUP ACTION | Excavation | 4/5/2000 | | | treated on site and re-used as backfill |
| LEAK ACTION | Leak Discovery | 6/30/1989 | | | |
| LEAK ACTION | Leak Stopped | 6/30/1989 | | | |
| LEAK ACTION | Leak Reported | 6/30/1989 | | | |

LOGGED IN AS CSHEEHAN

CONTACT GEOTRACKER HELP

Release in June 1989
Gasoline is the constituent
Pump & treat reportedly Dec 2000 to June 2001 to remove stormwater accumulation in the excavated area (improper use of UST funds)
Excavation in 2000 to remove tanks – soil was reused as backfill

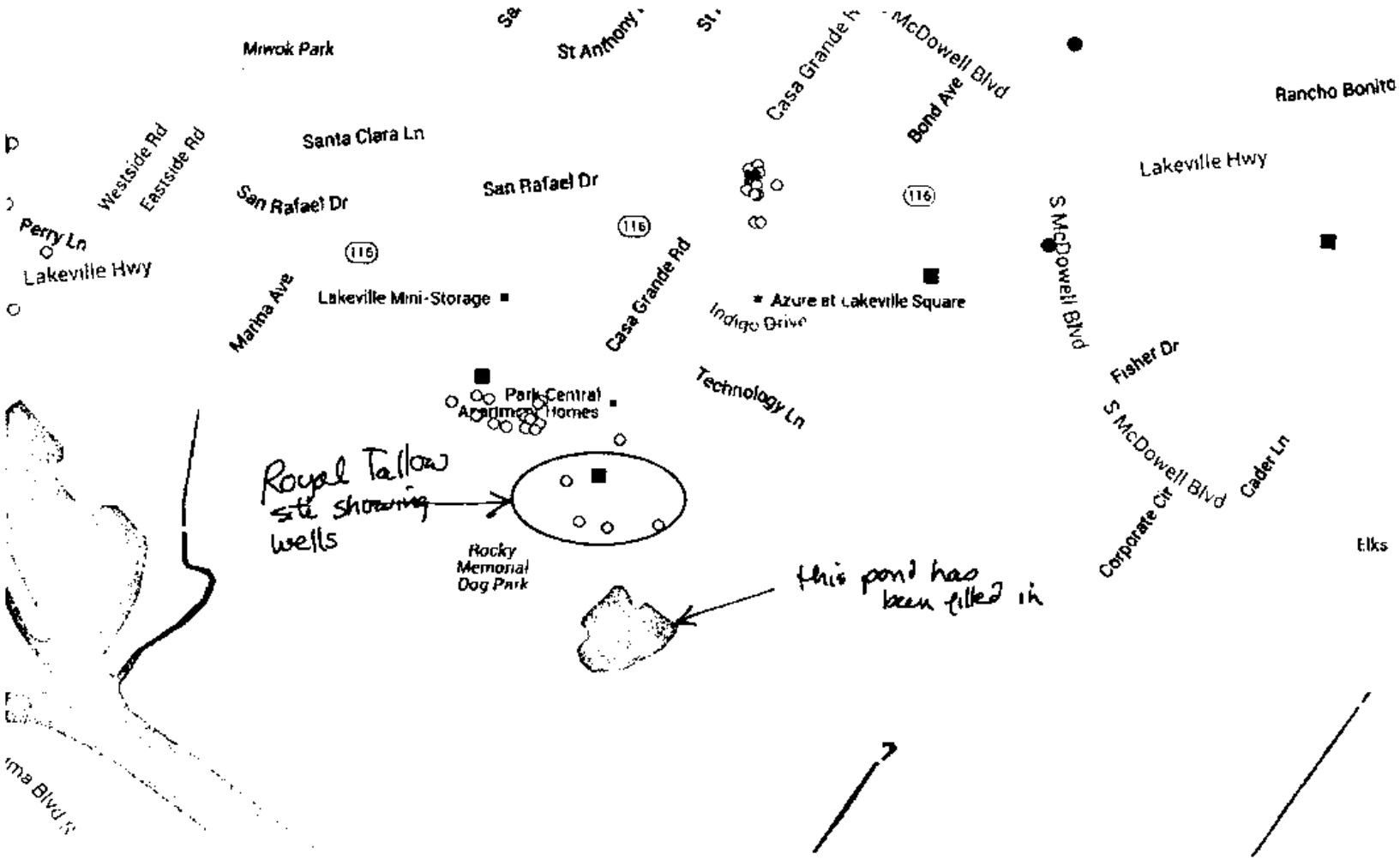

Mrwok Park
St Anthony
Casa Grande
McDowell Blvd
Bond Ave
Rancho Bonito
Lakeville Hwy
Santa Clara Ln
WestSide Rd
EastSide Rd
San Rafael Dr
San Rafael Dr
Perry Ln
Lakeville Hwy
116
116
116
Marina Ave
Lakeville Mini-Storage
Casa Grande Rd
Azure at Lakeville Square
Indigo Drive
S McDowell Blvd
Fisher Dr
Technology Ln
Park Central Apartment Homes
S McDowell Blvd
Cader Ln
Corporate Cir
Elks
Royal Tallow site showing wells
Rocky Memorial Dog Park
this pond has been filled in

**Table 5. Groundwater Data Summary (Organic Constituents)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | TPH-g (µg/L) | TPH-d (µg/L) | TPH-mo (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (µg/L) | MTBE (µg/L) | Naphthalene (µg/L) | Remaining VOCs* (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sump** | | | | | | | | | | | |
| SMP 1 | 6/19/2014 | <50 | 60 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Waste Disposal Ponds** | | | | | | | | | | | |
| PA-3 | 6/17/2014 | <50 | <50 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| PB-1 | 6/17/2014 | <50 | <50 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Septic Tank and Leach Field** | | | | | | | | | | | |
| ST-1 | 6/19/2014 | **29,000** | **3,300** | <250 | **5,900** | **270** | **710** | **1,900** | <100 | **190** | <MRL |
| LF-1 | 6/19/2014 | **6,800** | **3,000** | **280** | **22** | 2.6 | **46** | 7.1 | <2.5 | **15** | <MRL |
| LF-2 | 6/19/2014 | **11,000** | **5,500** | **430** | **130** | **200** | **350** | **1,500** | <10 | **100** | <MRL |
| **Former Auto Maintenance Area** | | | | | | | | | | | |
| AM-1 | 6/17/2014 | **5,600** | **1,800** | **430** | **260** | 16 | **270** | **53** | <0.5 | **100** | <MRL |
| AM-2 | 6/17/2014 | **490** | **160** | <250 | 0.75 | <0.5 | 6.9 | <0.5 | <0.5 | 3.7 | <MRL |
| AM-3 | 6/17/2014 | <50 | 93 | **450** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Former Underground Storage Tank (UST) Area** | | | | | | | | | | | |
| UST-1 | 6/17/2014 | **35,000** | **12,000** | **250** | **7,100** | **440** | **1,200** | **3,900** | <50 | NA | NA |
| UST-2 | 6/17/2014 | **1,700** | **590** | <250 | **18** | <1.2 | **34** | **70** | <1.2 | NA | NA |
| UST-3 | 6/17/2014 | **1,300** | **310** | <250 | **74** | 3.9 | **53** | **97** | <2.5 | NA | NA |
| UST-4 | 6/17/2014 | **7,400** | **1,800** | <250 | **320** | **55** | **270** | **1,000** | <10 | NA | NA |
| UST-5 | 6/17/2014 | **2,900** | **700** | <250 | **120** | 4.7 | **75** | **160** | <2.5 | NA | NA |
| UST-6 | 6/17/2014 | **8,600** | **1,000** | <250 | **2,100** | **78** | **290** | **870** | <50 | NA | NA |
| **Former Facility Building Footprint** | | | | | | | | | | | |
| BLDG-1 | 6/19/2014 | <50 | **150** | **620** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| BLDG-2 | 6/19/2014 | **220** | 73 | <250 | **27** | 2.5 | 9.2 | **23** | <0.5 | 2.4 | <MRL |
| BLDG-3 | 6/19/2014 | **320** | 98 | <250 | **39** | 3.0 | 9.7 | 17 | <0.5 | 2.9 | <MRL |
| **Comparison Values:** | | | | | | | | | | | |
| ESL Table F-1a (DW) | | 100 | 100 | 100 | 1.0 | 40 | 30 | 20 | 5.0 | 6.1 | varies |
| ESL Table F-1b (Non-DW) | | 500 | 640 | 640 | 27 | 130 | 43 | 100 | 1,800 | 24 | varies |

**Notes:**

µg/L = micrograms per liter
<MRL = less than the method reporting limit or no ESL
bgs = below ground surface
NA = sample not analyzed for indicated constituent
TPH-g = Total Petroleum Hydrocarbons as Gasoline
TPH-d = Total Petroleum Hydrocarbons as Diesel
TPH-mo = Total Petroleum Hydrocarbons as Motor Oil
MTBE = Methyl tert-Butyl Ether
* = Detections for t-Butyl alcohol, n-Butyl benzene, sec-Butyl benzene, diisopropyl ether, isopropyl benzene, 4-isopropyl toluene, n-Propyl benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and 2-Butanone were not reported because there is no established ESL for these compounds
DW= Drinking Water Comparison Values
Non-DW= Non-Drinking Water Comparison Values
**Bold** = Result exceeds Drinking Water comparison values
**Bold** = Result exceeds Drinking and Non-Drinking Water comparison values

**Comparison Values:**

ESL Table F-1a: Groundwater Screening Levels (groundwater is a current or potential drinking water resource)
ESL Table F-1b: Groundwater Screening Levels (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 1. Soil Sample Data Summary (Organic Constituents)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | TPH Multi-range by EPA Method 8015M & MBTEX by EPA Method 8260 TPH-g (mg/kg) | TPH-d (mg/kg) | TPH-mo (mg/kg) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Xylenes (mg/kg) | MTBE (mg/kg) | Naanthalene (mg/kg) | Remaining VOCs* (mg/kg) | OC Pesticides (mg/kg) | PCBs (mg/kg) | SVOCs (mg/kg) | Cl Herbicides (mg/kg) | PAHs/PNAs (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Former Railroad Spur** | | | | | | | | | | | | | | | | | |
| RS-1 | 6/23/2014 | 2.5 | <1.0 | 5.0 | 23 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| RS-2 | 6/23/2014 | 2.5 | <1.0 | 3.6 | 9.9 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| RS-3 | 6/23/2014 | 2.5 | <1.0 | 25 | 46 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| **Sump** | | | | | | | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | 7.5 | <1.0 | 1.1 | 6.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Waste Disposal Ponds** | | | | | | | | | | | | | | | | | |
| PA-1 | 6/17/2014 | 7.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-2 | 6/17/2014 | 2.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-3 | 6/19/2014 | 2.5 | <1.0 | 89 | **660** | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-4 | 6/19/2014 | 2.5 | <1.0 | <1.0 | 6.1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PB-1 | 6/19/2014 | 2.5 | <1.0 | 7.5 | 39 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PB-2 | 6/19/2014 | 2.5 | <1.0 | 1.6 | 7.4 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Septic Tank and Leach Field** | | | | | | | | | | | | | | | | | |
| ST-1 | 6/19/2014 | 7.5 | 17 | 9.5 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| LF-1 | 6/19/2014 | 3.5 | 3.8 | 3.9 | 15 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| LF-2 | 6/19/2014 | 2.5 | 22 | 11 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Former Auto Maintenance Area** | | | | | | | | | | | | | | | | | |
| AM-1 | 6/17/2014 | 7.5 | **610** | **140** | 7.6 | <0.33 | <0.33 | 2.7 | 1.3 | <0.33 | **1.6** | <MRL | NA | NA | NA | NA | NA |
| AM-2 | 6/17/2014 | 5.5 | 5.6 | 6.3 | 5.4 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| AM-3 | 6/17/2014 | 2.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Former Underground Storage Tank (UST) Area** | | | | | | | | | | | | | | | | | |
| UST-1 | 6/17/2014 | 3.5 | **1,100** | **210** | 17 | <2.0 | 2.1 | **5.8** | **27** | <2.0 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-1 | 6/17/2014 | 11.5 | <1.0 | <1.0 | 5.8 | <0.005 | <0.005 | 0.008 | 0.026 | <0.005 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-2 | 6/17/2014 | 3.5 | 78 | 40 | **130** | <0.033 | <0.033 | 0.32 | 0.45 | <0.033 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-2 | 6/17/2014 | 11.5 | <1.0 | <1.0 | 9.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-3 | 6/17/2014 | 3.5 | 89 | 11 | 7.2 | **0.26** | <0.05 | 0.63 | 0.7 | <0.05 | NA | NA | NA | NA | NA | NA | NA |
| UST-3 | 6/17/2014 | 7.5 | 35 | 6.8 | <5.0 | **0.085** | <0.033 | 0.15 | 0.079 | <0.033 | NA | NA | NA | NA | NA | NA | NA |
| UST-4 | 6/17/2014 | 3.5 | **430** | 47 | 9.2 | **1.0** | <0.33 | 1.7 | **7.7** | <0.33 | NA | NA | NA | NA | NA | NA | NA |
| UST-4 | 6/17/2014 | 7.5 | **140** | 44 | 8.4 | **0.46** | <0.1 | 0.92 | **3.8** | <0.1 | NA | NA | NA | NA | NA | NA | NA |
| UST-5 | 6/17/2014 | 3.5 | **340** | **150** | 16 | <0.1 | <0.1 | 1.9 | 2.3 | <0.1 | NA | NA | NA | NA | NA | NA | NA |
| UST-5 | 6/17/2014 | 7.5 | **280** | 17 | 6.5 | **0.55** | <0.2 | 0.38 | 0.99 | <0.2 | NA | NA | NA | NA | NA | NA | NA |
| UST-6 | 6/17/2014 | 1.5 | **130** | 14 | 11 | <0.2 | <0.02 | 0.04 | 0.14 | <0.02 | NA | NA | NA | NA | NA | NA | NA |
| UST-6 | 6/17/2014 | 9.5 | 21 | 2.4 | <5.0 | <0.005 | <0.005 | <0.005 | 0.007 | <0.005 | NA | NA | NA | NA | NA | NA | NA |
| **Former Facility Building Footprint** | | | | | | | | | | | | | | | | | |
| BLDG-1 | 6/19/2014 | 3.5 | <1.0 | 3.0 | 8.7 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BLDG-2 | 6/19/2014 | 3.5 | <1.0 | <1.0 | <5.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BLDG-3 | 6/19/2014 | 3.5 | <1.0 | 1.7 | 6.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Comparison Values:** | | | | | | | | | | | | | | | | | |
| ESL Table A-1 (DW) | | | 100 | 100 | 100 | 0.044 | 2.9 | 3.3 | 2.3 | 0.023 | 1.2 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table B-1 (Non-DW) | | | 100 | 100 | 100 | 0.74 | 9.3 | 4.7 | 11 | 8.4 | 3.1 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table C-1 (DW) | | | 500 | 110 | 500 | 0.044 | 2.9 | 3.3 | 2.3 | 0.023 | 1.2 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table D-1 (Non-DW) | | | 500 | 110 | 500 | 0.74 | 9.3 | 4.7 | 11 | 8.4 | 3.1 | varies | varies | 0.22 | varies | varies | varies |

**Notes:**

mg/kg = milligrams per kilogram
<MRL = less than the method reporting limit or no ESL
NA = sample not analyzed for indicated constituent(s)
bgs = below ground surface
DW = Drinking Water Comparison Values
Non-DW = Non-Drinking Water Comparison Values
**Bold** = Result exceeds Drinking Water Comparison Values
**Bold** = Result exceeds Drinking and Non-Drinking Water Comparison Values

TPH-g = Total Petroleum Hydrocarbons as Gasoline
TPH-d = Total Petroleum Hydrocarbons as Diesel
TPH-mo = Total Petroleum Hydrocarbons as Motor Oil
SVOCs = Semi-Volatile Organic Compounds
PAHs/PNAs = Polyaromatic Hydrocarbons and Polynuclear Aromatic Hydrocarbons

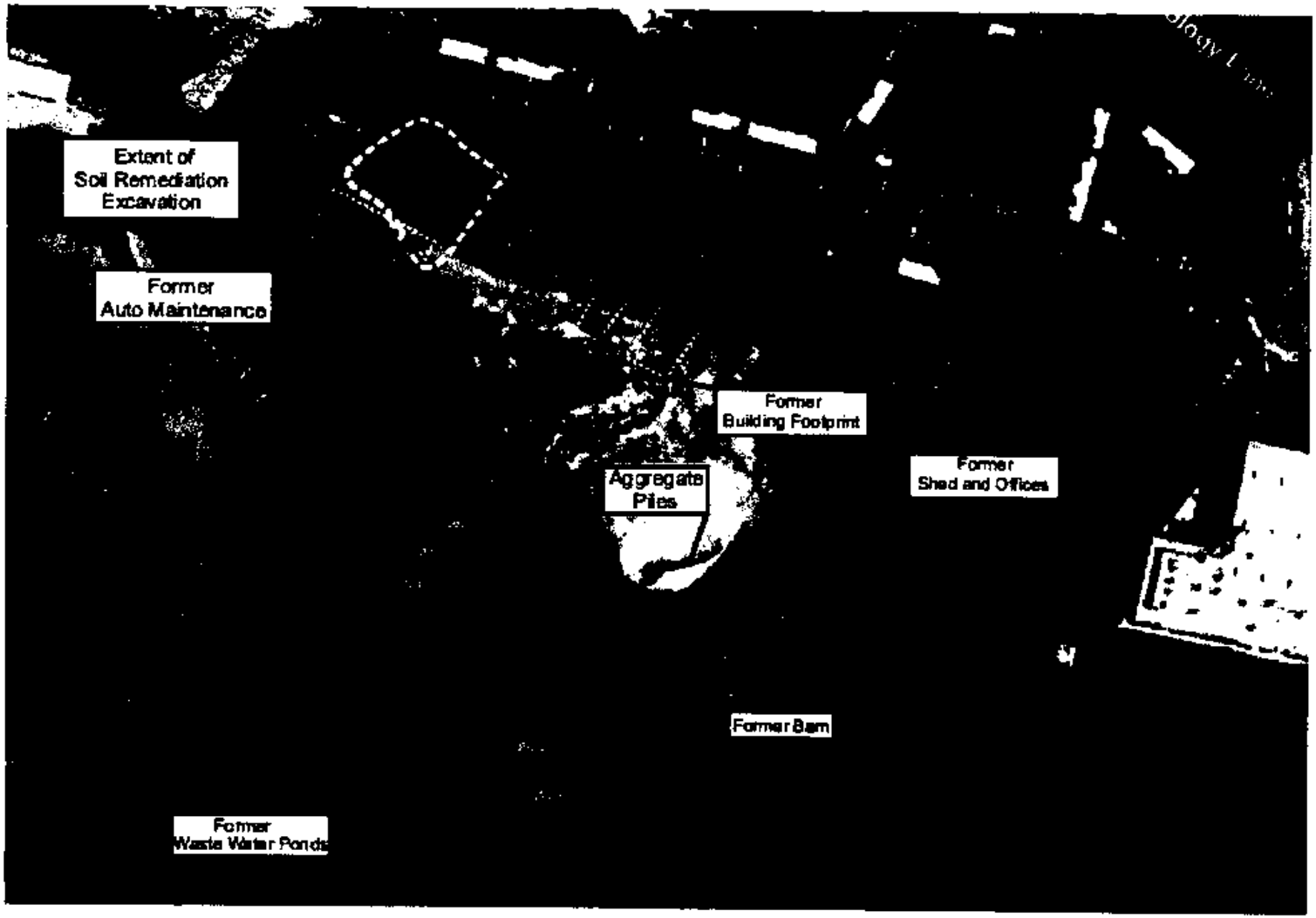
MTBE = Methyl tert-Butyl Ether
OC Pesticides = Organochlorine Pesticides
PCBs = Polychlorinated Biphenyls
Cl Herbicides = Chlorinated Herbicides

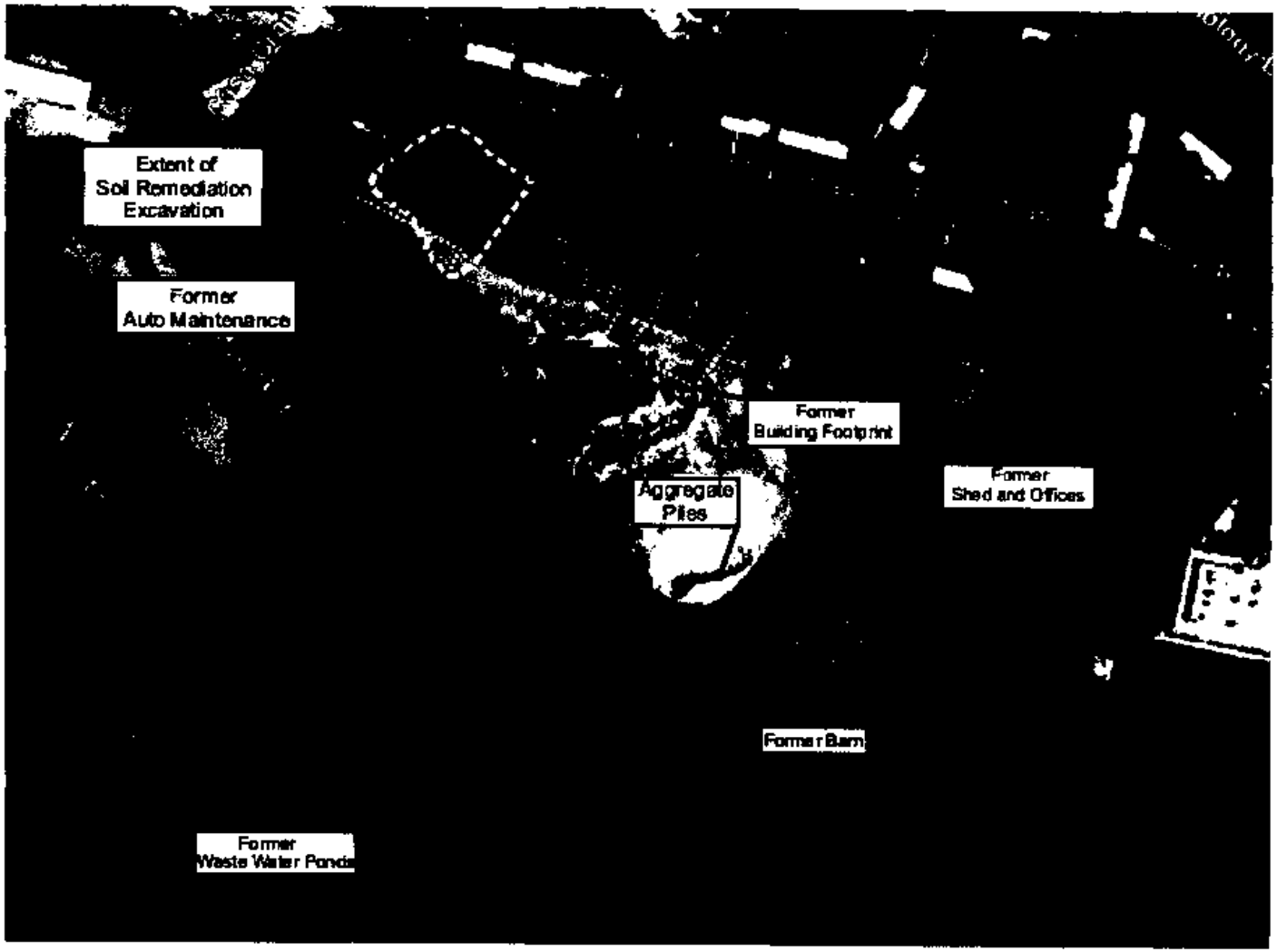
* = Detections for n-Butyl benzene, Isopropyl benzene, n-propyl benzene, 1,2,4-TMB, 1,3,5-TMB are not listed because no ESLs are established for these compounds

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)
ESL Table C-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table D-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)


Extent of
Soil Remediation
Excavation
Former
Auto Maintenance
Former
Building Footprint
Aggregate
Piles
Former
Shed and Offices
Former Barn
Former
Waste Water Ponds


Extent of
Soil Remediation
Excavation
Former
Auto Maintenance
Former
Building Footprint
Aggregate
Piles
Former
Shed and Offices
Former Barn
Former
Waste Water Pond

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Barbie Robinson, MPP, JD – Director
Ellen Bauer, PhD, MPP – Division Director

September 18, 2018

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Feasibility and Corrective Action Plan Addendum
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

This Department is in receipt of the referenced report submitted by Environmental Resource Management (ERM) on behalf of Darling International. This Department has reviewed the proposed excavation criteria along with State ECAP staff. With this, we generally concur with the plan addendum with the following comments and clarifications:

1. Staff concurs that the limit of excavation/confirmation samples shall be based upon the LTCP Table 1 Residential limits of listed analytes for direct contact and volatilization to outdoor air.

2. TPH-G has been proposed as a secondary lateral excavation criteria where benzene is non-detect and TPH-G exceeds 740 mg/kg in sidewall samples. Unfortunately we cannot approve this criteria as it is not included within the LTCP. This said, we recognize the potential for high TPH-G in sidewall samples where benzene or other listed analyte concentrations may through matrix interference be masked by elevated reporting limits. Under such conditions, the LOP and State staff through the JET process will be available during the excavation to approve additional excavation where technical data warrants the work.

3. Approvals or permits from all agencies having jurisdiction over any aspect of the proposed work must be obtained. These agencies may include Fire Services, Building Department, Planning Department, Public Works, Caltrans, Regional Water Quality Control Board, California Fish and Game Department, Cal OSHA, Bay Area Air Quality Management District, etc.

4. The determination for the use of shoring or bracing must be evaluated by a qualified and licensed engineer. In performing our review of site activities, such review is limited to the cleanup and abatement of hydrocarbon releases at the site only and does not extend to engineering practices or safety, which fall under responsibility/care of the responsible party and appropriately contracted professionals to perform the work.

5. Confirmation soil samples shall be collected every 20 lineal feet from the excavation sidewalls, and every 400 square feet from the excavation bottom. Additional samples may be necessary.

6. The areas where the soil stockpiles are placed pending disposal must be bermed for containment, as well as lined. The berm must be designed to hold collected water, in the event of rainfall, so that it may be transferred to waste containers if necessary.

7. The placement of overburden soil back into the excavation may be permitted pending this Department's review of sampling and other results. A method of random sampling is required and must be submitted and found acceptable prior to excavation. Should the results appear favorable, reuse will only be allowed if the soil is placed above the highest reported seasonal groundwater level.

8. All contaminated or potentially contaminated materials generated from the investigation or cleanup of this site must be properly disposed and accounted for. Please retain all shipping documents and receipts of disposal of these materials for submittal to this Department.

9. As groundwater monitoring wells are scheduled for destruction, no post remedial groundwater monitoring is required at this time. Post excavation low and high-water soil vapor samples are required to assess the effectiveness of the remedial work.

**October 26, 2018** is hereby established to provide a schedule of planned activities for the site. This Department requires notification at least 48 hours prior to conducting any work at the site related to the release from the underground tanks. Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,

J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC. 414 Aviation Boulevard, Santa Rosa, CA 95403
ERM, 1277 Treat Blvd., Suite 500, Walnut Creek, CA 94596
JET by email

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Barbie Robinson, MPP, JD – Director
Ellen Bauer, PhD, MPP – Division Director

April 18, 2017

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Soil Vapor Investigation Report, February 2017
Feasibility Study / Corrective Action Plan (FS/CAP) Directive
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

This Department is in receipt of the referenced report prepared by Environmental Resource Management. The report presents results for a soil vapor investigation conducted at the site between November and December 2016, where results were evaluated against environmental screening levels (ESLs) for soil samples and future residential/commercial screening levels (FRSL/FCSL) for vapor samples. The overall conclusion from the report was such that as screening levels were exceeded, remedial approaches should be evaluated to address site conditions as the next step forward.

Department staff generally concurs with the conclusion that an evaluation of remedial approaches is warranted based on the data presented, however; please note, pursuant to the State's low threat closure policy (LTCP), ESLs, FRSLs, and FCSLs while useful, are not the standard criteria used under the policy to determine if future work is warranted. As such, while we concur based on the data that the next phase of work as proposed should move forward, it will be necessary to provide a supplemental report relative to the soil vapor investigation pursuant to policy guidelines as follows:

- Update Figures comparing generated data against LTCP Direct Contact and Outdoor Air Exposure criteria for soil (Benzene, Ethylbenzene, Naphthalene).
- Update Figures comparing soil-gas data against LTCP residential and commercial criteria (Benzene, Ethylbenzene and Naphthalene).
- Update corresponding tables for direct contact/outdoor air and soil vapor using LTCP criteria
- Units – for all updated tables and figures, units should be consistent with those presented in the policy where soil is reported in mg/kg and soil vapor in ug/m^3.

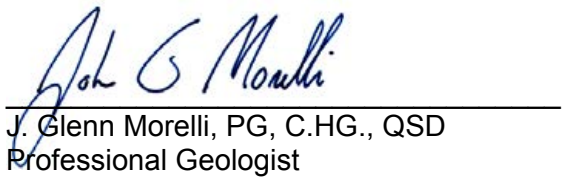
**May 28, 2017** is hereby establish to submit a supplemental report relative to the soil vapor investigation. In addition, we did not receive a hard copy of the referenced report, which is a requirement of this office. Please also by May 28th provide a copy.

With reported exceedances relative to the LTCP criteria for soil and gas at the subject site, it will be necessary to identify and implement a remedial action plan to address site conditions and cleanup. You are hereby directed to prepare and submit a Feasibility Study / Corrective Action Plan (FS/CAP) for the site to our office by **June 23, 2017.** The FS/CAP must include a cost evaluation of at least ***three viable remedial alternatives*** to address site conditions. A proposed timeline will also be required with your CAP to implement the selected alternative. Please note, as this site was closed previously, where excavation

and remediation of soil was the selected alternative and failed post closure, an evaluation of the previous remedial event should be included within your assessment to ensure that whatever might have been responsible for the failure the first time does not occur again in any future cleanup.

Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,



J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC., 414 Aviation Boulevard, Santa Rosa, CA 95403
Ben Leslie-Bole, ERM, 1218 3rd Ave. Suite 1412, Seattle Washington 98101

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Barbie Robinson, MPP, JD – Director
Ellen Bauer, PhD, MPP – Division Director

April 3, 2018

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Additional Site Characterization Summary Report, February 2018
Addendum – Additional Site Characterization, March 2018
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

This Department is in receipt of the referenced reports prepared by Environmental Resource Management (ERM) on behalf of Darling International. To summarize the referenced reports, site conditions do not meet the screening criteria relevant to the low threat closure policy relative to soil-vapor, direct contact and groundwater. We hereby concur with the need to prepare a feasibility / corrective action (FS/CAP) plan for the subject site and make the following directives:

- **June 15, 2018** is hereby established as the deadline to submit an FS/CAP which must include a cost evaluation of at least ***three viable remedial alternatives*** to address site conditions. A proposed timeline will also be required with your CAP to implement the selected alternative.

- Biannual Monitoring of groundwater wells is hereby required for identified constituents of concern for newly installed groundwater monitoring wells.

Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,

J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC., 414 Aviation Boulevard, Santa Rosa, CA 95403
ERM, 1277 Treat Blvd., Suite 500, Walnut Creek, CA 94596

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Barbie Robinson, MPP, JD – Director
Ellen Bauer, PhD, MPP – Division Director

August 15, 2018

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Feasibility Study and Corrective Action Plan, June 2018
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

This Department is in receipt of the referenced report prepared by Environmental Resource Management (ERM) on behalf of Darling International. To summarize the referenced report, soil excavation with in-situ chemical oxidant (ISCO) mixing has been identified as the proposed remedial alternative to address site conditions, such that LTCP performance criteria will be met for soil-vapor and direct contact. Based on our joint execution meeting on August 14, 2018, and discussion relative to this proposal, we cannot approve the FS/CAP at this time, as there is no well-defined performance criteria as to the limits of excavation proposed. Further, given that remedial efforts failed in the past excavation performed at the site, additional contingencies should be evaluated to address remnant contamination should the remedial action fail to achieve its LTCP goals. Therefore the following directive is made:

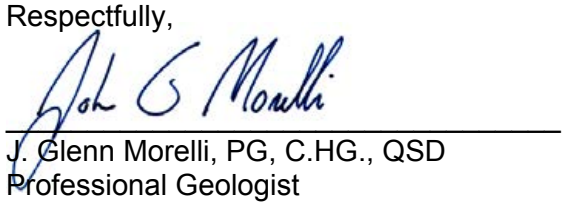
**September 28, 2018** is hereby established as the deadline to submit an FS/CAP addendum which must include:

- Excavation Performance Criteria, specifically establishing the maximum remaining concentrations for identified constituents of concern for removal activities laterally and vertically at the site. Analytical results as such will set the limits of the excavation in practice, noting a maximum / worst case excavation area has been proposed under remedial alternative 3 of the current submitted plan. The amendment should also address operational criteria of the excavation, with the expectation that the work will start at the most contaminated portion of the site relative to the former USTs and work its way out until the performance criteria has been met, ideally before the worst case scenario has been met.

- The amendment will evaluate a contingency plan relative to a deed covenant should remedial activities fail to meet LTCP criteria, or in the alternative, should the remedial action be successful, a soil and groundwater management plan will be required in its place.

Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,



J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC. 414 Aviation Boulevard, Santa Rosa, CA 95403
ERM, 1277 Treat Blvd., Suite 500, Walnut Creek, CA 94596
JET by email

MILLER STARR
REGALIA

1331 N. California Blvd.
Fifth Floor
Walnut Creek, CA 94596

T 925 935 9400
F 925 933 4126
www.msrlegal.com

Mark A. Cameron
Direct Dial: 925 941 3243
mark.cameron@msrlegal.com

June 22, 2017

**VIA E-MAIL ONLY**

Glenn Morelli
Sonoma County Dept. of Health Services
Public Health Division ("DOH")
625 5th Street
Santa Rosa, CA 95404
E-mail: glenn.morelli@sonoma-county.org

Barry J. Shotts
Attorney at Law
1715 Tainter Street
Saint Helena, CA 94574
E-mail: barry@shottslaw.com

Re: Underground Storage Tank Case, Baywood LLC Property at 2592 Lakeville Highway, Petaluma, California ("Site")

Dear Mr. Morelli and Mr. Shotts:

**A. Background for Draft Additional Site Characterization Workplan**

In this letter Baywood LLC as "Owner" of the Site identified above, comments upon, compliments, and questions aspects of a June 2017 "Draft Additional Site Characterization Workplan" ("Draft Test Plan") prepared by Environmental Resources Management ("ERM") as the environmental consultant to Darling International, Inc., identified as the primary responsible party ("RP"). ERM plans to submit the Draft Test Plan on Friday June 23, 2017 to Glenn Morelli of the Sonoma County Dept. of Health Services Public Health Division ("DOH" or "Regulator"). Owner only received the Draft Test Plan last Friday and with only a few days to review, sends this letter concurrently to the Regulator and to counsel for RP Darling. If beneficial, Owner would welcome a quick meeting with the Regulator and RP to discuss the Draft Test Plan specifics or comments in this letter. We presume that the Additional Site Characterization Workplan originally delivered to DOH tomorrow June 23 will be identical to the Draft Test Plan we received from ERM. If not, we may provide comment on any changes.

ERM proposed the Draft Test Plan as a prelude to compliance with Regulator's April 18, 2017, directive to prepare a Feasibility Study/Corrective Action Plan ("FS/CAP"). The latter is to include, among other matters, three viable alternatives to fully remediate the Site with respective timing, costs, and methods to execute, as well as RP's reasoning for any preferred alternative. The overall goals are to natural resources and human health and to return the vacant Site to productive economic use through closure. Closure requires expeditious remediation of Site

contamination ("Contamination") attributable to past UST leakage, particularly in gas, groundwater, and soil in the vicinity of former USTs or where Contamination has migrated during the period it was not fully remediated.

Owner views the Draft Test Plan as a short, approved delay of FS/CAP submittal and implementation, which delay is intended to allow sufficient data collection to avoid yet future data collection delays. For Owner, FS/CAP implementation is an increasingly urgent goal for currently unproductive real estate. Owner remains concerned regarding the presence of Contamination at the Site with no remedial processes yet commenced. Owner also hopes that the FS/CAP will assure expedient Site cleanup to standards beneficial to groundwater, local health and safety, the RP, Owner, neighboring residents (including 241 apartments in "Azure at Lakeville Square," all roughly 50-450 feet to the north, and a single family house about 100 feet to the west), and nearby "Sensitive Receptors" including very shallow groundwater (as close as 5 feet bgs everywhere) immediately under the entire Site, wetlands at and near the Site to the south and east, a related seasonal pond, and the Petaluma River partially circling the Site nearby to the south, southwest, and west ("SRs"). In short, the current Site is unlike almost all other former UST and gas station locations, surrounded by long standing SRs and underlain by public water which probably mixes with public water in wetlands and navigable waterways.
Anticipating an eventual FS/CAP targeted to effecting Site closure, design of the Draft Test Plan should also consider the June 2, 2017 Low Threat Closure Policy Checklist prepared by the Regulator as posted on Geotracker ("LTCP Checklist"), which notes, inter alia, that Site hydrogeology has not been adequately defined, that plume length and stability are unknown, that secondary source remediation was previously unsuccessful, that benzene in groundwater is notable, and that multiple contaminants exist in bio-attenuation zone soil gas. It is also understood that the Site is vacant and therefore not an active commercial petroleum fueling facility, nor is it ever likely to be one.

It is Owner's understanding that Darling as RP has already qualified for UST Cleanup "Fund" reimbursement, such that most or all reasonable expenditures for the Draft Test Plan and FS/CAP preparation and implementation are likely recoverable by Darling from the Fund. Efforts of the Regulator and RP to expedite remediation and closure based on sound environmental standards will be greatly appreciated by Owner.

**B. Comments On the Draft Test Plan**

Owner appreciates that ERM has included in the Draft Test Plan membrane interface probes ("MIPs) and appreciates identification of one specific remedial alternative as in situ chemical oxidation ("ISCO").

Regulator's April 18, 2017 letter to RP acknowledged while useful, LTCP, ESLs, FRSLs and FCSLs "are not the standard criteria used under the policy to determine if future work is required." However, ERM again argues in a recital at page three of the Draft Test Plan that "The County is required to apply the LTCP criteria in considering whether a site requires further corrective action or is appropriate for closure pursuant to California Health and Safety Code Section 25296.10." Owner concurs with Regulator's April 18 comment and has disputed, and again disputes, ERM's repeated contention. The current Site is different from many typical LTCP sites, due in part to the long-since abandoned fueling station use, and more importantly due to the many SRs surrounding this Site. Owner contends that the Regulator, and the RWQCB in any oversight, have broad discretion in evaluating what future work and what standards will appropriately protect human health, the environment, the public interest, eventual contractors and occupants, and adjoining innocent landowners and many residential tenants.

Owner requests clarification and/or an amended Draft Test Plan to assure all that the Plan will generate all currently missing data necessary to move to drafting and implementation of a comprehensive FS/CAP reasonably calculated to result in Site closure. Owner renews its pre-Draft Test Plan offer to meet for discussion if desired. Owner submits the following comments, questions, and suggestions for consideration by the Regulator, RP, and ERM.

1. Has the Draft Test Plan identified all data likely to be needed to usefully evaluate the three (at a minimum) eventual remedial alternatives which Regulator has required in the FS/CAP? Would it not be preferable to tentatively identify the three or more plausible remedial alternatives under possible consideration now? This should minimize or avoid future delays for more data collection, particularly where closure impediments include incomplete hydrogeology, unknown plume dimensions, and Owner submits, unknown dimensions of the soil vapor cloud or plume. As to the latter, more soil vapor collection points should be located between the former UST locations and the neighboring SRs, including especially the house and the Azure apartments. Owner would be willing to ask its consultant to propose additional locations if requested.

2. Owner requests that all sample testing include the full 8260 spectrum rather than just BTEX and TPH. Among other reasons, soil vapor health hazards can be associated with PCE, break-down components, and related VOCs, commonly associated with past vehicle servicing, and in 2014 AEI confirmed the presence of PCE above ESLs in soil gas sampled from boring G-3. Testing cost increases should be marginal where, as here, 8260 testing for some components is already planned.

3. Owner requests that 10 existing soil vapor probes be retained and not abandoned, at least until the FS/CAP is implemented, as future data collection flexibility in such locations may be highly useful.

4. Owner invites consideration of remedial alternatives with potentially faster closure results including ISCO interspersed with soil vapor extraction ("SVE"), and/or actual soil excavation which, if then mixed with oxidizing chemicals, might cause much faster chemical oxidation than mere ISCO injections into compacted soils.

5. Clarification is requested on the following points:

- In Figure 3 attached to the Plan, please plot tentative locations for all borings, GW wells, and MIPs locations, obviously subject to minor field adjustments. Owner needs to understand the location of all proposed invasive testing.

- Clarify whether the four MIPs locations are also the proposed GW Well locations.

- Clarify whether proposed soil samples will be taken from the MIPs borings and if so, explain why the MIPs heated tip volatilizing probe will not inappropriately compromise such samples by volatilizing VOCS before testing.

- Clarify whether the limited Draft Test Plan test locations are expected to resolve hydrogeology, adequately support a site conceptual model, or adequately define the soil vapor cloud and/or groundwater plume, and if not, when such data will be collected. Please explain if and how the proposed sampling data will be sufficient to plot Contamination distribution in groundwater and soil vapor throughout the Site.

- Clarify why more soil vapor probes were not placed near the Azure apartments, where soil vapor often moves readily through soil in directions other than groundwater flow.

- Same question regarding soil vapor probes testing Contamination movement towards other SRs.

- Is groundwater flow direction consistently south throughout the year or variable? If variable, are the proposed groundwater well locations sufficient?

- Clarify what is meant by "bulk water samples" and why that approach is proposed rather than more standard sample collection? Will bulk sampling dilute possible sampling insights nearer the USTs and/or other secondary sources?

- While perhaps not immediately pertinent to the Draft Test Plan, Owner requests eventual consideration whether LTCP cleanup standards designed for typical gas stations are suitable or should be closer to traditional ESLs used to protect SRs and residential neighbors.

- MIPs is a valuable technology, limited to intense data at boring locations. Given the size of this Site and after many years of uncontrolled potential migration, are 4 MIPs enough?

**C. Conclusion**

Owner appreciates many of the Draft Test Plan aspects and submits that requested clarifications and revisions will expedite eventual final remediation plans and allow a more reliable Site Conceptual Model. Regulator and RP are asked to evaluate all evident pertinent considerations now, to reduce future loss of time, minimize future test delays, and foster the best possible FS/CAP within the next 2-3 months.

Owner offers to make itself and a consultant available on a priority basis for any meeting to resolve remaining issues with the Draft Test Plan. Owner expects to cooperate fully in providing quick access to the Site subject to an existing Access Agreement. Frequent past access by ERM has been accommodated by Owner on a swift and problem free basis.

Very truly yours,

MILLER STARR REGALIA

Mark A. Cameron

MAC:lak

cc: (All via email only)
Larry Wasem
Richard Coombs
Patrick Imbimbo
James Frassetto
Daniel R. Miller

MILLER STARR REGALIA

1331 N. California Blvd.
Fifth Floor
Walnut Creek, CA 94596

T 925 935 9400
F 925 933 4126
www.msrlegal.com

James M. Frassetto
Direct Dial: 925 941 3263
james.frassetto@msrlegal.com

May 12, 2016

**VIA EMAIL [darcy.bering@sonoma-county.org – glenn.morelli@sonoma-county.org]**

Sonoma County
Department of Health Services –
Public Health Division
625 Fifth Street
Santa Rosa, CA 95404
Attn: Darcy M. Bering and J. Glenn Morelli

Re: Baywood LLC ("Baywood"); 2592 Lakeville Highway, Petaluma, California (EHS Site # 00001359, SFBRWQCB # 49-0142) (the "Property"); Site Evaluation and Work Plan Submitted April 1, 2016 ("Work Plan") by Environmental Resources Management ("ERM") for Darling Ingredient Inc. ("Darling")

Dear Ms. Bering and Mr. Morelli:

As you are aware, we provided you on April 26, 2016, with Baywood's opposition to the ERM Work Plan. Darling's attorney, Barry J. Shotts, responded to our letter with a letter to you of April 27, 2016. We feel compelled to respond to Mr. Shotts' April 26 letter.

For the most part, Mr. Shotts' letter restates points raised in the cover letter and Work Plan Darling delivered to you on April 1, 2016. Please note the following (taken in order they appear in Mr. Shotts' April 26, 2016, letter and not in order of importance).

1. Baywood's consultant informs us that it is almost physiologically impossible for 18,000 cubic yards to have been placed directly over the UST site. The "western stockpile" referenced in the AEI report (to the extent it is even accurate) covers an area far greater than the UST site.

2. Both Darling and Mr. Shotts have informed you that Baywood did not follow the Department of Toxic Substance Control's Advisory on Clean Imported Fill. That is because Baywood is not legally obliged to do so. If this were a school site, perhaps a different story. Baywood, however, was not legally compelled to comply with the Advisory for this site. Stated in

my April 26, 2016 letter, the AEI report demonstrated that the fill Baywood brought to the site was sufficiently clean.

3. There is no evidence that the "grinding" operations could have contributed to the new AEI findings of high concentrations of gas and benzene found in the soil, groundwater and soil vapor at the UST site as demonstrated by the aerial photograph attached to my letter to you of April 26, 2016. Mr. Pat Imbimbo, Mr. Terribilini's immediate superior, informs us that he inspected the grinding operation at the site on an ongoing basis and has reached this same conclusion. The grinding site is remote from the UST site.

4. We do indeed have an explanation as to how petroleum hydrocarbons were found at the UST site: Darling released them while the USTs were operational during Darling's ownership (the USTs were removed long before Baywood purchased the property). Baywood's consultant informs us that the 2004 findings which induced the DOH to close temporarily the UST case lacked source point monitoring.

5. Lastly, both Darling's April 1, 2016 letter and Mr. Shotts' April 27, 2016 letter materially mischaracterize the July 30, 2004 Case Closure Summary to the DOH. in his April 26, 2016 letter, Mr. Shotts writes that ". . .the County stated that corrective action could be required if the land use of the Property changed". Darling's April 1, 2016 letter contains a similar statement. However, the Summary "states" nothing of the sort. Rather, it is a "check the box" standard "Yes/No" answer to a boilerplate question. "Does completed corrective action protect existing uses" and "Does completed corrective action protect potential beneficial uses" (both answered in the affirmative). Significantly, and more to the point, the DOH in completing its Case Closure Summary makes no indication whatsoever that its current action is triggered by any specific past, present or future use of the property.

6. By closing temporarily the UST case in 2004 your agency has "already decided" nothing. The fact that the site is not a potential source of drinking water is irrelevant. Your agency independently possesses the full power and authority to reopen this UST case and designate Darling, the sole owner of the USTs, as the primary responsible party.

If you have any questions or comments, please do not hesitate to contact the undersigned.

Very truly yours,

MILLER STARR REGALIA

*James Frassetto*

James Frassetto

JMF:je

cc: Richard Coombs (via email)
Larry Wasem (via email)
Daniel R. Miller (via email)

MILLER STARR REGALIA

1331 N. California Blvd.
Fifth Floor
Walnut Creek, CA 94596

T 925 935 9400
F 925 933 4126
www.msrlegal.com

James M. Frassetto
Direct Dial: 925 941 3263
james.frassetto@msrlegal.com

April 26, 2016

**VIA EMAIL [darcy.bering@sonoma-county.org – glenn.morelli@sonoma-county.org]**

Sonoma County
Department of Health Services –
Public Health Division
625 Fifth Street
Santa Rosa, CA 95404
Attn: Darcy M. Bering and J. Glenn Morelli

Re: **Baywood's Opposition to Darling Work Plan** -
Baywood LLC ("Baywood"); 2592 Lakeville Highway, Petaluma, California
(EHS Site # 00001359, SFBRWQCB # 49-0142) (the "Property");
Site Evaluation and Work Plan Submitted April 1, 2016 ("Work Plan") by
Environmental Resources Management ("ERM") for
Darling Ingredient Inc. ("Darling")

Dear Ms. Bering and Mr. Morelli:

This firm represents Baywood with respect to the Property. Baywood is the current owner to the Property. Baywood purchased the Property from Darling in 2008.

On December 9, 2015, your office served on both Darling and Baywood letters entitled "Responsible Party Information for Investigation and Remediation Due to an Unauthorized Fuel Release at 2592 Lakeville Highway, Petaluma" (the "Demand Letter"). In response thereto, Darling and Baywood separately responded by letters to you dated December 28, 2015 and February 5, 2016, respectively (copies enclosed). The Demand Letter reopens an old Darling UST case which was initially closed in July of 2004. The reopening is in response to a Phase II Subsurface Investigation dated September 2, 2014, prepared by AEI Consultants (the "AEI Report" and "AEI", respectively). The AEI Report shows results of high levels of gas and benzene (substance attributable to USTs) in the exact location of the former Darling USTs.

On April 1, 2016, Darling delivered to you the Work Plan. We believe Darling authorized and submitted this Work Plan because it knows it is the sole responsible party. This may also explain why Baywood was not provided by Darling with an opportunity to review the Work Plan in advance of submittal even though Baywood's principal owners and attorneys are well known and readily available to Darling.

Mr. McMurtry's (of Darling) April 1, 2016 letter to you and the enclosed Work Plan raises numerous claims, issues, factual statements and legal conclusions to which Baywood objects. At this time, Baywood wishes to limit its comments to four issues:

1. **The Work Plan Fails to Respond Properly to the Demand Letter**.

The subject USTs were installed by Darling's direct predecessor-in-interest over 50 years ago, potentially longer. Darling removed the USTs in 1990. Darling responded to tank removal sampling and remediation work between 1989 and 2004. This UST case the is being reopened for the exact same substances at the exact same location.

The Work Plan states in Section 4.0 at page 11:

> "It is Darling's position that the following work plan would not be implemented by Darling, but would be implemented by any other party proposing to develop the property concurrent with development, consistent with the County's Case Close Summary when the UST case was closed in 2014."

This proposal does not conform to the Demand Letter which requires reopening of the former case for site investigation and clean up. Prior to 1989, the County required similar work from Darling which Darling performed, completely regardless of any potential alternative future use of the Property. This is merely the reopening of the old case. For this purpose, 2016 is no different than 1989. The Demand Letter was prompted solely by the findings in the AEI Report not by any potential residential use of the Property (the Property was vacant in 1989; there is no current plan to redevelop the Property). Accordingly, Darling should be required to submit a new Work Plan which responds directly to the requirements of the Demand Letter for immediate investigation and clean up at Darling's cost.

Baywood is ready, willing and able to provide Darling with reasonable access to the Property at reasonable times so that Darling can affect the final remediation of the Property.

2. **Darling's assertion that the results of the AEI Report were caused by post-sale intervening causes is without merit**.

We draw your attention to Section 1.2.4 (at page 4) of the Work Plan entitled "Recent Activities". Simply stated, Darling is attempting to evade responsibility from responding to your Demand Letter. Darling and/or ERM make multiple allegations to support their case, none of which are accurate. For example:

(i) <u>"Various Industrial Operations"</u>. The Property is vacant; there are no tenants; the Property is currently (and since

Baywood's acquisition in 2008) put to absolutely no productive use. There are no "various industrial operations".

(ii) Landfill. ERM correctly states that Baywood has brought landfill on a portion of the Property near the USTs (but the quantity impact is nowhere near the 18,000 cubic yards Mr. McMurtry claims to have been deposited over the UST site). ERM concludes that the analysis conducted for its report could find no records that identify the source or nature of the reclaimed materials. This can be refuted, however, by the very AEI Report that is quoted in both the Work Plan and Mr. McMurtry's December 28, 2015 letter and in Baywood's February 5, 2016 letter to you (a copy of which was supplied to Darling).

The AEI Report states that the soil that was brought in by Baywood for future use was placed generally north of the driveway which includes the area of former USTs. This stockpiled soil was tested by AEI as a part of the AEI Report. In the 26 soil samples that were collected there were a few low detections of heavier hydrocarbons (diesel and motor oil) that exceeded residential screening levels but there was no petroleum hydrocarbons quantified as gasoline or aromatic hydrocarbons (such as benzene) detected. Based on the available data it appears that the stockpiled soil brought in by Baywood does not contain petroleum hydrocarbons at significant concentrations, and certainly not at concentrations that could result in the elevated concentrations of petroleum hydrocarbons that exist in the vicinity of the former UST tank excavation site.

A more logical culprit for the discrepancies between the 2004 site closure and the 2014 AEI Report would be the lack of a source area monitoring point in 2004 (i.e., no monitoring wells directly over the UST site).

(iii) "Grinding". Both the Work Plan and Mr. McMurtry's April 1, 2016 letter complain of "grinding" operations on the Property. The location of the grinding operation (and the

stockpiling of resultant concrete construction debris and Class II aggregate) was not near the UST site (see enclosure) This type of activity cannot result in the types of contaminants found by AEI at the depth AEI found it.

(iv) Maintenance and Fueling: ERM also states that: " . . . equipment maintenance and fueling activities also cannot be ruled out as potential sources of post-remediation releases of hydrocarbon, at the site". This is pure supposition; there is no evidence whatsoever of these type of activities over the UST site. Baywood's contractors' maintained and fueled their vehicles at the site of the work; far from the UST site.

3. **If Baywood is Determined to Have any Responsibility It Should Only Be As a "Secondary Responsible Party"**.

The Demand Letter states (at page 2):

> "A determination of secondary responsible party status may be made if it is shown that one or more of the responsible parties are performing corrective action and it is clear that the party seeking secondary status did not in any way initiate or contribute to the actual discharge."

For the reasons set forth in Sections 1 and 2 above, and if Baywood is determined to have any responsibility it should as a "secondary responsible party". Darling is a large corporation and possesses sufficient assets and ability to respond properly to your Demand Letter.

4. **Neither the Sequence of Ownership Nor Contractual Relationships Between Baywood and Darling Bar the County's Pursuit of Investigation and Remediation Against Darling Now.**

Regardless of either the sequence of ownership of the property or the continuing contractual relationship between Darling and Baywood, the County possesses complete and full authority to require Darling, the party who contaminated the Property, to investigate and remediate it in 2016.

For the record, both Mr. McMurtry's December 28, 2015 and April 1, 2016 letters to you contain gross misstatements of Darling's post-closing contractual responsibilities to Baywood concerning the pre-existing environmental condition to the property. Simply stated (which for the County's purposes will be sufficient), Darling is not contractually absolved from liability for claims from third parties concerning the pre-closing (February 2008) environmental condition of the Property. (If you would like a more in-depth discussion of this issue, please inform us and we will provide it to you.)

But, really, this is all irrelevant. The County can pursue Darling, the responsible party, as it deems fit without becoming entangled in contractual relationships between successive owners.

5. **Conclusion**. Accordingly, we request that you reject the Work Plan, instruct Darling to prepare and submit a new and revised work plan which provides for meaningful investigation and cleanup of the Property by Darling. We also request that you designate Baywood as a "Secondary Responsible Party".

Please contact us to discuss these matters further.

Very truly yours,

MILLER STARR REGALIA

*James Frassetto*

James Frassetto

JMF:nmt/je
Encls.

cc: Richard Coombs (w/o encls., via email)
Larry Wasem (w/o encls., via email)
Christina Kennedy (w/o encls., via email)
Patrick Imbimbo (w/o encls., via email)
Daniel R. Miller (w/o encls., via email)
Kathryn R. Jones(w/o encls., via email)
Barry J. Shotts (w/o encls. via email)

**Darling December 28, 2015 Letter**

**Baywood February 5, 2016 Letter**

**[See Attached]**

DARLING INGREDIENTS

251 O'Connor Ridge Blvd., Suite 300
Irving, TX 75038
T 972-281-4409
darlingii.com

December 28, 2015

Ms. Darcy Bering
Senior Environmental Health Specialist
Sonoma County Department of Health Services
Leaking Underground Storage Tank
Local Oversight Program
625 Fifth Street
Santa Rosa, CA 95404

**Re: Response to Reponsible Party Information Letter**
**EHS Site #00001359, SFBRWQCB #49-0142**

Dear Ms. Bering:

On behalf of Darling Ingredients Inc. ("Darling"),[1] I am writing to respond to your letter dated December 9, 2015.[2] In your letter, you say that the Department of Health Services for Sonoma County (the "Department") is reopening the above-referenced case (the "LUST Case") in response to a Phase II Subsurface Investigation Report prepared by AEI Consultants and dated September 2, 2014 (the "AEI Phase II Report"). According to your letter, the AEI Phase II Report discloses "high concentrations of gas and benzene in soil and soil-vapor" "in the area of the former USTs that far exceed levels at the time of site closure in July 2004."

Darling is the former owner of the real property that was the subject of the LUST Case in 2004 (the "Property"). Under close Department oversight, Darling removed the two underground storage tanks in question, excavated and treated or disposed of approximately 2400 cubic yards of contaminated soils, extracted, treated and disposed of approximately 88,000 gallons of groundwater, backfilled the excavation area with clean and treated fill and conducted confirmation sampling. This sampling confirmed that corrective actions undertaken by Darling met all applicable requirements under the California Health and Safety Code, resulting in a no further action letter and case closure by the County on July 30, 2004.

Darling sold the Property to Baywood LLC ("Baywood") on February 8, 2008 (the "Closing Date") purchase to a purchase and sale agreement originally entered into in 1990. The Property was sold by Darling to Baywood "as is" and after multiple environmental investigations conducted on behalf of Baywood.

Between the original closure of the LUST Case in 2004 and the Closing Date, Darling operated no storage tanks on the Property (above ground or underground) and brought no, and handled

[1] Your letter is addressed to Darling International Inc but please be advised that Darling recently changed its name from Darling International Inc. to Darling Ingredients Inc. on May 6, 2014.
[2] Your letter is dated December 9, 2015, but I did not in fact receive it until December 14, 2015.

DARLING INGREDIENTS

no fuel or fuel-related products on the Property. Darling has not owned and has had no access to the Property for over seven years and has no right of access to the Property now. Darling believes that Baywood is the only current record title holder the Property, and has been the only owner from the Closing Date to the present, but Baywood can presumably confirm this.

In response to your letter, Darling is currently reviewing the AEI Phase II Report and other applicable data and reports, including from the original LUST Case closure in 2004, to determine whether the benzene and gas reported by AEI are potentially from the former underground storage tanks, or from another source. In particular, Darling notes that a significant amount of soil was brought onto the Property by Baywood to be used as fill for site development and that a number of samples from this stockpiled soil detected total petroleum hydrocarbons above applicable Environmental Screening Levels ("ESLs"). It is therefore possible that the benzene and gas reported by AEI is wholly or partially from sources other than the former tanks.

In the interim, Darling wishes to acknowledge receipt of your letter and to affirm its willingness to cooperate fully with the Department. Darling will provide a further response to your letter once it has completed its review of the AEI Phase II Report and prior site data.

Sincerely,

William R. McMurtry
VP of Environmental Affairs, North America

Enclosure

CC: Glenn Morelli, SCDHS
John Sterling, Executive Vice President/General Counsel and Secretary, DII

BAYWOOD, LLC
414 AVIATION BOULEVARD
SANTA ROSA, CALIFORNIA 95403-1069
LLWasem@Wasem-USA.com
707-578-5344

February 5, 2016

Ms. Darcy Bering
Senior Environmental Health Specialist
Sonoma County Department of Health Services
Leaking Underground Storage Tank
Local Oversight Program
625 Fifth Street
Santa Rosa, CA 95404

RE: Response to Responsible Party Information Letter
EHS Site #00001359, SFBRWQCB #49-0142

Dear Ms. Bering:

This letter responds to your December 9, 2015, letter to Baywood, LLC ("Baywood") in which you indicate that the Sonoma County Department of Health Services ("Department") is re-opening the above-referenced case relating to two Underground Storage Tanks ("USTs") that previously existed on property now owned by Baywood and located at 2592 Lakeville Highway, Petaluma, California (the "Property").

By way of background, the Property was previously owned by Royal Tallow and Soap Company, which operated a rendering facility there from 1955 until about 1986. As part of its operations, Royal Tallow housed an auto maintenance garage that used the USTs, located on the northwestern portion of the Property. Royal Tallow was acquired by Darling-Delaware Co., Inc., which together with its successor, Darling International, Inc. (now Darling Ingredients Inc., collectively "Darling") continued to own the property until 2008, when it sold the Property to Baywood.

Darling removed the USTs in 1990. According to information available in the Case Closure Summary and Remedial Action Completion Certificate on file with the State Water Resources Control Board (SWRCB) Geotracker on-line database, one 1000-gallon UST and one 2000-gallon UST, both containing regular unleaded gasoline, were removed. During tank removal activities, holes were observed in both USTs and the backfill was noted as contaminated around both USTs. Gasoline-related hydrocarbons were detected in soil and groundwater samples during removal of the USTs. Darling was solely responsible for and paid for all aspects of the remediation process relating to the USTs, beginning in 1989 and continuing until the case was initially closed on July 30, 2004.

Although Baywood entered into a contract with Darling to purchase the Property in 1990, the sale did not close until February 8, 2008, in part because Darling had not completed its UST remediation obligations until 2004. In its December 28, 2015, letter to you, Darling claims that the Property was sold to Baywood "as-is", and suggests that soils brought onto the Property by Baywood after close of escrow for use as fill are potential alternative sources of benzene and gas that led to your Department's re-opening of the site for further investigation and remediation. We believe both of these claims are untrue. Darling has not only mischaracterized the terms of the 2008 agreement with Baywood, but also has falsely attributed the need for further remediation to Baywood by claiming that fill brought to the site for future use was impacted with petroleum hydrocarbons which in turn caused underlying soil and groundwater to be contaminated.

First, per written agreement between Darling and Baywood negotiated between counsel and delivered by Darling at the 2008 closing, Darling gave an express exception to the as-is and release provisions pursuant to which Darling expressly agreed to assume all liability and remediation obligations ordered to be performed by your Department or any other government agency on account of pre-close of 2008 escrow conditions relating to hazardous materials located on the Property, including gas and benzene. Although site closure occurred in 2004, elevated levels of gasoline constituents were reported as remaining in soils in the vicinity of the USTs as of the date of 2004 site closure. Accordingly, the re-opening of the former case based on gas and benzene found in the soil, groundwater and soil vapor remains Darling's responsibility as the former property owner who installed, operated and removed the leaking USTs.

Second, according to Baywood's consultant, Christina Kennedy of CKG Environmental, the soil that was brought in by Baywood for future use was placed generally north of the driveway which includes the area of former excavation. This stockpiled soil was tested by AEI Consultants and the results reported in their "Phase II Subsurface Investigation, 2592 Lakeville Highway, Petaluma, California," dated September 2, 2014. AEI followed sampling guidance provided in the "Information Advisory – Clean Imported Fill" dated October 2001, prepared by the State of California Department of Toxic Substances Control (DTSC). In the 26 soil samples that were collected there were a few low detections of heavier hydrocarbons (diesel and motor oil) that exceeded residential screening levels but there was no petroleum hydrocarbons quantified as gasoline or aromatic hydrocarbons (such as benzene) detected. Based on the available data it appears that the stockpiled soil brought in by Baywood does not contain petroleum hydrocarbons at significant concentrations, and certainly not at concentrations that could result in the elevated concentrations of petroleum hydrocarbons that exist in the vicinity of the former underground fuel storage tank excavation at the site.

Your December 9, 2015, letters to Darling and to Baywood note that February 9, 2016, is the due date for the submittal of the required workplan. Upon receipt of your letter, Baywood contacted Darling directly, and for the reasons expressed above, requested that Darling take the lead in preparing and submitting a work plan and submitting the same to your department by February 9, 2016. Darling's counsel has informed us that Darling has agreed to do so, and that Darling has requested and received an extension until April 1, 2016, from your Department to submit the work plan. Accordingly, Baywood will not be submitting a workplan for the Property and reserves the right to comment upon any workplan submitted by Darling. As of the date of this letter, Baywood has not received from Darling any draft plan or supporting data to review or comment upon.

If you have any questions, please feel free to contact me.

Sincerely,

Patrick Imbimbo for Baywood, LLC

cc: Christina Kennedy, CKG Environmental


tled Map
description for your map.
Google Earth Imagery
Approximately 2013
Approx. location of
UST
Stockpile of Class
II Ag Base Material
from crushed
concrete
Legend
Feature
Line Ma
300 ft

BAYWOOD, LLC
414 AVIATION BOULEVARD
SANTA ROSA, CALIFORNIA 95403-1069
LLWasem@Wasem-USA.com
707-578-5344

February 5, 2016

Ms. Darcy Bering
Senior Environmental Health Specialist
Sonoma County Department of Health Services
Leaking Underground Storage Tank
Local Oversight Program
625 Fifth Street
Santa Rosa, CA 95404

RE: Response to Responsible Party Information Letter
EHS Site #00001359, SFBRWQCB #49-0142

Dear Ms. Bering:

This letter responds to your December 9, 2015, letter to Baywood, LLC ("Baywood") in which you indicate that the Sonoma County Department of Health Services ("Department") is re-opening the above-referenced case relating to two Underground Storage Tanks ("USTs") that previously existed on property now owned by Baywood and located at 2592 Lakeville Highway, Petaluma, California (the "Property").

By way of background, the Property was previously owned by Royal Tallow and Soap Company, which operated a rendering facility there from 1955 until about 1986. As part of its operations, Royal Tallow housed an auto maintenance garage that used the USTs, located on the northwestern portion of the Property. Royal Tallow was acquired by Darling-Delaware Co., Inc., which together with its successor, Darling International, Inc. (now Darling Ingredients Inc., collectively "Darling") continued to own the property until 2008, when it sold the Property to Baywood.

Darling removed the USTs in 1990. According to information available in the Case Closure Summary and Remedial Action Completion Certificate on file with the State Water Resources Control Board (SWRCB) Geotracker on-line database, one 1000-gallon UST and one 2000-gallon UST, both containing regular unleaded gasoline, were removed. During tank removal activities, holes were observed in both USTs and the backfill was noted as contaminated around both USTs. Gasoline-related hydrocarbons were detected in soil and groundwater samples during removal of the USTs. Darling was solely responsible for and paid for all aspects of the remediation process relating to the USTs, beginning in 1989 and continuing until the case was initially closed on July 30, 2004.

Although Baywood entered into a contract with Darling to purchase the Property in 1990, the sale did not close until February 8, 2008, in part because Darling had not completed its UST remediation obligations until 2004. In its December 28, 2015, letter to you, Darling claims that the Property was sold to Baywood "as-is", and suggests that soils brought onto the Property by Baywood after close of escrow for use as fill are potential alternative sources of benzene and gas that led to your Department's re-opening of the site for further investigation and remediation. We believe both of these claims are untrue. Darling has not only mischaracterized the terms of the 2008 agreement with Baywood, but also has falsely attributed the need for further remediation to Baywood by claiming that fill brought to the site for future use was impacted with petroleum hydrocarbons which in turn caused underlying soil and groundwater to be contaminated.

First, per written agreement between Darling and Baywood negotiated between counsel and delivered by Darling at the 2008 closing, Darling gave an express exception to the as-is and release provisions pursuant to which Darling expressly agreed to assume all liability and remediation obligations ordered to be performed by your Department or any other government agency on account of pre-close of 2008 escrow conditions relating to hazardous materials located on the Property, including gas and benzene. Although site closure occurred in 2004, elevated levels of gasoline constituents were reported as remaining in soils in the vicinity of the USTs as of the date of 2004 site closure. Accordingly, the re-opening of the former case based on gas and benzene found in the soil, groundwater and soil vapor remains Darling's responsibility as the former property owner who installed, operated and removed the leaking USTs.

Second, according to Baywood's consultant, Christina Kennedy of CKG Environmental, the soil that was brought in by Baywood for future use was placed generally north of the driveway which includes the area of former excavation. This stockpiled soil was tested by AEI Consultants and the results reported in their "Phase II Subsurface Investigation, 2592 Lakeville Highway, Petaluma, California," dated September 2, 2014. AEI followed sampling guidance provided in the "Information Advisory – Clean Imported Fill" dated October 2001, prepared by the State of California Department of Toxic Substances Control (DTSC). In the 26 soil samples that were collected there were a few low detections of heavier hydrocarbons (diesel and motor oil) that exceeded residential screening levels but there was no petroleum hydrocarbons quantified as gasoline or aromatic hydrocarbons (such as benzene) detected. Based on the available data it appears that the stockpiled soil brought in by Baywood does not contain petroleum hydrocarbons at significant concentrations, and certainly not at concentrations that could result in the elevated concentrations of petroleum hydrocarbons that exist in the vicinity of the former underground fuel storage tank excavation at the site.

Your December 9, 2015, letters to Darling and to Baywood note that February 9, 2016, is the due date for the submittal of the required workplan. Upon receipt of your letter, Baywood contacted Darling directly, and for the reasons expressed above, requested that Darling take the lead in preparing and submitting a work plan and submitting the same to your department by February 9, 2016. Darling's counsel has informed us that Darling has agreed to do so, and that Darling has requested and received an extension until April 1, 2016, from your Department to submit the work plan. Accordingly, Baywood will not be submitting a workplan for the Property and reserves the right to comment upon any workplan submitted by Darling. As of the date of this letter, Baywood has not received from Darling any draft plan or supporting data to review or comment upon.

If you have any questions, please feel free to contact me.

Sincerely,



Patrick Imbimbo for Baywood, LLC

cc: Christina Kennedy, CKG Environmental

BARRY J. SHOTTS
ATTORNEY AT LAW
1715 TAINTER STREET
SAINT HELENA, CALIFORNIA 94574
TEL: 415-595-2821

April 27, 2016

VIA EMAIL

Sonoma County
Department of Health Services – Public Health Division
625 Fifth Street
Santa Rosa, CA 95404
Attention: Darcy M. Bering (darcy.bering@sonoma-county.org)
Glenn Morelli (glenn.morelli@sonoma-county.org)

Re: Baywood Response to Site Evaluation and Work Plan
2592 Lakeville Hwy, Petaluma, CA - EHS Site #00001359, SFBRWQCB #49-0142

Dear Ms. Bering and Mr. Morelli:

On behalf of Darling Ingredients Inc. ("Darling"), I am writing to briefly respond to a letter you received from James Frassetto on behalf of Baywood LLC ("Baywood") dated April 26, 2016.

As you know, the above-referenced case (the "UST Case") was recently re-opened by the County in response to a Phase II Subsurface Investigation prepared by AEI Consultants ("AEI") on behalf of DeNova Homes, Inc. dated September 2, 2014 (the "AEI Report"). In his April 26 letter, Mr. Frassetto contends that Baywood is not the source of petroleum hydrocarbons reported to be present at the above-referenced property (the "Property"). Notably, however, Mr. Frassetto does not reveal the source of the 18,000 cubic yards[1] of fill which Baywood reportedly imported to the Property over and near the former UST excavation area. And, even based upon the very limited testing that AEI conducted, this soil was found to contain elevated levels of TPH as motor oil and diesel, organic pesticides, semivolatile organic compounds, arsenic, lead and nickel. See AEI Report at page 3 and Table 4. Baywood did not follow or comply with the Department of Toxic Substances Control's ("DTSC") Advisory on Clean Imported Fill before importing this soil to the Property and, by all appearances, it could very well be the source of the contamination reported by AEI; more testing would be needed (by Baywood) to resolve this question. It is not up to the County or Darling to solve the mystery of where this fill came from or to prove that it is clean and appropriate for a residential site.

[1] Mr. Frassetto says in his letter that the amount of fill imported to the Property by Baywood "is nowhere near" 18,000 cubic yards. Yet AEI very clearly states in its report that "[f]ield measurements indicate that the stockpiles measure between 10 and 12 feet in thickness and that the total volume of soil present in the stockpiles is approximately 18,000 cubic yards (western stockpile) and 7,000 cubic yards (eastern stockpile)." AEI Report at pages 3-4. And Figure 3 of the AEI Report clearly shows that the "western stockpile" was placed directly over and adjacent to the former UST excavation area.

Mr. Frassetto also says that Baywood did not conduct grinding operations near the UST excavation area, without including the "enclosure" he offers as proof to anyone copied on his letter (including Darling), and claims that "there is no evidence whatsoever" that Baywood conducted fueling operations near the UST excavation area, ignoring the observations made by Pete Terribilini, the longtime caretaker for the Property, and offering no evidence of his own. Baywood's explanation for its operations on the Property raises more questions than it answers.

Nor does Mr. Frassetto have any explanation for how AEI could have detected petroleum hydrocarbons "in the exact location of the former Darling USTs" – that is, where Darling excavated and treated soil to undetectable concentrations of benzene and gasoline – if Baywood is not the source.

The bottom line, however, is that the County does not need to determine the source of the petroleum hydrocarbons reported by AEI, and the County has already decided how this matter should be handled. Darling remediated the Property in 2004 under County and Regional Water Quality Control Board ("RWQCB") oversight to a level appropriate for the land use at the time. In its Case Closure Summary, the County stated that corrective action could be required if the land use of the Property changed and that "[f]uture site development should address the presence of residual soil contamination, proper handling and disposal."

As Darling's environmental consultant, Environmental Resources Management ("ERM") documents and concludes in its *Site Evaluation and Work Plan* dated April 1, 2016 (the "ERM Report"), current site conditions correspond to the conditions in which the UST Case was closed in 2004, and there is no present risk to human health or the environment. As the County and RWQCB concluded in the 2004 Case Closure Summary, groundwater below the Property is not a potential source of drinking water, there are no reported drinking water wells within a mile radius of the Property, and there is no threat to ecological resources, observations which remain true today. There is no reason or rationale to require further remediation unless and until the land use of the Property changes.

It is now Baywood which owns the Property and Baywood which is seeking to convert it to residential use.[2] The ERM Report provides a blueprint for the work which would be required to convert the Property to residential use. While Darling believes that, as between Darling and Baywood, Baywood is obligated to conduct such work, there is no need for the County to arbitrate any disagreements between Darling and Baywood. The County should simply confirm, again, that "future site development should address the presence of residual soil contamination, proper handling and disposal," and condition any future development of the Property upon the completion of such work.

Very truly yours,



Barry J. Shotts

cc: John F. Sterling, Esq. (via email)
Bill McMurtry (via email)
James Frassetto, Esq. (via email)

[2] While Mr. Frassetto claims in his letter that "there is no current plan to redevelop the Property" by Baywood, the fact that the AEI Report was prepared for DeNovo Homes, a home builder which was in contract to purchase the Property from Baywood at the time, speaks for itself.

DARLING INGREDIENTS

251 O'Connor Ridge Blvd., Suite 300
Irving, TX 75038
T 972-281-4409
darlingii.com

December 28, 2015

Ms. Darcy Bering
Senior Environmental Health Specialist
Sonoma County Department of Health Services
Leaking Underground Storage Tank
Local Oversight Program
625 Fifth Street
Santa Rosa, CA 95404

**Re: Response to Reponsible Party Information Letter**
**EHS Site #00001359, SFBRWQCB #49-0142**

Dear Ms. Bering:

On behalf of Darling Ingredients Inc. ("Darling"),[1] I am writing to respond to your letter dated December 9, 2015.[2] In your letter, you say that the Department of Health Services for Sonoma County (the "Department") is reopening the above-referenced case (the "LUST Case") in response to a Phase II Subsurface Investigation Report prepared by AEI Consultants and dated September 2, 2014 (the "AEI Phase II Report"). According to your letter, the AEI Phase II Report discloses "high concentrations of gas and benzene in soil and soil-vapor" "in the area of the former USTs that far exceed levels at the time of site closure in July 2004."

Darling is the former owner of the real property that was the subject of the LUST Case in 2004 (the "Property"). Under close Department oversight, Darling removed the two underground storage tanks in question, excavated and treated or disposed of approximately 2400 cubic yards of contaminated soils, extracted, treated and disposed of approximately 88,000 gallons of groundwater, backfilled the excavation area with clean and treated fill and conducted confirmation sampling. This sampling confirmed that corrective actions undertaken by Darling met all applicable requirements under the California Health and Safety Code, resulting in a no further action letter and case closure by the County on July 30, 2004.

Darling sold the Property to Baywood LLC ("Baywood") on February 8, 2008 (the "Closing Date") purchase to a purchase and sale agreement originally entered into in 1990. The Property was sold by Darling to Baywood "as is" and after multiple environmental investigations conducted on behalf of Baywood.

Between the original closure of the LUST Case in 2004 and the Closing Date, Darling operated no storage tanks on the Property (above ground or underground) and brought no, and handled

---

[1] Your letter is addressed to Darling International Inc. but please be advised that Darling recently changed its name from Darling International Inc. to Darling Ingredients Inc. on May 6, 2014.
[2] Your letter is dated December 9, 2015, but I did not in fact receive it until December 14, 2015.

DARLING INGREDIENTS

no fuel or fuel-related products on the Property. Darling has not owned and has had no access to the Property for over seven years and has no right of access to the Property now. Darling believes that Baywood is the only current record title holder the Property, and has been the only owner from the Closing Date to the present, but Baywood can presumably confirm this.

In response to your letter, Darling is currently reviewing the AEI Phase II Report and other applicable data and reports, including from the original LUST Case closure in 2004, to determine whether the benzene and gas reported by AEI are potentially from the former underground storage tanks, or from another source. In particular, Darling notes that a significant amount of soil was brought onto the Property by Baywood to be used as fill for site development and that a number of samples from this stockpiled soil detected total petroleum hydrocarbons above applicable Environmental Screening Levels ("ESLs"). It is therefore possible that the benzene and gas reported by AEI is wholly or partially from sources other than the former tanks.

In the interim, Darling wishes to acknowledge receipt of your letter and to affirm its willingness to cooperate fully with the Department. Darling will provide a further response to your letter once it has completed its review of the AEI Phase II Report and prior site data.

Sincerely,

William R. McMurtry
VP of Environmental Affairs, North America

Enclosure

CC: Glenn Morelli, SCDHS
John Sterling, Executive Vice President/General Counsel and Secretary, DII

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Stephan Betz, PhD – Director
Ellen Bauer, PhD, MPP – Division Director

Certified Mail – Return Receipt Requested

December 9, 2015

COPY

RECEIVED
DEC 14 2015

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Responsible Party Information for Investigation and Remediation Due to an Unauthorized Fuel Release at: 2592 Lakeville Hwy, Petaluma, CA
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

The referenced site was entered into the Sonoma County Leaking Underground Storage Tank Local Oversight Program in 1989 after contamination from two Underground Storage Tanks (USTs) was reported. The case was closed on July 30, 2004 after investigation showed that contamination was attenuating at acceptable rates.

In September 2015, this Department received a Phase II Subsurface Investigation Report from AEI Consultants, dated September 2, 2014. Contained within the report were analytical results in the area of the former USTs that far exceed levels at the time of site closure in July 2004. As a result, the Department is obliged to reopen the case so that further investigation and remediation can be performed as necessary. The former case is being reopened based on reported high concentrations of gas and benzene in soil, groundwater and soil-vapor.

This Department is obliged to advise you of your responsibilities and rights because you are now legally a responsible party for the site investigation and cleanup. Directives issued by this Department regarding the fuel release investigation and cleanup are enforceable. Work plans to investigate the site, reports, and remediation proposal must be completed by a qualified consultant and be submitted to this Department for review. Work plans and reports must adhere to the requirements found in *the State Underground Storage Tank Regulations* (UST regulations) and in the Department's *Guidelines for Site Investigations.* At this time, you are directed to submit a workplan to address the soil and groundwater contamination at the site. **February 9, 2016 is the due date for the submittal of the required workplan.**

A Notice of Responsibility, which is a formal notification document, that we are required to send to you, is included with this letter. This document includes important information regarding your responsibility for the site investigation and clean up, fee title owner notification requirements, and petition procedures.

Other responsible parties identified for this site are as follows:

Baywood LLC
Attn: Patrick Imbimbo
414 Aviation Boulevard
Santa Rosa, CA 95403

A determination of secondary responsible party status may be made if it is shown that one or more of the responsible parties are performing corrective action and it is clear that the party seeking secondary status did not in any way initiate or contribute to the actual discharge. If the primary responsible party fails to perform corrective action, then the secondary responsible party will be considered a primary responsible party.

This Department, under contract with the State Water Resource Control Board (SWRCB), will oversee the environmental investigation at the site in the same manner that it previously has. Our oversight includes providing regulatory directives, issuing permit for monitoring well installation, reviewing and commenting on work plan proposals and report, conducting site inspections, providing g technical guidance, and case closure.

A State Cleanup Fund is available which will reimburse eligible parties many of the cost for Leaking Underground Storage Tank (LUST) investigations and cleanups. You are advised to contact the Cleanup Fund as soon as possible regarding the claim for this site.

The referenced site is also within San Francisco Bay Regional Water Quality Control Board jurisdiction. This Regional Board requests that copies of letters, reports, proposals, etc. not be sent to them. Copies of all correspondence, work plans and reports must be sent to this Department as well as uploaded to Geotracker the State database.

Glenn Morelli will be the case worker for this site and will be happy to meet with you to discuss our program or to discuss the site status. He can be reached at 707-565-6573. Local Oversight Program Guidelines and a list of qualified consultants are available and can be made available to you upon requests.

Sincerely,



Darcy M. Bering
Senior Environmental Health Specialist
Leaking Underground Storage Tank
Local Oversight Program

Enclosures

C: Geotracker
Baywood LLC., 414 Aviation Boulevard, Santa Rosa, CA 95403
CKG Environmental, Inc., P.O. Box 246, St Helena, CA 94574

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Stephan Betz, PhD – Director
Ellen Bauer, PhD, MPP – Division Director

Certified Mail – Return Receipt Requested

December 9, 2015

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Responsible Party Information for Investigation and Remediation Due to an Unauthorized Fuel Release at: 2592 Lakeville Hwy, Petaluma, CA
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

The referenced site was entered into the Sonoma County Leaking Underground Storage Tank Local Oversight Program in 1989 after contamination from two Underground Storage Tanks (USTs) was reported. The case was closed on July 30, 2004 after investigation showed that contamination was attenuating at acceptable rates.

In September 2015, this Department received a Phase II Subsurface Investigation Report from AEI Consultants, dated September 2, 2014. Contained within the report were analytical results in the area of the former USTs that far exceed levels at the time of site closure in July 2004. As a result, the Department is obliged to reopen the case so that further investigation and remediation can be performed as necessary. The former case is being reopened based on reported high concentrations of gas and benzene in soil, groundwater and soil-vapor.

This Department is obliged to advise you of your responsibilities and rights because you are now legally a responsible party for the site investigation and cleanup. Directives issued by this Department regarding the fuel release investigation and cleanup are enforceable. Work plans to investigate the site, reports, and remediation proposal must be completed by a qualified consultant and be submitted to this Department for review. Work plans and reports must adhere to the requirements found in *the State Underground Storage Tank Regulations* (UST regulations) and in the Department's *Guidelines for Site Investigations*. At this time, you are directed to submit a workplan to address the soil and groundwater contamination at the site. **February 9, 2016 is the due date for the submittal of the required workplan.**

A Notice of Responsibility, which is a formal notification document, that we are required to send to you, is included with this letter. This document includes important information regarding your responsibility for the site investigation and clean up, fee title owner notification requirements, and petition procedures.

Other responsible parties identified for this site are as follows:

Baywood LLC
Attn: Patrick Imbimbo
414 Aviation Boulevard
Santa Rosa, CA 95403

A determination of secondary responsible party status may be made if it is shown that one or more of the responsible parties are performing corrective action and it is clear that the party seeking secondary status did not in any way initiate or contribute to the actual discharge. If the primary responsible party fails to perform corrective action, then the secondary responsible party will be considered a primary responsible party.

This Department, under contract with the State Water Resource Control Board (SWRCB), will oversee the environmental investigation at the site in the same manner that it previously has. Our oversight includes providing regulatory directives, issuing permit for monitoring well installation, reviewing and commenting on work plan proposals and report, conducting site inspections, providing g technical guidance, and case closure.

A State Cleanup Fund is available which will reimburse eligible parties many of the cost for Leaking Underground Storage Tank (LUST) investigations and cleanups. You are advised to contact the Cleanup Fund as soon as possible regarding the claim for this site.

The referenced site is also within San Francisco Bay Regional Water Quality Control Board jurisdiction. This Regional Board requests that copies of letters, reports, proposals, etc. not be sent to them. Copies of all correspondence, work plans and reports must be sent to this Department as well as uploaded to Geotracker the State database.

Glenn Morelli will be the case worker for this site and will be happy to meet with you to discuss our program or to discuss the site status. He can be reached at 707-565-6573. Local Oversight Program Guidelines and a list of qualified consultants are available and can be made available to you upon requests.

Sincerely,

Darcy M. Bering
Senior Environmental Health Specialist
Leaking Underground Storage Tank
Local Oversight Program

Enclosures

C: Geotracker
Baywood LLC., 414 Aviation Boulevard, Santa Rosa, CA 95403
CKG Environmental, Inc., P.O. Box 246, St Helena, CA 94574

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Stephan Betz, PhD – Director
Ellen Bauer, PhD, MPP – Division Director

Notice of Responsibility

| | | | |
|---|---|---|---|
| Site Code: | 00001359 | | |
| Site Name: | Royal Tallow & Soap Co. (former) | | |
| Address: | 2592 Lakeville Hwy | Date First Reported: | 6/30/89 |
| City/State/Zip: | Petaluma, CA 94952 | Substance: | 8006619 |
| Responsible Party: | Darling International Inc. | State [ X ] | |
| Responsible Party Contact: | Bill McMurtry | | |
| Address: | 251 O'Conner Ridge, Suite 300 | | |
| City/State/Zip: | Irving, TX 75038 | | |

Pursuant to Section 25297.1 and 25297.15 of the Health and Safety Code, you are hereby notified that the above site has been placed in the Local Oversight Program and the individual(s) or entity(ies) shown above, or on the attached list, has been identified as the party(ies) responsible for investigation and cleanup of the above site. Section 25297.15 further requires the primary or active responsible party to notify all current record owners of fee title before the local agency considers cleanup or site closure proposals or issues a closure letter. For purposes of implementing section 25297.15, this agency has identified Darling International Inc., as the primary or active Responsible Party. It is the responsibility of the primary or active Responsible Party to submit a letter to this agency within 20 calendar days of receipt of this notice which identifies all current record owners of fee title. It is also the responsibility of the primary or active Responsible Party to certify to the local agency that the required notifications have been made at the time a cleanup or site closure proposal is made or before the local agency makes a determination that no further action is required. If property ownership changes in the future, you must notify this local agency within 20 calendar days of when you are informed of the change.

Any action or inaction by this local agency associated with corrective action, including responsible party identification, is subject to petition to the State Water Resources Control Board. Petitions must be filed within 30 days from the date of the action/inaction. To obtain petition procedures, please FAX your request to the State Water Board at (916) 341-5808 or telephone (916) 341-5851.

Pursuant to Section 25296.10 (c)(6) of the Health and Safety Code, a responsible party may request the designation of an administering agency when required to conduct corrective action. Please contact this office for further information about the site designation process.

Sincerely

Darcy M. Bering
Registered Environmental Health Specialist

Phone: (707) 565-6571

Date: December 9, 2015

Add Reason: CCR, Title 23, Section 2720–Named party is former tank owner and operator of property where fuel release was reported on 6/30/89 (definition 1).

c: Geotracker

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Stephan Betz, PhD – Director
Ellen Bauer, PhD, MPP – Division Director

Certified Mail – Return Receipt Requested

December 9, 2015

Baywood LLC
Attn: Patrick Imbimbo
414 Aviation Boulevard
Santa Rosa, CA 95403

Re: Responsible Party Information for Investigation and Remediation Due to an Unauthorized Fuel Release at: 2592 Lakeville Hwy, Petaluma, CA
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. Imbimbo:

The referenced site was entered into the Sonoma County Leaking Underground Storage Tank Local Oversight Program in 1989 after contamination from two Underground Storage Tanks (USTs) was reported. The case was closed on July 30, 2004 after investigation showed that contamination was attenuating at acceptable rates.

In November 2015, this Department received a Phase II Subsurface Investigation Report from AEI Consultants dated September 2, 2014. The report contains results in the area of the former USTs that far exceed levels at the time of site closure in July 2004. As a result, the Department is obliged to reopen the case so that further investigation and remediation can be completed as necessary. The former case is being reopened because high concentrations of gas and benzene that was found in the soil, groundwater and soil vapor.

This Department is obliged to advise you of your responsibilities and rights because you are now legally a responsible party for the site investigation and cleanup. Directives issued by this Department regarding the fuel release investigation and cleanup are enforceable. Work plans to investigate the site, reports, and remediation proposal must be completed by a qualified consultant and be submitted to this Department for review. Work plans and reports must adhere to the requirements found in *the State Underground Storage Tank Regulations* (UST regulations) and in the Department's *Guidelines for Site Investigations.* At this time, you are directed to submit a workplan to address the soil and groundwater contamination at the site. **February 9, 2016 is the due date for the submittal of the required workplan.**

A Notice of Responsibility, which is a formal notification document, that we are required to send to you, is included with this letter. This document includes important information regarding your responsibility for the site investigation and clean up, fee title owner notification requirements, and petition procedures.

Other responsible parties identified for this site are as follows:

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

A determination of secondary responsible party status may be made if it is shown that one or more of the responsible parties are performing corrective action and it is clear that the party seeking secondary status did not in any way initiate or contribute to the actual discharge. If the primary responsible party fails to perform corrective action, then the secondary responsible party will be considered a primary responsible party.

This Department, under contract with the State Water Resource Control Board (SWRCB), will oversee the environmental investigation at the site in the same manner that it previously has. Our oversight includes providing regulatory directives, issuing permit for monitoring well installation, reviewing and commenting on work plan proposals and report, conducting site inspections, providing g technical guidance, and case closure.

A State Cleanup Fund is available which will reimburse eligible parties many of the cost for Leaking Underground Storage Tank (LUST) investigations and cleanups. You are advised to contact the Cleanup Fund as soon as possible regarding the claim for this site.

The referenced site is also within San Francisco Bay Regional Water Quality Control Board jurisdiction. This Regional Board requests that copies of letters, reports, proposals, etc. not be sent to them. Copies of all correspondence, work plans and reports must be sent to this Department as well as uploaded to Geotracker the State database.

Glenn Morelli will be the case worker for this site and will be happy to meet with you to discuss our program or to discuss the site status. He can be reached at 707-565-6573. Local Oversight Program Guidelines and a list of qualified consultants are available and can be made available to you upon requests.

Sincerely,

Darcy M. Bering
Senior Environmental Health Specialist
Leaking Underground Storage Tank
Local Oversight Program

Enclosures

C: Geotracker
Darling International Inc., Attn: Bill McMurtry, 251 O'Conner Ridge, Suite 300
Irving, TX 75038
CKG Environmental, Inc., P.O. Box 246, St Helena, CA 94574

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Stephan Betz, PhD – Director
Ellen Bauer, PhD, MPP – Division Director

Notice of Responsibility

| | | | |
|---|---|---|---|
| Site Code: | 00001359 | | |
| Site Name: | Royal Tallow & Soap Co. (former) | | |
| Address: | 2592 Lakeville Hwy | Date First Reported: | 6/30/89 |
| City/State/Zip: | Petaluma, CA 94952 | Substance: | 8006619 |
| Responsible Party: | Baywood LLC. | State [ X ] | |
| Responsible Party Contact: | Patrick Imbimbo | | |
| Address: | 414 Aviation Boulevard | | |
| City/State/Zip: | Santa Rosa, CA 95403 | | |

Pursuant to Section 25297.1 and 25297.15 of the Health and Safety Code, you are hereby notified that the above site has been placed in the Local Oversight Program and the individual(s) or entity(ies) shown above, or on the attached list, has been identified as the party(ies) responsible for investigation and cleanup of the above site. Section 25297.15 further requires the primary or active responsible party to notify all current record owners of fee title before the local agency considers cleanup or site closure proposals or issues a closure letter. For purposes of implementing section 25297.15, this agency has identified Baywood LLC., as the primary or active Responsible Party. It is the responsibility of the primary or active Responsible Party to submit a letter to this agency within 20 calendar days of receipt of this notice which identifies all current record owners of fee title. It is also the responsibility of the primary or active Responsible Party to certify to the local agency that the required notifications have been made at the time a cleanup or site closure proposal is made or before the local agency makes a determination that no further action is required. If property ownership changes in the future, you must notify this local agency within 20 calendar days of when you are informed of the change.

Any action or inaction by this local agency associated with corrective action, including responsible party identification, is subject to petition to the State Water Resources Control Board. Petitions must be filed within 30 days from the date of the action/inaction. To obtain petition procedures, please FAX your request to the State Water Board at (916) 341-5808 or telephone (916) 341-5851.

Pursuant to Section 25296.10 (c)(6) of the Health and Safety Code, a responsible party may request the designation of an administering agency when required to conduct corrective action. Please contact this office for further information about the site designation process.

Sincerely

Darcy M. Bering — Phone: (707) 565-6571 — Date: December 9, 2015
Registered Environmental Health Specialist

Add Reason: CCR, Title 23, Section 2720–Named party is the current property owner of a property where fuel release was reported on 6/30/89 (definition 3).

c: Geotracker

Sonoma County Geographic Information Systems

*General Property Report*
*005-060-042*

| | |
|---|---|
| Owner Name | Baywood Llc |
| Owner Address | 414 Aviation Blvd<br>Santa Rosa Ca |
| Situs Address | Casa Grande Rd Pe |
| Supervisor District | District 2 |
| City Limit | Petaluma |
| City Sphere of Influence | Petaluma |
| City Urban Growth Boundary | City Of Petaluma |
| Census Tract | 150606 |
| Sec/Township/Range | 35 / 05N / 07W |
| Assessed Area* | 18.63 |
| Area of Parcel Polygon | 18.70 |
| X:<br>Y: | 6387831.13603933<br>1846228.96468727 |
| USGS Quad | Petaluma River |
| Record of Survey | Unknown |
| Assessor Map | Click Here |

Sonoma County Geographic Information Systems

LUST — Request for Action

Site ID# 0000 1359 RB # _____ Date 12-9-15

Site Name Royal Tallow & Soap Co (former)

Site Address 2592 Lakeville Hwy

Site City/Zip Petaluma CA 94952 AP# _____

RP Contact Name Bill McMurtry

RP Co. Name Darling International

RP Mailing Add. 250 O'Connor Ridge Suite 300

RP City/State/Zip Irving TX 75038

RP Phone (___) _____ Multiple RPs ___ (if yes, see back)

Source of Funds ___ (S/F) Substance(s) _____ (SC#) Fed Exempt ___ (Y/N) Petroleum ___ (Y/N)

Date Reported __/__/__ Date Confirmed __/__/__ Contract Status ___ (1-9) Case Type ___ (W/F/A/O/S/U)

URF Recd. __/__/__ BOS Notified __/__/__ # MW ___ # Soil Borings ___ Wells Contam? ___ (Y/N)

PSA Req. __/__/__ Work Plan Due __/__/__ Work Plan Rec. __/__/__ PSA WP OK __/__/__

PSA Sum. __/__/__ RI WP Req. __/__/__ *RI Underway __/__/__ Concur w/ RI WP __/__/__

RI Sum. Rec. __/__/__ RA Req. __/__/__ RA Rec. __/__/__ RA OK __/__/__

RA Sum. __/__/__ Post Rem. Mon. Report __/__/__

| | Status | Date Underway | Date Completed |
|---|---|---|---|
| Initial RP Search | ___ (S/I/R) | __/__/__ | __/__/__ |
| Prelim. Site Assess. | ___ (U/C) | __/__/__ | __/__/__ |
| Remedial Invest. | ___ (U/C/I) | *see above | __/__/__ |
| Remedial Action Plan | ___ (U/C/I) | __/__/__ | __/__/__ |
| Post Rem. Act. Mon. | ___ (Y/N/U/C) | __/__/__ | __/__/__ |

GW Impac t___ (Y/N) Drinking Water Impac t___ (Y/N) Excav. Started __/__/__

Benzene _____ (#ppb/TPH/FP) Priority _____

Enforcement Action: Type ___ (1-6) Date __/__/__ Latest Quarterly Report __/__/__

Remedial Action: Code(s) _____ Date __/__/__ Site Inactive ___ (L/R/Y) Date __/__/__

___ Other: Activate in EC

Geotracker update

ENTERED EP

Note: For multiple RPs or information not included on this page, please use back of form.

Requested by D. B.

LUST Clerk 12/9/15

RP Contact Name Patrick Imbimbo

RP Co. Name Baywood LLC

RP Mailing Add. 414 Aviation Blvd

RP City/State/Zip Santa Rosa, CA 95403

RP Phone ( )

RP Contact Name

RP Co. Name

RP Mailing Add.

RP City/State/Zip

RP Phone ( )

RP Contact Name

RP Co. Name

RP Mailing Add.

RP City/State/Zip

RP Phone ( )

Other information:

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Stephan Betz, PhD – Director
Ellen Bauer, PhD, MPP – Division Director

August 16, 2016

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Site Evaluation Work Plan Submittal (Revised)
Transmitted via email, August 12, 2016
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

On August 12, 2016 this Department received the referenced email and associated work plan (revised) prepared by Environmental Resource Management. This work is required by this Department to ensure health and safety will be protected in anticipated post closure development and use. Staff generally concurs with the work proposed with the following conditions / clarifications:

1. Contained within the work plan is the proposal of sampling one soil-vapor probe only with the provision that were detections found, other proposed sample locations would be sampled. At this time we are directing that all proposed soil-vapor probes be installed and sampled based on:

   a) The prior soil-vapor sample location relative to the proposed confirmation sample location will be approximate. As such, in taking only one sample, one cannot assure it is a true confirmation of the former sample G-3.

   b) Benzene in groundwater was reported in several site borings at concentrations greater than 1,000 ug/L with less than a 5 foot attenuation zone between the anticipated water table and ground surface / foundation of what may be a future development.

   c) Given the above, the direct reading of soil vapor is warranted to have a representative assessment of site conditions.

   Note that it is this Department's intent to streamline this assessment in order to verify conclusively if a vapor intrusion risk exists. Only sampling one location would pro-long this assessment, and not provide necessary data to either consider closing the site, or move forward in collaboration with the cleanup fund in addressing identified conditions.

2. Permit applications for soil borings are required from this Department prior to implementation of the proposed work.

3. An acceptable Site Safety Plan (SSP) must be submitted for review prior to implementation of the work plan. The Application for Drilling Permit cannot be approved without submittal of an acceptable SSP. A hard copy of the SSP does not need to be submitted if a PDF copy is uploaded to Geotracker at the time the Application for Drilling permit is submitted.

4. Soil shall be logged / examined at changes in lithology, the groundwater interface, and at obvious signs of contamination. Samples shall be collected at 5 foot intervals and where observed cuttings show signs of significant contamination. Collected soil samples shall be retained until initial soil-vapor test results are available for potential laboratory analyses.

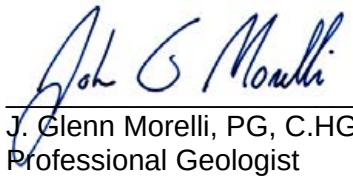
5. All contaminated or potentially contaminated materials generated from the investigation or cleanup of this site must be properly disposed and accounted for. Please retain all shipping documents and receipts of disposal of these materials for submittal to this Department.

6. This Department requires notification at least 48 hours prior to conducting any work at the site related to the release from the underground tanks.

**November 16, 2016** is established as the due date to implement the above work and for submittal of a report of findings.

Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,



J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC., 414 Aviation Boulevard, Santa Rosa, CA 95403
Ben Leslie-Bole, ERM, 1218 3rd Ave. Suite 1412, Seattle Washington 98101

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Barbie Robinson, MPP, JD – Director
Ellen Bauer, PhD, MPP – Division Director

September 18, 2018

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Well Abandonment Workplan
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

This Department is in receipt of the referenced work plan submitted by Environmental Resource Management (ERM) on behalf of Darling International. This Department concurs with the plan with the following comments and clarifications:

- The required permit for well destruction as required by this Department has been submitted for the proposed work, and has been approved. It is hereby noted that ERM will utilize the October 2017 submitted Site Safety Plan (SSP).

- All contaminated or potentially contaminated materials generated from the investigation or cleanup of this site must be properly disposed and accounted for. Please retain all shipping documents and receipts of disposal of these materials for submittal to this Department.

- This Department requires notification at least 48 hours prior to conducting any work at the site related to the release from the underground tanks.

Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,

J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC. 414 Aviation Boulevard, Santa Rosa, CA 95403
ERM, 1277 Treat Blvd., Suite 500, Walnut Creek, CA 94596
JET by email

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Stephan Betz, PhD – Director
Ellen Bauer, PhD, MPP – Division Director

May 10, 2016

Darling International Inc.
Attn: Bill McMurtry
251 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: Site Plan Evaluation and Work Plan Submittal – Transmittal Letter, April 1, 2016 via email
Site Evaluation and Work Plan, April 2016 via email
2592 Lakeville Hwy, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. McMurtry:

On April 1, 2016 this Department received the referenced transmittal letter and associated work plan prepared by Environmental Resource Management. It was eluded to in these documents that:

- Post closure use may have contributed or be responsible for data presented in the 2014 AEI report which lead to reopening this site.

- If the above statement were true, Baywood would or could alone be responsible for cleaning up such contamination.

Please be advised that we have reviewed the site data, and cannot concur with the above conclusions **at this time** as existing data does not provide enough evidence that these statements are correct. Available data suggest that site conditions presented within the 2014 AEI report are consistent with and associated with the former UST case (EHS Site #00001359, SFBRWQCB #49-0142), and as such may pose a risk to human health based on soil vapor results presented. As you are aware, Sonoma County LOP recently named both Darling International and Baywood LLP as responsible parties in reopening this site, due to Darling, having caused the release and Baywood being the current property owner. Our determination at this time is that both parties are responsible. We are however designating Baywood LLP, per their request as a "Secondary Responsible Party" to **the original release** as this occurred prior to their ownership of the property. Note, this does not preclude them from being named in the future as a sole or joint responsible party should future contamination be identified on the property unrelated to the original release. If the primary responsible party fails to perform corrective action, then the secondary responsible party will be considered a primary responsible party.

**Work Plan Comments:**

We generally concur that additional vapor intrusion investigation/assessment needs to take place in order to obtain information relative to the future development of the property to ensure health and safety will be protected in anticipated post closure use. This said, we will need more information in order to approve the current work plan, and as such are directing an amended work plan be submitted as a stand-alone document, absent past work not relevant to the technical task at hand. The work plan will need to be amended to evaluate current site conditions for vapor intrusion and associated mitigation if applicable, which at a minimum shall consist of:

- A detailed site map with proposed drilling locations.

- An acceptable Site Safety Plan (SSP) will need to be submitted after or concurrently with the work plan for approval.

- A description of how soils shall be logged / examined at changes in lithology, the groundwater interface, and at obvious signs of contamination. Note that we require a minimum of one soil sample per boring be collected and analyzed in an approved laboratory for constituents of concern. If significant soil contamination is encountered, we will require additional soil samples be analyzed by the laboratory to characterize the vertical extent of contamination.

- A proposed timeline to perform the work.

- In addition to your Geotracker and associated electronic submittal, this office requires a hard copy of all such work and correspondence related to this site be submitted to this office.

**July 11, 2016** is established as the due date for submittal of an amended work plan.

Please contact me at (707) 565-6573 or by e-mail at glenn.morelli@sonoma-county.org if you have any questions or wish to discuss this further.

Respectfully,

J. Glenn Morelli, PG, C.HG., QSD
Professional Geologist
Leaking Underground Storage Tank
Local Oversight Program

JGM

C: Geotracker
Mr. John Jang, SFBRWQCB via email
Patrick Imbimbo, Baywood LLC., 414 Aviation Boulevard, Santa Rosa, CA 95403

# Memorandum

**Environmental Resources Management**

1 Ninth Street Island
Livingston, MT 59047
(406) 222-7600

| | |
|---|---|
| **To:** | J. Glenn Morelli, Sonoma County Department of Health Services |
| **From:** | Christopher Berg, ERM |
| **Cc:** | Bill McMurty, Darling Ingredients Inc.<br>Barry Shotts, Attorney At Law |
| **Date:** | 1 March 2018 |
| **Subject:** | Addendum – Additional Site Characterization Summary Report, 2592 Lakeville Highway, Petaluma, California, EHS Site #00001359, SFBRWQCB #49-0142 |

## *INTRODUCTION*

On behalf of Darling Ingredients Inc. (Darling), ERM-West, Inc. (ERM) has prepared this addendum to the Additional Site Characterization Summary Report submitted to Sonoma County Department of Health Services (County) on 14 February 2018.

This addendum provides the following additional site characterization data collected on 13 February 2018 and as identified in the August 2017 Additional Site Characterization Workplan (ERM 2017):

- A second round of groundwater sampling results collected to determine temporal variations in groundwater; and
- Slug test data collected to determine/verify the hydraulic conductivity values collected during the November 2017 MiHPT survey.

## *GROUNDWATER MONITORING AND RESULTS*

### *Groundwater Monitoring*

Well gauging and monitoring was conducted consistent with the procedures and methods identified in the Additional Site Characterization Summary Report (ERM 2017). The temporary monitoring well locations are shown on Figure 1. Well gauging was conducted using a water level meter and measurements were collected from a reference point on the top of each well casing, and included depth-to-water. Reference point elevation and well construction details are provided in Table 1. Measurements were recorded on field data sheets to the nearest 0.01 feet and are summarized in Table 2.

The second round of groundwater samples were collected from the four temporary groundwater monitoring wells using a portable pump and purging equipment connected to disposable tubing. During purging as a precondition for water sample collection, water levels, temperature, pH, conductivity, dissolved oxygen, oxidation-reduction potential, and turbidity were monitored at regular intervals until stable readings of these parameters were noted. Groundwater monitoring purge logs are provided in Attachment A.

Groundwater samples were collected consistent with the procedures and methods identified in the Additional Site Characterization Summary Report (ERM 2017) and were sent to SunStar Laboratories, Inc., in Lake Forest, California for the following analyses:

- Volatile organic compounds by USEPA Method 8260b; and
- Total petroleum hydrocarbons-Gasoline (TPH-G) by USEPA Method 8015.

***Groundwater Hydrology***

During November 2017 and February 2018, fluid levels were measured prior to any groundwater sampling activities. The fluid level measurements are summarized in Table 2. Water table elevation contours for the shallow water table are presented on Figure 1. As shown on Figure 1, the site's groundwater flow direction is toward the south-southwest. Based on the water table elevations, the average horizontal hydraulic gradient at the site in February 2018 was estimated at 0.0082 feet/foot.

***Groundwater Results***

Groundwater sample analytical results from the February 2018 groundwater sampling event are presented in Table 2 and on Figure 2. The applicable screening concentrations used for this analysis are environmental screening levels based on the Low Threat Closure Policy (SWRCB, 2012) and San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Groundwater Vapor Intrusion Screening Level for Shallow Groundwater (Revision 3). As shown in Table 2, the following observations can be made with respect to the presence and temporal variation of volatile organic compounds and TPH-G in groundwater samples collected from the four temporary monitoring wells:

- Benzene:
  - Detected in one of the four locations at concentrations greater than the LTCP- Appendix 3/ Scenario 3 Dissolved-Phase Benzene Concentration in Groundwater criteria of 1,000 micrograms per liter (µg/L);
  - Benzene detected in each groundwater monitoring well location at concentrations greater than the SFBRWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 1.1 µg/L; and
  - Benzene temporal variations were generally stable between November 2017 and February 2018 at all temporary monitoring wells with an exception of GW-4 where it increased from 43 µg/L (November 2017) to 130 µg/L (February 2018).
- Toluene:
  - No screening level for toluene is identified in the LTCP-Appendix 3/Scenario 3 in Groundwater; however, toluene was detected in all four groundwater samples;
  - None of the toluene detections exceeded the SFBRWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 3,600 µg/L; and
  - Toluene temporal variations were generally stable between November 2017 and February 2018. .
- Ethylbenzene:
  - No screening level for ethylbenzene is identified in the LTCP-Appendix 3/Scenario 3 in Groundwater; however, ethylbenzene was detected in all four groundwater samples;
  - Detected in each groundwater monitoring well location at concentrations greater than the SFBRWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 13 µg/L; and
  - Ethylbenzene temporal variations were generally stable between November 2017 and February 2018.
- Total Xylenes:

  - No screening level for total xylenes is identified in the LTCP - Appendix 3/Scenario 3 in Groundwater; however, total xylenes were detected in all four groundwater samples;
  - Detected in one groundwater monitoring well location (GW-1) at concentrations greater than the SFBRWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 1,300 µg/L; and
  - Total xylenes temporal variations were generally stable between November 2017 and February 2018.
- Naphthalene:
  - No screening level for naphthalene is identified in the LTCP- Appendix 3/Scenario 3 in Groundwater; however, naphthalene was detected in all four groundwater samples;
  - Detected in two groundwater monitoring well locations (GW-1 and GW-2) at concentrations greater than the SFBRWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 20 µg/L; and
  - Naphthalene temporal variations were generally stable between November 2017 and February 2018. Naphthalene concentrations at temporary monitoring well location GW-3 decreased such that it no longer exceeded the SFBRWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater of 20 µg/L.
- Methyl Tert-Butyl Ether (MTBE):
  - Not detected in any of the four groundwater monitoring well locations. All non-detect values are less than the LTCP-Groundwater Specific Criteria for Dissolved-Phase MTBE (1,000 µg/L);
  - Not detected in any of the four groundwater monitoring well locations. All non-detect values are less than the LTCP-Groundwater Specific Criteria for Dissolved-Phase MTBE (1,000 µg/L); and
  - There were no temporal variations of MTBE as all samples continued to report as non-detected (<1.0 µg/L).
- TPH-G:

- No screening level for TPH-G is identified in the LTCP-Appendix 3/Scenario 3 in Groundwater; however, TPH-G was detected in all four groundwater samples;
- No screening level for TPH-G is identified in the SFBRWQCB Residential Groundwater Vapor Intrusion Screening Level for Shallow Groundwater; however, TPH-G was detected in all four groundwater samples; and
- TPH-G temporal variations were generally stable and/or decreasing between November 2017 and February 2018.

Additional constituents which were detected and do not have an associated screening level, exhibited stable and/or decreasing trends between November 2017 and February 2018. The corresponding groundwater laboratory analytical report is included in Attachment B.

***Data Validation***

The data validation process evaluated analytical method quality control and laboratory quality control compliance, and determined the validity and applicability of all collected data. Tier 1A/1B data validation was completed internally by ERM. Based on the findings of the validation process, data validation qualifiers were assigned where applicable. The validated project data are presented in Attachment C.

No data were determined to be unusable. All of the data can be used for decision-making purposes. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

***Investigation-Derived Waste***

Purged groundwater generated from investigation activities was temporarily stored in six 55-gallon steel drums. The purge water was profiled consistent with DOT requirements and was determined to be non-hazardous. The purge water investigation-derived waste was disposed of at a licensed disposal facility.

***SLUG TEST***

Slug testing was conducted before groundwater sampling activities in order to evaluate any potential changes in hydraulic parameters prior to being disturbed/influenced by the sampling activities (i.e., pumping).

In general, the slug tests were conducted according to the procedures outlined in Dawson and Istok (1991). Depth-to-water measurements were made with a water level meter and recorded in field notes (see Attachment A).

A series of three falling-head (slug-in) and three rising-head (slug-out) tests were performed on monitoring well GW-3. The slug tests in well GW-3 were performed using a schedule 80 PVC slug 1.5 inches in diameter and 32.75 inches in length.

The water level recovery data from the slug tests were analyzed by the method of Bouwer and Rice for slug tests in completely penetrating wells in an unconfined aquifer (Bouwer and Rice, 1976; Bouwer, 1989). The slug test data were analyzed with AQTESOLV Professional Version 3.5, a software package for estimating aquifer properties from slug tests and pumping tests.

The estimated geometric mean of hydraulic conductivity within the screened interval of monitoring well GW-3 was 2.7 feet per day (ft/day). The geometric mean hydraulic conductivity observed during the February 2018 slug test (2.7 ft/day) was generally consistent with the hydraulic conductivity observed at boring location MiHPT-3 (5 ft/day) during the November 2017 MiHPT investigation. The results of the slug tests are summarized in Table 3. The slug test results, graphs, and analyses are included in Attachment D.

## *SUMMARY*

Consistent with the November 2017 groundwater sampling results, GW-1 contained a February 2018 benzene concentration which exceeded the LTCP – Appendix 3/Scenario 3 Dissolved-Phase benzene concentration. Under this condition, observed chemical concentrations at the site continue to not meet unrestricted residential LTCP risk thresholds.

The geometric mean hydraulic conductivity observed during the February 2018 slug test (2.7 ft/day) is consistent with published hydraulic

conductivity values for unconsolidated sediments (i.e., silt, sandy silts, clayey sands). The low hydraulic conductivities exhibited by the shallow soils at the site will be considered when evaluating remedial alternatives and remedial design.

In accordance with the 18 April 2017 County letter, Darling will evaluate three viable remedial alternatives as part of preparation of Feasibility Study/Corrective Action Plan. No additional groundwater monitoring activities are planned.

*Figures*




M:\Projects\0334845_RoyalTallow\maps\November 2017 GWM Install\Figure1 GW Potentiometric_Feb2018.mxd Created By: Kara Batdorff Date: 2/28/2018 Project: 0334845

## Legend

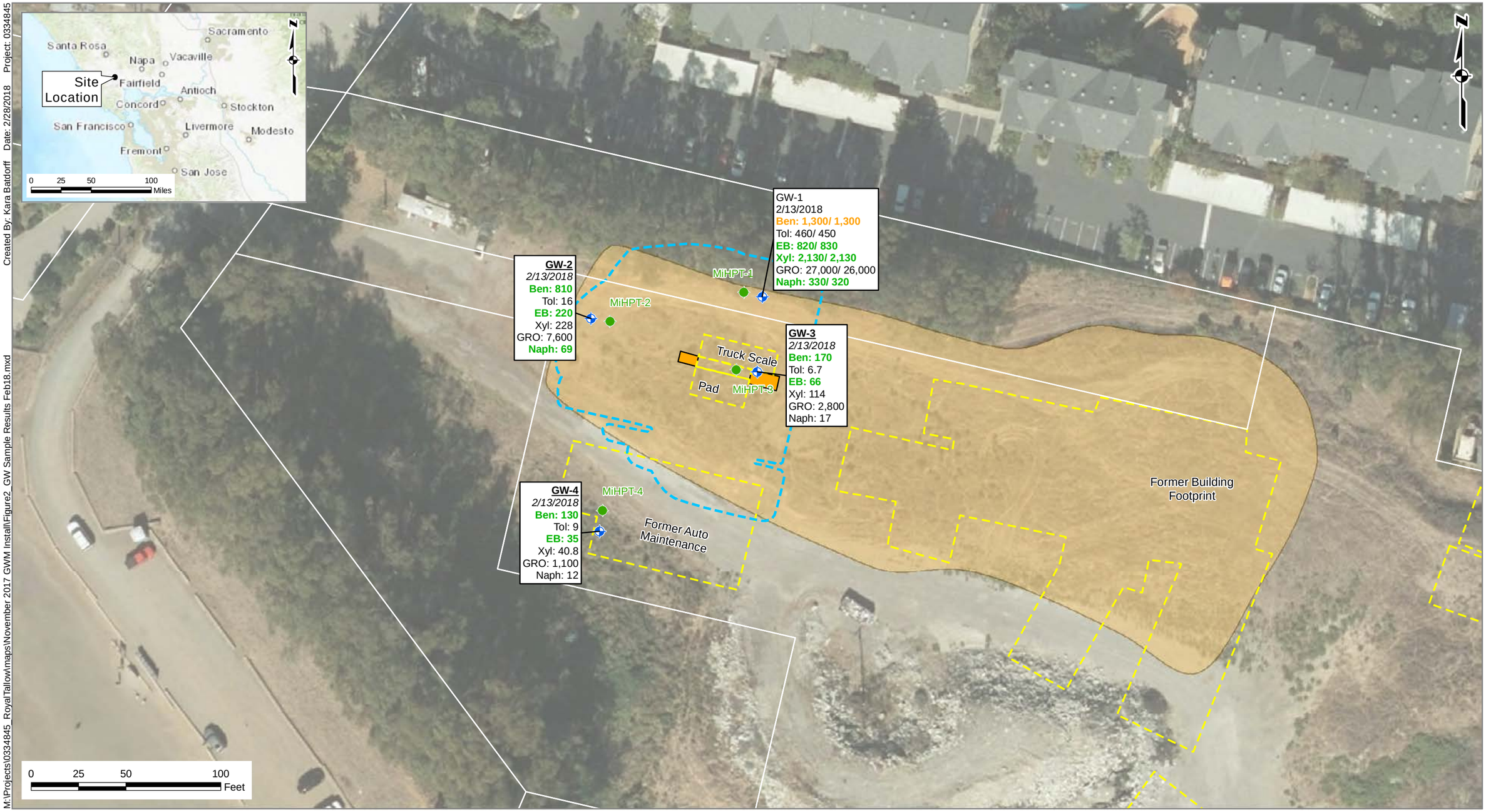
- MiHPT Location
- Groundwater Monitoring Well
- Groundwater Flow Direction
- Groundwater Elevation Contour (0.5 ft MSL)
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation

Notes:
MSL: Mean Sea Level

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

**Figure 1**
*Potentiometric Surface Map*
*February 2018*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com




Project: 0334845
Date: 2/28/2018
Created By: Kara Batdorff
M:\Projects\0334845_RoyalTallow\maps\November 2017 GWM Install\Figure2_GW Sample Results Feb18.mxd

## Legend

- Groundwater Monitoring Well
- MiHPT Location
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All historical locations approximate.
Taken from historical locations figures.
**Green** concentrations exceed Residential Shallow Groundwater Vapor Intrusion Human Health Risk Levels.
**Orange** concentrations exceed LTCP concentrations in groundwater.

All results in micrograms per kilogram (mg/kg).
2160/2160= Duplicate result
Ben: Benzene
Tol: Toluene
EB: Ethylbenzene
Xyl: Total Xylenes
GRO: Gas Range Organics
Naph: Naphthalene

**Figure 2**
*Groundwater Sample Results*
*February 2018*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com
ERM

*Tables*

*Table 1*
*Groundwater Monitoring Wells Construction Details*
*Additional Site Characterization*
*Darling Ingredients*
*Petaluma, California*

| Well Name | Northing | Easting | Date Installed | Casing Diameter (in.) | Top of Casing Elevation (feet amsl) | Total Casing Depth (feet bgs) | Casing Depth Elevation (feet amsl) | Screen Depth (feet bgs) | Screen Elevation (feet amsl) | Filter Pack Depth (feet bgs) | Filter Pack Elevation (feet amsl) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GW-1 | 1846496.96 | 6387579.97 | 11/16/2017 | 2 | 17.01 | 28.0 | -11.0 | 18 to 28 | -0.99 to -10.99 | 16 to 30 | 1.01 to -12.99 |
| GW-2 | 1846485.57 | 6387489.69 | 11/16/2017 | 2 | 13.11 | 22.0 | -8.9 | 12 to 22 | 1.11 to -8.89 | 10 to 22 | 3.11 to -8.89 |
| GW-3 | 1846456.83 | 6387577.05 | 11/15/2017 | 2 | 15.93 | 24.0 | -8.1 | 14 to 24 | 1.93 to -8.07 | 12 to 25 | 3.93 to -9.07 |
| GW-4 | 1846373.29 | 6387494.11 | 11/15/2017 | 2 | 7.04 | 15.0 | -7.96 | 3.0 to 15 | 4.04 to -7.96 | 2.0 to 15 | 5.04 to -7.96 |

**Key:**
amsl = Above mean sea level
bgs = Below ground surface
in. = Inches

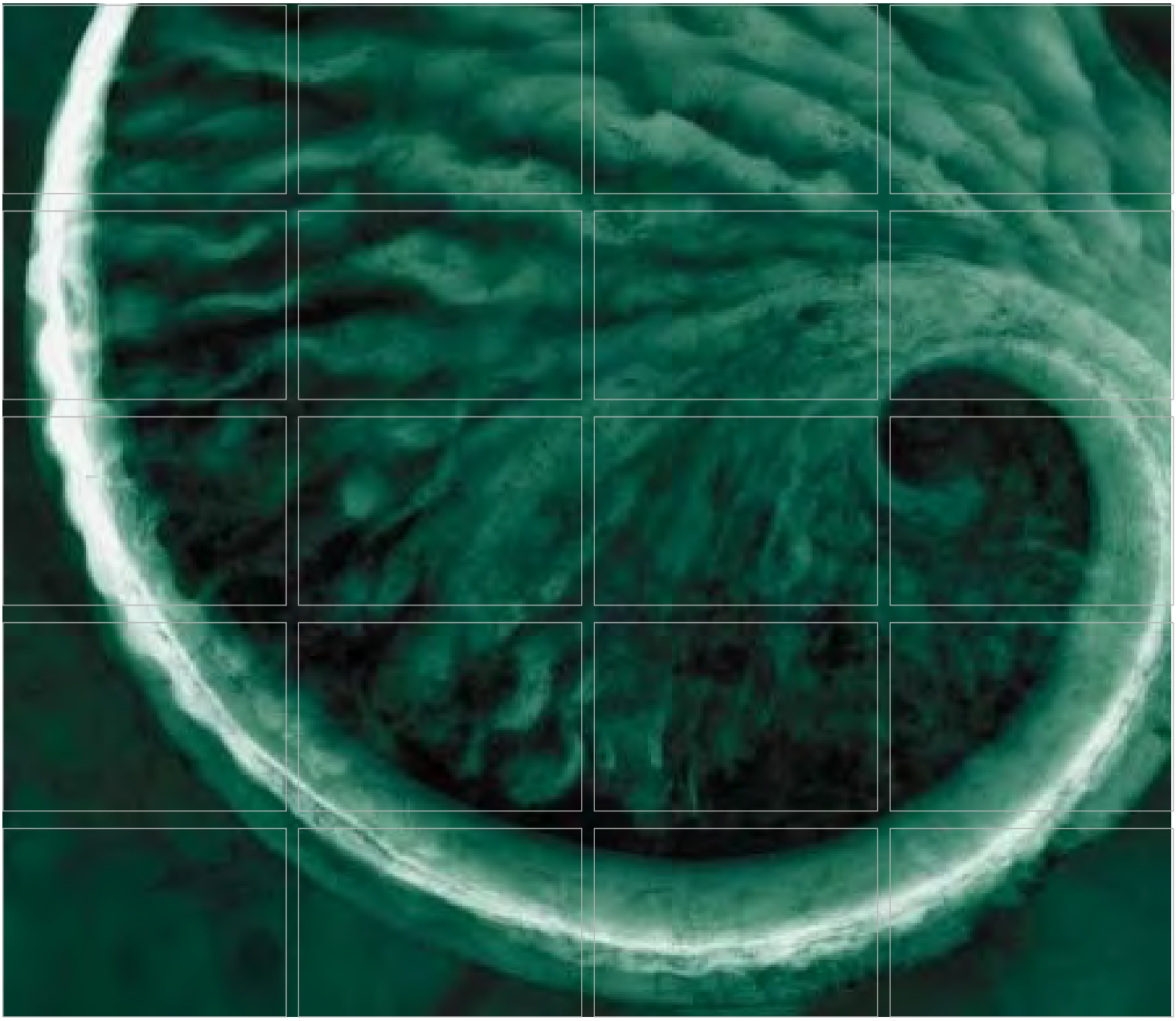
*Table 2*
*Groundwater Analytical Results & Field Measurements*
*Additional Site Characterization*
*Darling Ingredients*
*Petaluma, California*

| Location ID | Sample ID | Sample Date | GRO | n-BB | sec-BB | ISPB | p-ISPT | NAP | n-PB | 1,3,5-TMB | 1,2,4-TMB | BZ | TOL | EB | m,p-XYL | o-XYL | Xyl (Total) | MTBE | Depth-to-Water (ft bTOC) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LTCP[a] | NS* | NS | NS | NS | NS | NS | NS | NS | NS | 1,000 | NS | NS | NS | NS | NS | 1,000 | |
| | | Residential Shallow Groundwater Vapor Intrusion Screening Levels[b] | NS | NS | NS | NS | NS | 20 | NS | NS | NS | 1.1 | 3600 | 13 | NS | NS | 1300 | 1,200 | |
| GW-1 | GW-1-111717-GW | 11/17/2017 | 35,000 | 18 | 11 | 79 | <10 | 460 | 170 | 300 | 1,300 | 2,000 | 710 | 1,300 | 2,900 | 830 | 3,730 | <10 | 7.78 |
| GW-1 | GW-1-02132018-GW | 2/13/2018 | 27,000 | 28 | 12 | 65 | <10 | 330 | 140 | 220 | 800 | 1,300 | 460 | 820 | 1,700 | 430 | 2,130 | <10 | 9.99 |
| GW-1 (Dup) | GW-1-Dup-02132018-GW | 2/13/2018 | 26,000 | 25 | 12 | 64 | <10 | 320 | 140 | 220 | 820 | 1,300 | 450 | 830 | 1,700 | 430 | 2,130 | <10 | N/A |
| GW-2 | GW-2-111717-GW | 11/17/2017 | 4,300 | 3.1 | 2.6 | 8.3 | 2.1 | 44 | 14 | 50 | 180 | 450 | 20 | 82 | 340 | 100 | 440 | <1.0 | 6.68 |
| GW-2 | GW-2-02132018-GW | 2/13/2018 | 7,600 | <1.0 | 4.2 | 19 | 2.9 | 69 | 40 | 22 | 210 | 810 | 16 | 220 | 210 | 18 | 228 | <1.0 | 6.41 |
| GW-3 | GW-3-111717-GW | 11/17/2017 | 2,800 | <1.0 | 1.3 | 7.4 | 1.2 | 27 | 15 | 36 | 170 | 320 | 14 | 86 | 170 | 77 | 250 | <1.0 | 9.37 |
| GW-3 | GW-3-02132018-GW | 2/13/2018 | 2,800 | 2.0 | <1.0 | 5.3 | <1.0 | 17 | 10 | 22 | 68 | 170 | 6.7 | 66 | 89 | 25 | 114 | <1.0 | 9.60 |
| GW-4 | GW-4-111717-GW | 11/17/2017 | 1,400 | 3.5 | 1.4 | 3.6 | <1.0 | 16 | 11 | 14 | 57 | 43 | 5.3 | 34 | 39 | 5.6 | 45 | <1.0 | 0.45 |
| GW-4 | GW-4-02132018-GW | 2/13/2018 | 1,100 | 1.7 | <1.0 | 2.4 | <1.0 | 12 | 5.2 | 7.7 | 32 | 130 | 9.0 | 35 | 35 | 5.8 | 40.8 | <1.0 | 1.24 |

**Notes and Key:**
Concentrations reported in micrograms per liter (µg/L).
a = Low Threat Closure Policy - Appendix 3/Scenario 3 Dissolved-Phase Benzene Concentrations in Groundwater
b = San Francisco Bay Regional Water Quality Control Board, Residential Groundwater Vapor Intrusion Screening Levels for Shallow Groundwater (GW-3), Feb. 2016; Only detected compounds shown on table.
*= No Low Threat Closure Policy GRO standard, however, for purpose of defining contaminant plume length a GRO concentration of 100 (µg/L) is used.
= Detection above LTCP.
=Detection above Residential Shallow Groundwater Vapor Intrusion Screening Level
LTCP = Low-Threat Closure Policy; California Regional Water Quality Control Board. 2012. "Low-Threat Underground Storage Tank Case Closure Policy." 17 August 2012. Table 1.
NS = No standard
< = Less than laboratory reporting limit.

| Abbreviations | |
|---|---|
| ft BTOC | Feet below top of casing |
| GRO | Gasoline-range organics |
| n-BB | n-Butylbenzene |
| sec-BB | sec-Butylbenzene |
| ISPB | Isopropylbenzene |
| p-ISPT | p-Isopropyltoluene |
| NAP | Naphthalene |
| n-PB | n-Propylbenzene |
| 1,3,5-TMB | 1,3,5-Trimethylbenzene |
| 1,2,4-TMB | 1,2,4-Trimethylbenzene |
| BZ | Benzene |
| TOL | Toluene |
| EB | Ethylbenzene |
| m,p-XYL | m,p-Xylene |
| o-XYL | o-Xylene |
| MTBE | Methyl tert-butyl ether |
| N/A | Not Applicable |

| The following compounds were analyzed for, but not detected. Full laboratory report presented in Appendix F. | | |
|---|---|---|
| Bromobenzene | Dibromomethane | trans-1,3-Dichloropropene |
| Bromochloromethane | 1,2-Dichlorobenzene | Hexachlorobutadiene |
| Bromodichloromethane | 1,3-Dichlorobenzene | Methylene chloride |
| Bromoform | 1,4-Dichlorobenzene | Styrene |
| Bromomethane | Dichlorodifluoromethane | 1,1,2,2-Tetrachloroethane |
| tert-Butylbenzene | 1,1-Dichloroethane | 1,1,1,2-Tetrachloroethane |
| Carbon tetrachloride | 1,2-Dichloroethane | Tetrachloroethene |
| Chlorobenzene | 1,1-Dichloroethene | 1,2,3-Trichlorobenzene |
| Chloroethane | cis-1,2-Dichloroethene | 1,2,4-Trichlorobenzene |
| Chloroform | trans-1,2-Dichloroethene | 1,1,2-Trichloroethane |
| Chloromethane | 1,2-Dichloropropane | 1,1,1-Trichloroethane |
| 2-Chlorotoluene | 1,3-Dichloropropane | Trichloroethene |
| 4-Chlorotoluene | 2,2-Dichloropropane | Trichlorofluoromethane |
| Dibromochloromethane | 1,1-Dichloropropene | 1,2,3-Trichloropropane |
| 1,2-Dibromo-3-chloropropane | cis-1,3-Dichloropropene | Vinyl chloride |
| 1,2-Dibromoethane | | |



# Additional Site Characterization Summary Report

**Prepared for:**
Darling Ingredients Inc.

**2592 Lakeville Highway**
**Petaluma, California**
**EHS Site #00001359,**
**SFBRWQCB #49-0142**

February 2018
www.erm.com

ERM

*The business of sustainability*

*© Copyright 2018 by ERM Worldwide Group Ltd and/or its affiliates ("ERM"). All rights reserved. No part of this work may be reproduced or transmitted in any form, or by any means, without the prior written permission of ERM.*

Darling Ingredients Inc.

# Additional Site Characterization Summary Report

2592 Lakeville Highway
Petaluma, California
EHS Site #00001359,
SFBRWQCB #49-0142

February 2018

Project No. 0334845



Mark Ransom, P.E.
*Principal-in-Charge*



Christopher Berg, P.G.
*Project Manager*

**Environmental Resources Management**
1277 Treat Blvd, Suite 500
Walnut Creek, California 94596
T: 925-946-0455
F: 925-946-9968

*TABLE OF CONTENTS*


*TABLE OF CONTENTS* *I*

*LIST OF FIGURES* *III*

*LIST OF TABLES* *IV*

*LIST OF ACRONYMS* *V*

*1.0 INTRODUCTION* *1*

*1.1 SITE DESCRIPTION* *1*
*1.1.1 Background* *1*
*1.1.2 Recent Activities* *2*

*1.2 PROJECT OBJECTIVES* *3*

*1.3 DOCUMENT ORGANIZATION* *3*

*2.0 SUMMARY OF FIELD ACTIVITIES* *5*

*2.1 PRE-INVESTIGATION ACTIVITIES* *5*

*2.2 DIRECT-PUSH INVESTIGATION* *6*
*2.2.1 Membrane Interface Hydraulic Profiling Investigation* *6*
*2.2.2 Soil Sample Collection and Analysis* *6*

*2.3 MONITORING WELL INSTALLATION* *7*
*2.3.1 Monitoring Well Development* *8*

*2.4 BENCH STUDY SAMPLE COLLECTION AND ANALYSIS* *8*
*2.4.1 Bulk Soil Sample Collection and Analysis* *8*
*2.4.2 Bulk Groundwater Collection and Analysis* *9*

*2.5 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS* *10*

*2.6 INVESTIGATION-DERIVED WASTE* *10*

*2.7 DEVIATIONS FROM WORKPLAN* *ERROR! BOOKMARK NOT DEFINED.*

*3.0 INVESTIGATION RESULTS* *12*

*3.1 DIRECT-PUSH INVESTIGATION RESULTS* *12*
*3.1.1 Membrane Interface Hydraulic Profiling Investigation Results* *12*
*3.1.2 Soil Sample Analytical Results* *13*

*3.2 BENCH STUDY RESULTS* *15*

*3.3 GROUNDWATER RESULTS* *16*

*3.4 DATA VALIDATION* *18*

*4.0 CONCLUSION* *19*

*5.0 REFERENCES* *20*

*APPENDIX A – PERMITS*

*APPENDIX B – MIHPT INVESTIGATION RESULTS*

*APPENDIX C – SOIL LABORATORY ANALYTICAL REPORT*

*APPENDIX D – MONITORING WELL CONSTRUCTION LOGS*

*APPENDIX E – MONITORING WELL DEVELOPMENT LOGS*

*APPENDIX F – BENCH STUDY REPORT*

*APPENDIX G – GROUNDWATER SAMPLING PURGE DETAILS*

*APPENDIX H – GROUNDWATER LABORATORY ANALYTICAL REPORT*

*APPENDIX I – INVESTIGATION-DERIVED WASTE ANALYTICAL REPORT AND SIGNED WASTE MANIFESTS*

*APPENDIX J – DATA VALIDATION REPORT*

*LIST OF FIGURES*

*(Figures immediately follow the text)*

*Figure 1* *Site Location*

*Figure 2* *Soil Sample Results*

*Figure 3* *Groundwater Sample Results*

*LIST OF TABLES*

*(Tables immediately follow the Figures)*

*Table 1* *Groundwater Monitoring Wells Construction Details*

*Table 2* *Soil Analytical Results*

*Table 3* *Groundwater Analytical Results*

*LIST OF ACRONYMS*

| | |
|---|---|
| µg/L | Micrograms per liter |
| AEI | AEI Consultants |
| bgs | Below ground surface |
| bngs | Below native ground surface |
| COCs | Chemicals of Concern |
| County | County of Sonoma, Department of Health Services |
| Darling | Darling Ingredients Inc. |
| ERM | ERM-West, Inc. |
| FID | Flame-ionization detector |
| Cr(VI) | Hexavalent Chromium |
| LTCP | Low-Threat Closure Policy |
| MFG | MFG, Inc. |
| mg/kg | Milligrams per kilogram |
| MiHPT | Membrane Interface Hydraulic Profiling |
| PID | Photoionization detector |
| ppm | Part per million |
| Prima | Prima Environmental, Inc. |
| PVC | Polyvinyl chloride |
| SFBRWQCB | San Francisco Bay Regional Water Quality Control Board |
| TPH-D | Total petroleum hydrocarbons in the diesel range |
| TPH-G | Total petroleum hydrocarbons in the gasoline range |
| USEPA | United States Environmental Protection Agency |
| UST | Underground storage tank |

## 1.0 INTRODUCTION

On behalf of Darling Ingredients Inc. (Darling), ERM-West, Inc. (ERM) has prepared this *Additional Site Characterization Summary Report* for the former Royal Tallow property located at 2592 Lakeview Highway in Petaluma, California (Figure 1).

The site investigation activities were performed between 3 October and 17 November 2017, in accordance with the following documents/communications approved by Sonoma County Department of Health Services (County):

- *Additional Site Characterization Workplan* (ERM 2017); and
- Additional Site Characterization Workplan Approval Letter (County 2017a).

This document describes the methods used to obtain Membrane Interface Hydraulic Profiling (MiHPT) results, install temporary groundwater monitoring wells, collect and analyze soil and groundwater samples; and summarizes the results of the MiHPT investigation and soil and groundwater sampling.

## 1.1 SITE DESCRIPTION

The property is located at 2592 Lakeview Highway in Petaluma, California. The property is currently bounded by a dog park to the west, apartments to the north, and a warehouse to the east. The southern portion of the property is surrounded by undeveloped land, and abuts the Petaluma River.

### 1.1.1 Background

The former facility was operated by the Royal Tallow Company between approximately 1941 and 1986. As part of its operations, Royal Tallow operated two fuel underground storage tanks (USTs) containing regular unleaded gasoline. The Sonoma County Leaking Underground Storage Tank Local Oversight Program opened Case EHS Site #00001359 (San Francisco Bay Regional Water Quality Control Board [SFBRWQCB] #49-0142) for the tanks in 1989. Between 1989 and 2004, Royal Tallow removed the tanks, investigated soil and groundwater conditions around the area of the tanks, and excavated accessible contaminated soil.

Approximately 2,400 cubic yards of hydrocarbon contaminated soil was excavated from the former UST location in phases between November 2000 and June 2001 (MFG, Inc. [MFG] 2002). The approximate lateral limits of the excavation are shown on Figure 2 and the depth of excavation was approximately 6 feet below ground surface (bgs). The excavated soil was treated on site via bioremediation by MFG, using X-19, a microbiological humic polymer product. Once confirmation sampling showed that the bioremediated soil contained hydrocarbon concentrations below the target remediation levels,[1] the treated soil was returned to the excavation area as backfill. The backfill was graded and compacted. The final ground surface approximated the surrounding and original site grade.

All work was conducted under County and SFBRWQCB oversight and was documented in the *Soil Remediation Report* (MFG 2002). The County, with SFBRWQCB approval, closed the UST case on 30 July 2004, after reviewing the *Soil Remediation Report* and all underlying data, including confirmation sampling. The County determined that the cleanup action met the cleanup goals to a sufficiently protective degree based upon the then-current commercial/industrial use, and in the Case Closure Summary acknowledged that (1) residual petroleum hydrocarbon contamination remained at the site in excess of applicable cleanup levels; and (2) corrective action could be required if the land use changed, and future site development should address the presence of residual soil contamination, proper handling, and disposal. These remedial actions are described in further detail in the *Soil Remediation Report* (MFG 2002). As the cleanup goals and planned land use were intended for industrial/commercial purposes, the potential presence of soil vapor did not play a role in defining the County's cleanup goals and closure requirements at the time.

### *1.1.2 Recent Activities*

In 2008, Darling sold the property to Baywood LLC (Baywood). Baywood demolished all remaining structures and reportedly undertook, for a period of time, various operations such as concrete crushing, grinding, materials reclamation, stockpiling of reclaimed and crushed materials (e.g., concrete, asphalt), the import and stockpiling of fill material, and

[1] Target soil remediation levels were 1.0 milligram per kilogram (mg/kg) for total petroleum hydrocarbons as gasoline (TPH-G) and 0.0075 mg/kg for any benzene, toluene, ethylbenzene, and xylene compounds.

fueling and maintenance of industrial equipment. Several soil stockpiles generated from these operations are present at the site, totaling approximately 25,000 cubic yards. The former location of the USTs is overlain by the stockpiled material. The site remains vacant and undeveloped, and, according to a letter from Baywood to the County dated 26 April 2016, "there is no current plan to redevelop the Property."

In September 2015, the County received a *Phase II Subsurface Investigation* Report (Phase II Report) from AEI Consultants (AEI), dated 2 September 2014. The report contained analytical results exceeding screening levels in the area of the former USTs.

On 9 December 2015, Darling received notice from the County that they had reopened the previously closed case. The case was reopened based on the publication of data in the AEI Phase II Report (AEI 2014) conducted on behalf of DeNova Homes, Inc., a prospective purchaser of the property. The AEI Phase II Report indicated that soil vapor concentrations within the former UST remediation area exceeded acceptable residential risk levels.

## *1.2 PROJECT OBJECTIVES*

The data collected and analyzed as part of the 2017 Additional Site Characterization will be used to support the development of a site conceptual model and evaluation of remedial alternatives as part of the County's 18 April 2017 *Feasibility Study /Corrective Action Plan Directive* (County, 2017b).

## *1.3 DOCUMENT ORGANIZATION*

Following this introductory section, this document is organized into the following sections:

- Section 2 provides a summary of field activities, including pre-investigation activities, direct-push investigation, temporary monitoring wells installation, sampling activities, and waste derived as part of the additional site investigation;
- Section 3 summarizes the results of the additional site investigation;
- Section 4 presents conclusions and recommendations to complete certification of the site; and

- Section 5 presents a list of references used in the preparation of this report.

Figures and tables follow the text. Appendices to this report include:

- Appendix A – Permits;
- Appendix B – MiHPT Investigation Results;
- Appendix C – Soil Laboratory Analytical Report;
- Appendix D – Monitoring Well Construction Logs;
- Appendix E – Monitoring Well Development Logs;
- Appendix F – Bench Study Report;
- Appendix G – Groundwater Sampling Purge Details;
- Appendix H – Groundwater Laboratory Analytical Report;
- Appendix I – Investigation-Derived Waste Analytical Report and Signed Waste Manifests; and
- Appendix J – Data Validation Report.

## 2.0 SUMMARY OF FIELD ACTIVITIES

This section summarizes the investigation activities performed. Field activities performed between 3 October and 17 November 2017 include:

- Pre-fieldwork, including permitting with the County and clearance for subsurface utilities;
- Direct-push investigation of four soil boring locations;
- Installation and development of four temporary monitoring wells;
- Collection and submittal of Bench Study bulk soil and bulk groundwater samples from all four soil borings and temporary groundwater monitoring wells for oxidant evaluation;
- Collection and submittal of groundwater samples from all four on-site temporary monitoring wells for laboratory analyses;
- Management of investigation-derived waste; and
- Remaining field activities from the August 2017 *Additional Site Characterization Workplan* (ERM 2017).

The locations of the newly installed temporary monitoring wells are presented on Figure 2.

### 2.1 PRE-INVESTIGATION ACTIVITIES

Consistent with the County-approved *Additional Site Characterization Workplan* (ERM 2017), and prior to the initiation of the MiHPT boring investigation and temporary monitoring wells installation, a number of pre-investigation activities were conducted, as follows:

- ERM secured drilling and boring permits from the County (Appendix A).
- ERM prepared a site-specific Health and Safety Plan for this project.
- All proposed drilling locations were marked prior to performing any subsurface activities and Underground Services Alert North, a notification service for marking underground utilities on public rights of way, was notified on 30 August 2017, prior to initiating the proposed work. In addition, ERM contracted with Ground Penetrating Radar Systems, Inc., to locate and mark underground utilities (where present) near all proposed drilling locations with radio detection and ground-penetrating radar technology.

- All proposed drilling locations were air knife cleared to a minimum depth of 5 feet bgs. No subsurface conflicts were observed during investigation activities.

## 2.2 *DIRECT-PUSH INVESTIGATION*

The following subsections summarize the direct-push investigation activities, which included MiHPT investigation and soil sample collection and analysis.

### 2.2.1 *Membrane Interface Hydraulic Profiling Investigation*

Four MiHPT borings were advanced using a direct-push rig with a MiHPT tip, operated by a California-certified C-57 driller and under an approved permit obtained from the County (Appendix A). The borings were advanced 15 to 20 feet below native ground surface (bngs). Data for the first 5 feet bgs were not obtained at MiHPT 1 through MiHPT 3 due to the subsurface clearance procedure requirements. The MiHPT investigation results can be found in Appendix B.

The MiHPT borings were abandoned by grouting once the probe was removed from the borehole and all data confirmed. The generated MiHPT data were used to select the locations for collection of representative soil samples and temporary groundwater monitoring wells.

### 2.2.2 *Soil Sample Collection and Analysis*

Per the instruction of the County, as documented in the *County Additional Site Characterization Workplan Approval Correspondence* (County 2017a), soil samples were collected during installation at each temporary groundwater monitoring well location. Soil sampling was conducted via Terra Core™ methodology. Target depths were identified with photoionization detector (PID) readings greater than 100 parts per million (ppm), representing areas of impact, and with MiHPT flame ionization detector readings stabilizing near 0 ppm, representing the non-impacted soil below.

Subsurface materials from recovered soil cuttings were described by a field geologist under the supervision of a California-registered Professional Geologist and consistent with the Unified Soil Classification System. Soil type, size, and color were noted, along with any evidence suggesting hydrocarbon contamination (i.e., visual staining and/or elevated PID readings).

Soil samples were delivered to SunStar Laboratories, Inc., in Lake Forest, California. The soil samples were analyzed for volatile organic compounds and total petroleum hydrocarbons in the gasoline range (TPH-G) using United States Environmental Protection Agency (USEPA) Method 8260B. Soil sampling results are presented in Table 2 and the laboratory analytical report is provided in Appendix C.

Soil and groundwater samples collected during the investigation efforts have been evaluated against the *Low-Threat Underground Storage Tank Closure Policy* established by the California Regional Water Quality Control Board. For groundwater constituents that do not have an established Low-Threat Closure Policy (LTCP) standard, the Residential Shallow Groundwater Vapor Intrusion Screening Levels established by the SFBRWQCB was utilized. For the purpose of defining the plume length, a gasoline range organics (GRO) concentration of 100 µg/L was utilized.

## *2.3 MONITORING WELL INSTALLATION*

The four temporary monitoring wells were drilled using a direct-push rig with a hollow stem auger attachment, operated by a California C-57 driller and under an approved permit obtained from the County (Appendix A). The temporary monitoring wells were drilled over the temporary soil boring locations and advanced from 12 to 18 feet bngs.

Temporary monitoring wells GW-1, GW-2, and GW-3 were constructed using 10 feet of 2-inch-diameter, machine slotted, polyvinyl chloride (PVC) well screen (0.010-inch openings) and 2-inch-diameter, Schedule 40, blank PVC casing set from the top of the screened interval to ground surface. GW-4 was constructed using 12 feet of 2-inch-diameter, machine slotted, PVC well screen (0.010-inch openings) and 2-inch-diameter, Schedule 40, blank PVC casing set from the top of the screened interval to ground surface. All well casing and screen joints were flush-threaded, and no glues or solvents were used.

Temporary monitoring wells GW-2 and GW-4 were filled from 30 to 22 feet bgs and 25 to 15 feet bgs, respectively, with Portland I/II grout, as the bulk soil sample borings occurred at the exact same locations. The well screens and casings were placed in the center of the borings and the annulus filled with #2/12 Lupis Luster sand from the bottom of the borings to 2 feet above the top of the screen.

A transition seal consisting of 1 foot at GW-4 and 2 feet at GW-1, GW-2, and GW-3 of hydrated bentonite was placed above the sand. Each temporary monitoring well contained a surface seal consisting of Portland I/II grout which was placed from the top of the transition seal to just below ground surface. The temporary monitoring wells were completed with a flush-mounted well box. The monitoring well construction details are provided in Table 1 and Appendix D.

### *2.3.1 Monitoring Well Development*

The temporary monitoring wells were developed following the procedures outlined in the *Monitoring Well Development Guidelines for Superfund Project Managers* (USEPA 1992). The monitoring well was developed using the surge/bail/pump method. Multiple depth intervals within the well screen zone were surged to flush and clean the well's filter pack. Approximately 5 gallons and 20 gallons of water were bailed at GW-1 through GW-3 and GW-4, respectively, to recover as much sediment as possible from the base of the well casing. Approximately 25, 15, 80, and 22 gallons were removed at GW-1, GW-2, GW-3, and GW-4, respectively, by mechanical pumping from within the screened zone to remove turbid water. Water at the end of the well development process was visibly clear and ranged from 2.50 Nephelometric turbidity units at GW-3 to 8.75 Nephelometric turbidity units at GW-2. The monitoring well development details are provided in Appendix E.

## *2.4 BENCH STUDY SAMPLE COLLECTION AND ANALYSIS*

The following subsections summarize the bench study results, which included bulk soil and groundwater sample collection and analyses.

### *2.4.1 Bulk Soil Sample Collection and Analysis*

Three borings were drilled to collect approximately 5 kilograms combined of impacted soils from GW-1, GW-2, and GW-3, prior to installation of the temporary monitoring wells. The borings were advanced using a direct-push drill rig, operated by a California C-57 driller and under an approved permit obtained from the County. The bulk soil samples were collected from the impacted interval. The impacted interval was defined where PID readings were 100 ppm or greater and where soil staining was observed. This interval was approximately 3 to 11 feet bngs and occurred within the original excavation footprint (Figure 2). The bulk soil samples were collected in acetate soil liners and capped with Teflon-lined caps for shipment to Prima Environmental, Inc. (Prima) in El Dorado Hills,

California. The samples were placed on ice in a cooler for shipment to the laboratory. The bench study included analysis for Soil Oxygen Demand (SOD) and base buffering capacity. The results will be used to determine the contaminant degradation ratio in order to evaluate if in situ remedial technologies are a viable option.

A fourth boring was drilled to collect approximately 1 kilogram of clean soils for the SOD study. The boring was advanced using a direct-push drill rig, operated by a California-certified C-57 driller and under an approved permit obtained from the County. The bulk soil sample was collected from a similar depth as the impacted bulk samples. The clean sample was collected at GW-4 prior to installation of the downgradient temporary groundwater monitoring well outside of the impacted zone. The bulk clean soil sample was collected in an acetate soil liner and capped with Teflon-lined caps for shipment to the laboratory. The soil samples were placed on ice in a cooler for shipment to the laboratory.

Upon completion of the bulk soil collection, the borings were backfilled with grout from total depth to the base of the respective groundwater monitoring well to be installed in the same hole.

### *2.4.2 Bulk Groundwater Collection and Analysis*

A combined 4 liters of impacted water was collected from temporary monitoring wells GW-1, GW-2, and GW-3, which had previously shown the highest concentrations of TPH-G and benzene. In addition, one liter of unimpacted groundwater sample was collected from temporary monitoring well GW-4, located downgradient from the limits of the former remedial excavation footprint. Groundwater samples were collected using a portable pump and purging equipment connected to disposable tubing. A minimum of three well casing volumes of water were purged using the portable pump. Field parameters were collected with a flow cell equipped with probes to monitor the following parameters: conductivity, oxidation reduction potential, dissolved oxygen, pH, and temperature. Additional purging occurred at all groundwater monitoring well locations to ensure field parameter stabilization within 10 percent prior to sampling. A maximum of five purge volumes were removed prior to sampling.

All groundwater samples were placed on ice in a cooler for shipment to Prima.

The bulk groundwater samples were used to set up the bench study and were included for analysis for SOD. The bench study results were used to determine the contaminant degradation ratio in order to evaluate if in situ remedial technologies are a viable option. The bench study report is provided in Appendix F.

## 2.5 *GROUNDWATER SAMPLE COLLECTION AND ANALYSIS*

Groundwater samples were collected from the temporary groundwater monitoring wells, using a portable pump and purging equipment connected to disposable tubing, and sent to SunStar Laboratories, Inc., in Lake Forest, California.

A minimum of three well casing volumes of water were purged using the portable pump. Field parameters were collected with a flow cell equipped with probes to monitor the following parameters: conductivity, oxidation reduction potential, dissolved oxygen, pH, and temperature. Additional purging occurred at all at groundwater monitoring well locations to ensure field parameter stabilization within 10 percent prior to sampling.

The purge water was collected and stored in a properly labeled California Department of Transportation (DOT) approved container. The groundwater sampling purge details are provided in Appendix G.

Groundwater samples were collected in laboratory-supplied containers and submitted for the following analyses:

- Volatile organic compounds by USEPA Method 8260b; and
- TPH-G by USEPA Method 8015.

The groundwater analytical report is provided in Appendix H. An additional groundwater sampling event will be conducted in February 2018 to evaluate temporal variation in groundwater.

## 2.6 *INVESTIGATION-DERIVED WASTE*

Decontamination rinsate and groundwater generated from investigation activities were temporarily stored in six 55-gallon steel drums. Soil cuttings generated during investigation activities were temporarily stored on site in seven 55-gallon steel drums. Representative samples of soil and water were collected and analyzed to characterize the waste streams. The water and soil were profiled consistent with DOT requirements and were

determined to be non-hazardous. The investigation-derived waste laboratory analytical report and signed waste manifests are included in Appendix I. Both the soil and groundwater investigation-derived waste were disposed of at a licensed disposal facility.

## *3.0 INVESTIGATION RESULTS*

Section 3.0 summarizes the results of Additional Site Characterization performed between 3 October and 17 November 2017.

## *3.1 DIRECT-PUSH INVESTIGATION RESULTS*

The following subsections summarize the direct-push investigation results, which included MiHPT investigation results and soil sample results.

### *3.1.1 Membrane Interface Hydraulic Profiling Investigation Results*

As described in Section 2.2.1, four MiHPT borings were advanced at various depths using a direct-push rig with a MiHPT tip, operated by a California-certified C-57 driller. The results of the of MiHPT investigation are presented in Appendix B. In general, the results are as follows:

- PID Max:
  - Spikes in PID results were observed at all four MiHPT boring locations and generally correspond to the respective soil concentrations reported at the adjacent temporary groundwater monitoring well/soil boring location;
  - The maximum PID result was observed at MiHPT-3 at approximately 15 feet bgs; and
  - Elevated PID readings generally ranged from 1 to 10 feet bngs.
- Flame-Ionization Detector (FID):
  - Spikes in FID results were observed at all four MiHPT boring locations and generally correspond to the respective soil concentrations and PID concentrations;
  - The maximum FID result was observed at MiHPT-3 at approximately 15.5 feet bgs; and
  - Elevated FID readings generally ranged from 1 to 10 feet bngs.
- Hydraulic Conductivity (K):
  - Hydraulic conductivity/dissipation tests were successfully performed at two of the four MiHPT boring locations;

- The maximum hydraulic conductivity value recorded was observed at MiHPT-2 at approximately 15 feet/day at 19 feet bgs; and
- Distinct hydraulic conductivity values at MiHPT-2 and MiHPT-3 ranged from 5 to 15 feet/day.

Additional parameters measured, as presented in Appendix B, include Rate of Penetration of the MiHPT tip, temperature of the MiHPT tip, electrical conductivity, hydraulic profile pressure and flow Absolute Piezometric Pressure, and halogen specific detector.

### *3.1.2 Soil Sample Analytical Results*

Soil sample analytical results from the November 2017 sampling are presented in Table 2, along with the applicable screening concentrations. As outlined in the *Additional Site Characterization Workplan* (ERM 2017), the screening concentrations used for this analysis are environmental screening levels based on the *Low-Threat Underground Storage Tank Case Closure Policy* (LTCP) (State Water Quality Control Board, August 2012).

As described in Section 2.2.2, soil samples were collected at depth intervals with PID readings of 100 ppm or greater and immediately following the impacted zone based on the MiHPT data at each temporary groundwater monitoring well location. A total of eight soil samples were collected.

Three soil sample locations contained TPH-G concentrations that exceeded the LTCP soil screening criteria. Two soil sample locations contained benzene concentrations that exceeded the LTCP soil screening criteria. Locations of the constituents exceeding LTCP residential soil screening levels are noted on Figure 2. In general, the results are as follows:

- Benzene:
  - Detected in two of the eight locations (GW-2 and GW-4) at concentrations greater than the LTCP residential direct contact soil criteria of 1.9 milligrams per kilogram (mg/kg) and the LTCP residential volatilization to outdoor air soil criteria of 2.8 mg/kg;
  - The maximum detected benzene concentration was 5.1 mg/kg at GW-02 at 14 feet bgs.
- Toluene:

- No screening level for toluene is identified in the LTCP; however, toluene was detected in four of the eight soil samples; and
- The maximum detected toluene concentration was 1.2 mg/kg at GW-04 at 7 feet bgs.

- Ethylbenzene:
  - Detected in five of the eight soil samples; however, none of the samples were at concentrations greater than the LTCP residential direct contact soil criteria of 21 mg/kg or the LTCP residential volatilization to outdoor air soil criteria of 32 mg/kg; and
  - The maximum detected ethylbenzene concentration was 16 mg/kg at GW-03 at 15 feet bgs.
- Xylenes:
  - No screening level for xylenes is identified in the LTCP; however, xylenes were detected in five of the eight soil samples; and
  - The maximum detected xylenes concentration was 66 mg/kg (GW-03) at 15 feet bgs.
- Naphthalene:
  - Detected in four of the eight soil samples; however, none of the samples were at concentrations greater than the LTCP residential direct soil criteria of 9.7 mg/kg or the LTCP residential volatilization to outdoor air soil criteria of 9.7 mg/kg; and
  - The maximum detected naphthalene concentration was 8.4 mg/kg at GW-03 at 15 feet bgs.
- Methyl Tert-Butyl Ether:
  - Not detected in any of the eight soil samples; and
  - No LTCP soil screening criteria established.
- TPH-G:
  - There is no LTCP residential direct contact to soil screening level established for TPH-G. However, TPH-G was detected in seven of the eight soil samples;
  - TPH-G exceeded the LTCP residential volatilization to outdoor air soil criteria of 100 mg/kg in three of the eight soil sample locations;
  - Two of the three TPH-G exceedances occurred 15 to 19 feet below the stockpile, and the third exceedance occurred at 7 feet bgs; and

- The maximum detected TPH-G concentration was 1,400 mg/kg at GW-03 at 15 feet bgs.

Other constituents detected that do not have an associated screening level established include n-butylbenzene; sec-butylbenzene; tert-butylbenzene; isopropylbenzene; p-isopropylbenzene; n-propylbenzene; 1,2,4-trichlorobenzene; 1,3,5-trimethylbenzene; and 1,2,4-trimethylbenzene. The corresponding soil laboratory analytical reports are included in Appendix C.

## *3.2 BENCH STUDY RESULTS*

Bench-scale treatability testing was conducted on impacted soil and impacted groundwater to evaluate the suitability of PersulfOx® and RegenOx® to destroy TPH-G. Testing evaluated TPH-G destruction as well as formation of potential by-products.

Treatment with RegenOx® destroyed 68-74% within 28 days, with less than 7% volatilized; removal was likely due to a combination of oxidation and biodegradation. RegenOx® was apparently consumed in both tests by Day 7, but additional destruction could occur due to biodegradation stimulated by the oxygen produced by decomposition of RegenOx®.

Treatment with PersulfOx® destroyed 56-76% of TPH-G at Day 7, but only 13-30% at Day 28. The poorer removal at Day 28 implies that non-target compounds such as natural organic matter are present in soil or groundwater and may be oxidized by PersulfOx® to compounds that are detected as TPH-G. It is likely that these compounds would also be oxidized by PersulfOx® given a longer reaction time and or higher concentration of PersulfOx®. Residual PersulfOx® was present in both the low dose and high dose Day 28 day test, indicating that additional reaction could occur.

Treatment with PersulfOx® generated up to 1.3 mg/kg hexavalent chromium (Cr(VI)) by Day 28. No Cr(VI) was detected in the RegenOx® tests by Day 28. Generation of Cr (VI) due to oxidative remedial processes is not uncommon, but are typically found to be of transient nature. The complete bench study performed by Prima can be found in Appendix F.

## *3.3 GROUNDWATER RESULTS*

Groundwater sample analytical results from the November 2017 additional site investigation are presented in Table 3. The applicable screening concentrations used for this analysis are environmental screening levels based on the LTCP.

As described in Section 2.5, groundwater samples were collected from each of the temporary groundwater monitoring wells using a portable pump and purging equipment connected to disposable tubing. The samples were sent to SunStar Laboratories, Inc., in Lake Forest, California.

One groundwater sample location, GW-1, contained a benzene concentration that exceeded the LTCP groundwater screening criteria Appendix 3/ Scenario 3. Locations of the constituents exceeding the LTCP and SFBRWQCB Tier 1 screening levels are noted on Figure 3. In general, the results are as follows:

- Benzene:
  - Detected in one of the four locations at concentrations greater than the LTCP- Appendix 3/ Scenario 3 Dissolved-Phase Benzene Concentration in Groundwater criteria of 1,000 micrograms per liter (µg/L);
  - Detected in each groundwater monitoring well location at concentrations greater than the SFBRWQCB Tier 1 screening level of 1.0 µg/L; and
  - The maximum detected benzene concentration was 2,000 µg/L at GW-1.
- Toluene:
  - No screening level for toluene is identified in the LTCP-Appendix 3/Scenario 3 in Groundwater; however, toluene was detected in all four groundwater samples; and
  - Detected at GW-1 at 710 µg/L, which is greater than the SFBRWQCB Tier 1 screening level of 40 µg/L.
- Ethylbenzene:
  - No screening level for ethylbenzene is identified in the LTCP-Appendix 3/Scenario 3 in Groundwater; however, ethylbenzene was detected in all four groundwater samples;

- Detected in each groundwater monitoring well location at concentrations greater than the SFBRWQCB Tier 1 screening level of 13 µg/L; and
- The maximum detected ethylbenzene concentration was 1,300 µg/L at GW-1.

- Xylenes:
  - No screening level for xylenes is identified in the LTCP - Appendix 3/Scenario 3 in Groundwater; however, xylenes were detected in all four groundwater samples;
  - Detected in each groundwater monitoring well location at concentrations greater than the SFBRWQCB Tier 1 screening level of 20 µg/L; and
  - The maximum detected total xylene concentration was 3,700 µg/L at GW-1.
- Naphthalene:
  - No screening level for naphthalene is identified in the LTCP- Appendix 3/Scenario 3 in Groundwater; however, naphthalene was detected in all four groundwater samples;
  - Detected in each groundwater monitoring well location at concentrations greater than the SFBRWQCB Tier 1 screening level of 0.17 µg/L; and
  - The maximum detected total naphthalene concentration was 460 µg/L at GW-1.
- Methyl Tert-Butyl Ether:
  - Not detected in any of the four groundwater monitoring well locations. All non-detect values are less than the LTCP-Groundwater Specific Criteria for Dissolved-Phase MTBE (1,000 µg/L).
- TPH-G:
  - No screening level for TPH-G is identified in the LTCP- Appendix 3/Scenario 3 in Groundwater; however, TPH-G was detected in all four groundwater samples;
  - Detected in each groundwater monitoring well location at concentrations greater than the SFBRWQCB Tier 1 screening level of 100 µg/L; and
  - The maximum detected total TPH-G concentration was 35,000 µg/L at GW-1.

Other constituents detected that do not have an associated screening level established include n-butylbenzene; sec-butylbenzene; tert-butylbenzene; isopropylbenzene; p-isopropylbenzene; n-propylbenzene; 1,2,4-trichlorobenzene; 1,3,5-trimethylbenzene; and 1,2,4-trimethylbenzene. The corresponding groundwater laboratory analytical report is included in Appendix H.

## *3.4 DATA VALIDATION*

The data validation process evaluated analytical method QC and laboratory QC compliance, and determined the validity and applicability of all collected data. Tier 1A/1B data validation was completed internally by ERM. Based on the findings of the validation process, data validation qualifiers were assigned where applicable. The validated project data, including qualifiers and the rationale for applying a particular validation qualifier, are presented in Appendix J.

No data were determined to be unusable. All of the data, including qualified data, can be used for decision-making purposes. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

## *4.0 CONCLUSION*

The soil vapor investigation was completed between 3 October and 17 November 2017. Four MiHPT borings and four temporary groundwater monitoring wells were successfully installed. Soil and groundwater samples were successfully collected and analyzed from all four temporary groundwater monitoring well locations.

The goal of this additional investigation was to further collect and analyze site conditions to support the development of a site conceptual model and evaluation of remedial alternatives as part of the County's Feasibility Study /Corrective Action Plan Directive (County 2017b). Three soil sample locations contained THP-G and two soil sample locations contained benzene concentrations that exceeded the LTCP Volatilization to Outdoor Air Soil Criteria. Additionally, one temporary groundwater monitoring well location contained a benzene concentration that exceeded the LTCP – Appendix 3/Scenario 3 Dissolved-Phase benzene concentration in groundwater. Under these conditions, observed chemical concentrations at the site do not meet unrestricted residential LTCP risk thresholds.

As stated in the *Additional Site Characterization Workplan* (ERM 2017), two rounds of groundwater sampling were proposed in order to determine if there are temporal variations in groundwater. The second round of groundwater sampling is scheduled to occur in February 2018. Additionally, a slug test will be conducted at one of the four temporary monitoring wells during the February 2018 groundwater sampling effort. This information will be utilized in tandem with the hydraulic conductivity/dissipation data which were collected during the installation of the MiHPT borings.

Evaluation of remedial alternatives which may be considered to address the observed conditions at the site is recommended as the next step toward site re-closure.

Darling will upload relevant information to GeoTracker upon County approval of this *Additional Site Characterization Summary Report*.

## *5.0 REFERENCES*


AEI Consultants. 2014. *Phase II Subsurface Investigation, 2592 Lakeville Highway, Petaluma, California.* 2 September 2014.

ERM-West, Inc. 2017. *Additional Site Characterization Workplan, 2592 Lakeville Highway, Petaluma, California, EHS Site #00001359, SFBRWQCB #49-0142.* August 2017.

MFG, Inc. 2002. *Soil Remediation Report, Former Royal Tallow and Soap Facility, 2592 Lakeville, Highway, Petaluma, California*. Prepared for Darling International, Inc., MFG Project No. 030070.1. 31 October 2002.

San Francisco Bay Regional Water Quality Control Board. 2016. *Tier 1 Environmental Screening Levels (Rev.3)*. GW-3. Groundwater Vapor Intrusion Screening Levels. February 2016.

San Francisco Bay Regional Water Quality Control Board. 2012. *Low-Threat Underground Storage Tank Case Closure Policy*. August 2012.

Sonoma County Department of Health Services. 2017. *Additional Site Characterization Workplan – August 2017, 2592 Lakeville Hwy, Petaluma, CA, Leaking Underground Storage Tank Site, EHS Site #00001359, SFBRWQCB #49-0142.* Approval Letter. Public Health Division. 13 September 2017.

Sonoma County Department of Health Services. 2017b. *Feasibility Study /Corrective Action Plan Directive*. 18 April 2017.

United States Environmental Protection Agency. 1992. *Monitoring Well Development Guidelines for Superfund Project Managers*. April 1992.

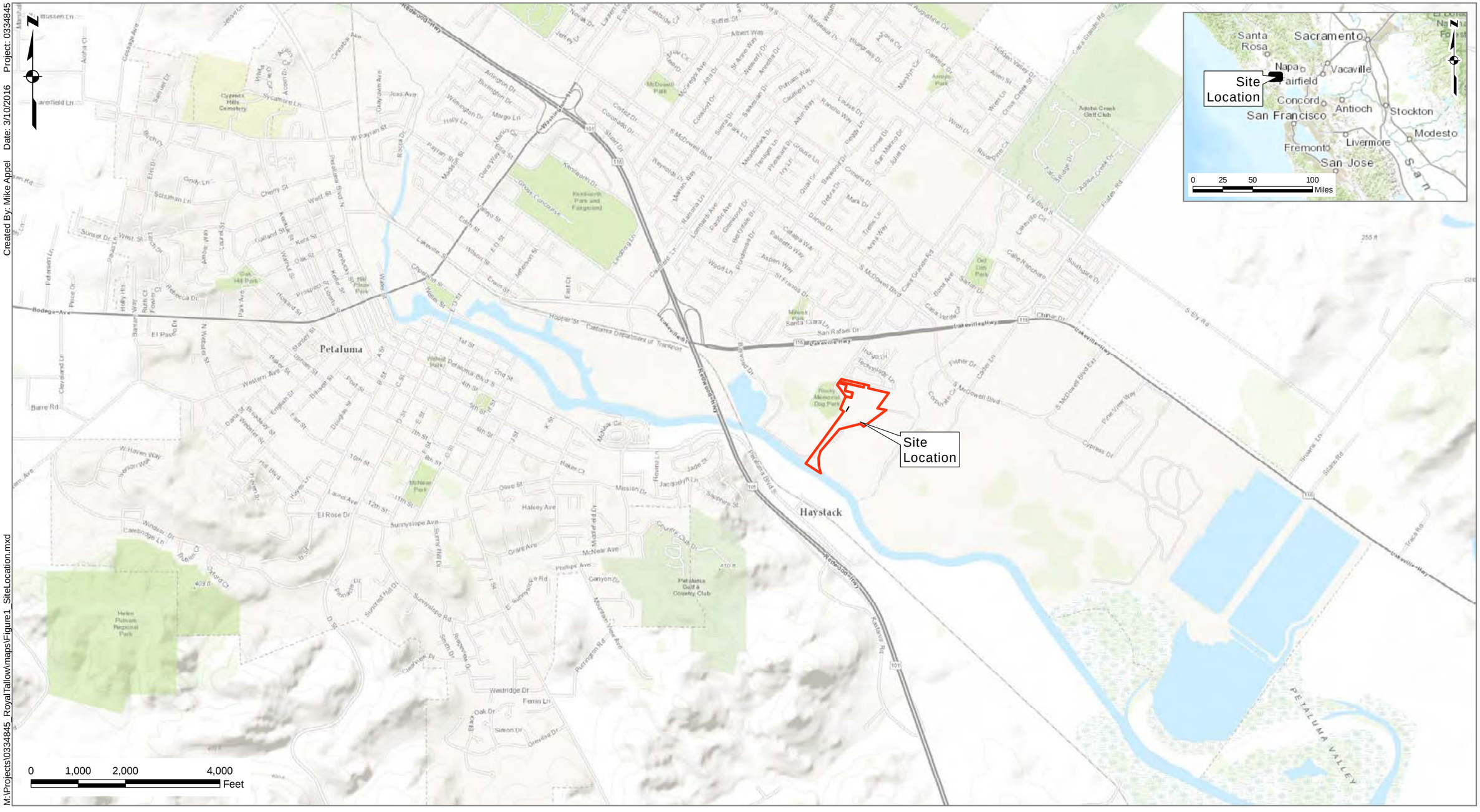
United States Environmental Protection Agency. 2017a. *National Functional Guidelines for Organic Superfund Methods Data Review*. January 2017.

United States Environmental Protection Agency. 2017b. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. January 2017.

*Figures*

Created By: Mike Appel Date: 3/10/2016 Project: 0334845

M:\Projects\0334845_RoyalTallow\maps\Figure1_SiteLocation.mxd



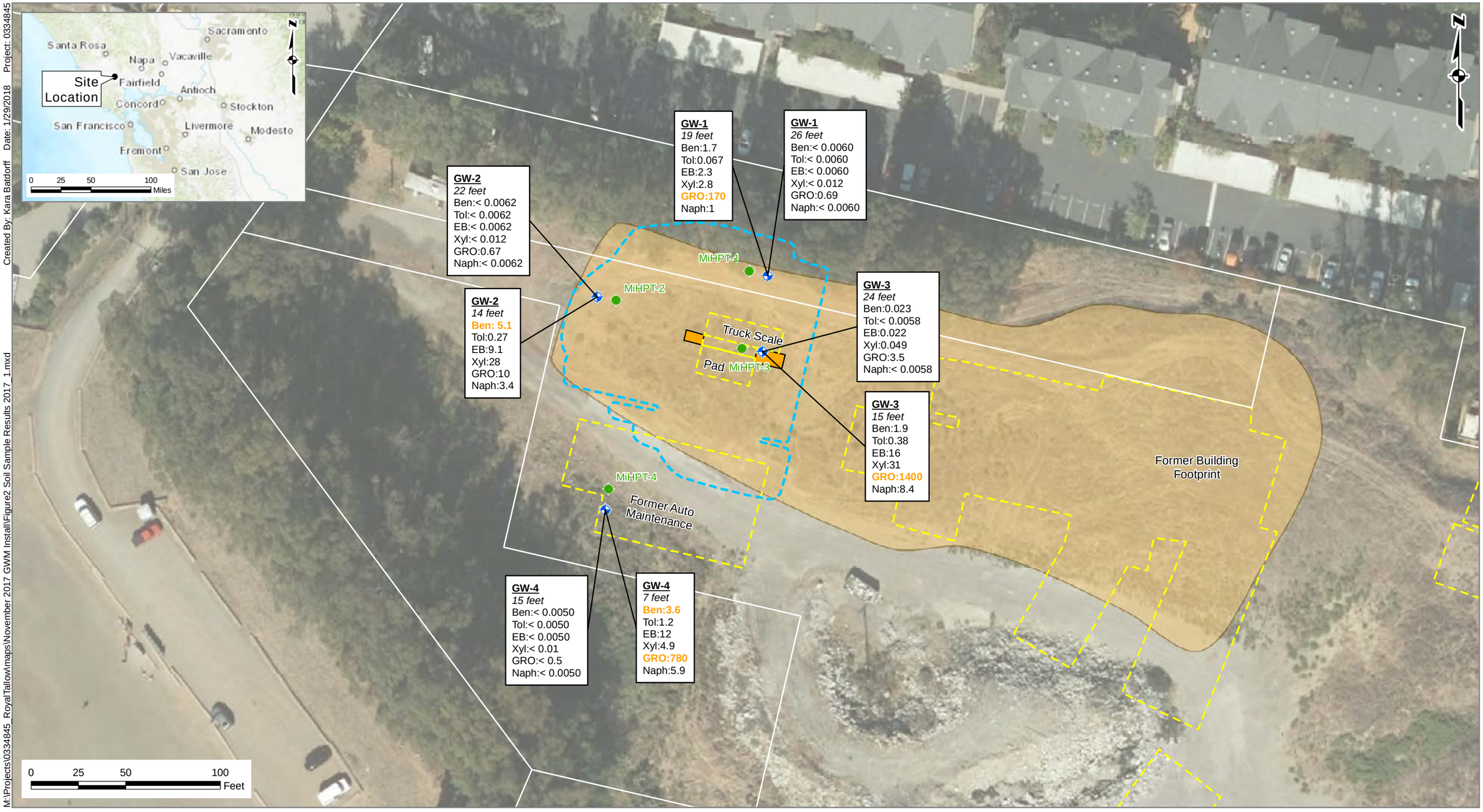

**Legend**

Subject Property

**Figure 1**
*Site Location*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

Source: ESRI World Topography Webservice NAD 1983 StatePlane California II FIPS 0402 Feet




M:\Projects\0334845_RoyalTallow\maps\November 2017 GWM Install\Figure2 Soil Sample Results 2017_1.mxd Created By: Kara Batdorff Date: 1/29/2018 Project: 0334845

## Legend

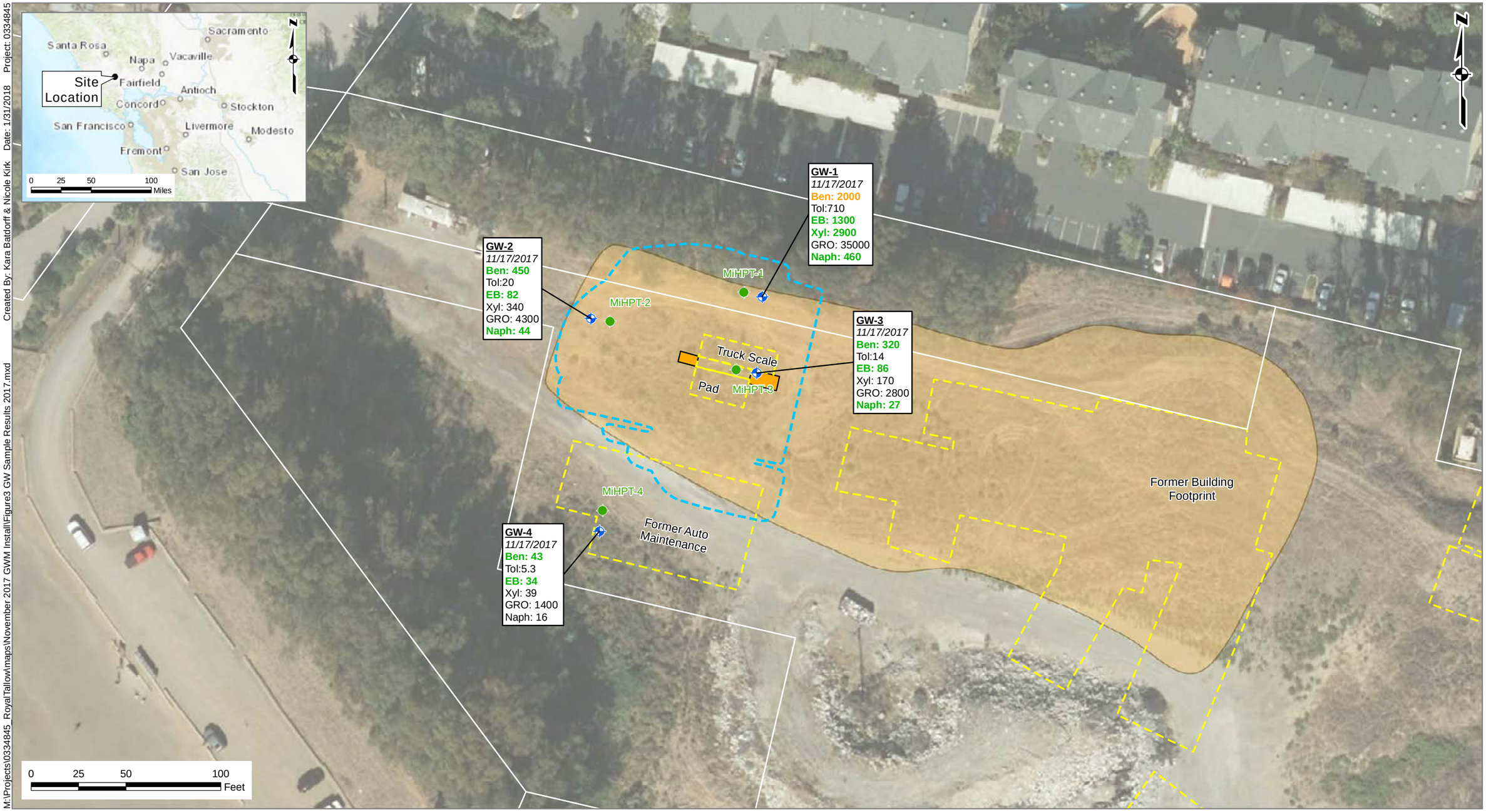
- Soil Borings Converted to Monitoring Wells
- MiHPT Location
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All historical locations approximate. Taken from historical locations figures.
**Green** concentrations exceed LTCP Direct Contact Soil Criteria (Residential).
**Orange** concentrations exceed LTCP Volatilization to Outdoor Air Criteria (Residential).
All results in micrograms per kilogram (mg/kg).
Sample depths are relative to current ground surface present at the site.

**Figure 2**
*Soil Sample Results*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com
ERM




M:\Projects\0334845_RoyalTallow\maps\November 2017 GWM Install\Figure3 GW Sample Results 2017.mxd Created By: Kara Batdorff & Nicole Kirk Date: 1/31/2018 Project: 0334845

## Legend

- MiHPT Location
- Groundwater Monitoring Well
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All historical locations approximate. Taken from historical locations figures.
**Green** Residential
Shallow Groundwater Vapor Intrusion Human Health Risk Levels
**Orange** concentrations exceed LTCP concentrations in groundwater
All results in micrograms per kilogram (mg/kg).

**Figure 3**
*Groundwater Sample Results*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com
ERM

*Tables*

*Table 1*
*Groundwater Monitoring Wells Construction Details*
*Additional Site Characterization*
*Darling Ingredients*
*Petaluma, California*

| Well Name | Northing | Easting | Date Installed | Casing Diameter (in.) | Top of Casing Elevation (feet amsl) | Total Casing Depth (feet bgs) | Casing Depth Elevation (feet amsl) | Screen Depth (feet bgs) | Screen Elevation (feet amsl) | Filter Pack Depth (feet bgs) | Filter Pack Elevation (feet amsl) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GW-1 | 1846496.96 | 6387579.97 | 11/16/2017 | 2 | 17.01 | 28.0 | -11.0 | 18 to 28 | -0.99 to -10.99 | 16 to 30 | 1.01 to -12.99 |
| GW-2 | 1846485.57 | 6387489.69 | 11/16/2017 | 2 | 13.11 | 22.0 | -8.9 | 12 to 22 | 1.11 to -8.89 | 10 to 22 | 3.11 to -8.89 |
| GW-3 | 1846456.83 | 6387577.05 | 11/15/2017 | 2 | 15.93 | 24.0 | -8.1 | 14 to 24 | 1.93 to -8.07 | 12 to 25 | 3.93 to -9.07 |
| GW-4 | 1846373.29 | 6387494.11 | 11/15/2017 | 2 | 7.04 | 15.0 | -7.96 | 3.0 to 15 | 4.04 to -7.96 | 2.0 to 15 | 5.04 to -7.96 |

**Key:**
amsl = Above mean sea level
bgs = Below ground surface
in. = Inches

*Table 2*
*Soil Analytical Results*
*Additional Site Characterization*
*Darling Ingredients*
*Petaluma, California*

| Location ID | Approximate Imported Stockpile Depth (ft bgs) | Sample ID | Sample Date | GRO | n-BB | sec-BB | tert-BB | ISPB | p-ISPT | NAP | n-PB | 1,2,4-TCB | 1,3,5-TMB | 1,2,4-TMB | BZ | TOL | EB | m,p-XYL | o-XYL | XYL (Total) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LTCP[a] | | NS | NS | NS | NS | NS | NS | 9.7 | NS | NS | NS | NS | 1.9 | NS | 21 | NS | NS | NS |
| | | LTCP[b] | | 100 | NS | NS | NS | NS | NS | 9.7 | NS | NS | NS | NS | 2.8 | NS | 32 | NS | NS | NS |
| GW-1 | 12 | GW-01-111017-19-SO | 11/10/2017 | **170** | **0.38** | **0.17** | <0.0050 | **0.38** | **0.089** | **1.0** | **1.2** | **6.0** | **1.5** | <0.0050 | **1.7** | **0.067** | **2.3** | **2.8** | **0.057** | **2.9** |
| | | GW-01-111017-26-SO | 11/10/2017 | **0.69** | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.0060 | <0.012 | <0.0060 | <0.018 |
| GW-2 | 10.5 | GW-02-111017-14-SO | 11/10/2017 | **10** | **0.54** | **0.27** | **0.0056** | **0.64** | **0.11** | **3.4** | **3.9** | <0.0050 | **6.5** | **22** | **5.1** | **0.27** | **9.1** | **28** | **8.0** | **36.0** |
| | | GW-02-111017-22-SO | 11/10/2017 | **0.67** | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.0062 | <0.012 | <0.0062 | <0.018 |
| GW-3 | 11.5 | GW-03-111017-15-SO | 11/10/2017 | **1,400** | **7.2** | **0.58** | <0.0082 | **3.7** | **0.25** | **8.4** | **13** | <0.0082 | **20** | **68** | **1.9** | **0.38** | **16** | **31** | **10** | **41** |
| | | GW-03-111017-24-SO | 11/10/2017 | **3.5** | <0.0058 | <0.0058 | <0.0058 | <0.0058 | <0.0058 | <0.0058 | **0.0072** | <0.0058 | **0.010** | **0.029** | **0.023** | <0.0058 | **0.022** | **0.049** | **0.020** | **0.069** |
| GW-4 | 0 | GW-04-111017-7-SO | 11/10/2017 | **780** | **2.9** | **1.1** | <0.29 | **2.0** | **0.53** | **5.9** | **6.5** | <0.29 | **1.2** | **1.1** | **3.6** | **1.2** | **12** | **4.9** | **0.93** | **5.8** |
| | | GW-04-111017-15-SO | 11/10/2017 | <0.50 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.010 | <0.0050 | <0.015 |

**Notes and Key:**
Concentrations reported in milligrams per kilogram (mg/kg).
a = LTCP - Direct Contact to Soil Criteria (0 to 5 feet bgs) - mg/kg.
b = LTCP - Volatilization to Outdoor Air Soil Criteria (5 to 10 feet bgs) - mg/kg.
= Detection above LTCP Direct Contact Soil Criteria (0 to 5 feet bgs)
= Detection above LTCP Volatilization to Outdoor Air Soil Criteria (5 to 10 feet bgs)
bgs = Below ground surface
LTCP = Low-Threat Closure Policy; California Regional Water Quality Control Board. 2012. "Low-Threat Underground Storage Tank Case Closure Policy." 17 August 2012. Table 1.
NS = No standard
< = Less than laboratory reporting limit.

**ical Abbreviations**

| Chemical | Abbreviation |
|---|---|
| GRO | Gasoline-range organics |
| n-BB | n-Butylbenzene |
| sec-BB | sec-Butylbenzene |
| tert-BB | tert-Butylbenzene |
| ISPB | Isopropylbenzene |
| p-ISPT | p-Isopropyltoluene |
| NAP | Naphthalene |
| n-PB | n-Propylbenzene |
| 1,2,4-TCB | 1,2,4-Trichlorobenzene |
| 1,3,5-TMB | 1,3,5-Trimethylbenzene |
| 1,2,4-TMB | 1,2,4-Trimethylbenzene |
| BZ | Benzene |
| TOL | Toluene |
| EB | Ethylbenzene |
| m,p-XYL | m,p-Xylene |
| o-XYL | o-Xylene |

**The following compounds were analyzed for, but not detected. Full laboratory report presented in Appendix E.**

| | | |
|---|---|---|
| Bromobenzene | Dibromomethane | trans-1,3-Dichloropropene |
| Bromochloromethane | 1,2-Dichlorobenzene | Hexachlorobutadiene |
| Bromodichloromethane | 1,3-Dichlorobenzene | Methylene chloride |
| Bromoform | 1,4-Dichlorobenzene | Styrene |
| Bromomethane | Dichlorodifluoromethane | 1,1,2,2-Tetrachloroethane |
| Carbon tetrachloride | 1,1-Dichloroethane | 1,1,1,2-Tetrachloroethane |
| Chlorobenzene | 1,2-Dichloroethane | Tetrachloroethene |
| Chloroethane | 1,1-Dichloroethene | 1,2,3-Trichlorobenzene |
| Chloroform | cis-1,2-Dichloroethene | 1,1,2-Trichloroethane |
| Chloromethane | trans-1,2-Dichloroethene | 1,1,1-Trichloroethane |
| 2-Chlorotoluene | 1,2-Dichloropropane | Trichloroethene |
| 4-Chlorotoluene | 1,3-Dichloropropane | Trichlorofluoromethane |
| Dibromochloromethane | 2,2-Dichloropropane | 1,2,3-Trichloropropane |
| 1,2-Dibromo-3-chloropropane | 1,1-Dichloropropene | Vinyl chloride |
| 1,2-Dibromoethane | cis-1,3-Dichloropropene | Methyl tert-butyl ether |

*Table 3*
*Groundwater Analytical Results*
*Additional Site Characterization*
*Darling Ingredients*
*Petaluma, California*

| Location ID | Sample ID | Sample Date | GRO | n-BB | sec-BB | ISPB | p-ISPT | NAP | n-PB | 1,3,5-TMB | 1,2,4-TMB | BZ | TOL | EB | m,p-XYL | o-XYL | Xyl (Total) | MTBE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LTCP[a]** | | | **NS*** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** | **1,000** | **NS** | **NS** | **NS** | **NS** | **NS** | **1,000** |
| **Residential Shallow Groundwater Vapor Intrusion Screening Levels[b]** | | | **NS** | **NS** | **NS** | **NS** | **NS** | **20** | **NS** | **NS** | **NS** | **1.1** | **3600** | **13** | **NS** | **NS** | **1300** | **1,200** |
| GW-1 | GW-1-111717-GW | 11/17/2017 | **35,000** | **18** | **11** | **79** | <10 | **460** | **170** | **300** | **1,300** | **2,000** | **710** | **1,300** | **2,900** | **830** | **3,700** | <10 |
| GW-2 | GW-2-111717-GW | 11/17/2017 | **4,300** | **3.1** | **2.6** | **8.3** | **2.1** | **44** | **14** | **50** | **180** | **450** | **20** | **82** | **340** | **100** | **440** | <1.0 |
| GW-3 | GW-3-111717-GW | 11/17/2017 | **2,800** | <1.0 | **1.3** | **7.4** | **1.2** | **27** | **15** | **36** | **170** | **320** | **14** | **86** | **170** | **77** | **250** | <1.0 |
| GW-4 | GW-4-111717-GW | 11/17/2017 | **1,400** | **3.5** | **1.4** | **3.6** | <1.0 | **16** | **11** | **14** | **57** | **43** | **5.3** | **34** | **39** | **5.6** | **45** | <1.0 |

**Notes and Key:**
Concentrations reported in micrograms per liter (µg/L).
a = Low Threat Closure Policy - Appendix 3/Scenario 3 Dissolved-Phase Benzene Concentrations in Groundwater
b = San Francisco Bay Regional Water Quality Control Board, Residential Groundwater Vapor Intrusion Screening Levels for Shallow Groundwater (GW-3), Feb. 2016; Only detected compounds shown on table.
*= No Low Threat Closure Policy GRO standard, however, for purpose of defining contaminant plume length a GRO concentration of 100 (µg/L) is used.
= Detection above LTCP.
=Detection above Residential Shallow Groundwater Vapor Intrusion Screening Level
LTCP = Low-Threat Closure Policy; California Regional Water Quality Control Board. 2012. "Low-Threat Underground Storage Tank Case Closure Policy." 17 August 2012. Table 1.
NS = No standard
< = Less than laboratory reporting limit.

**ical Abbreviations**

| Chemical | Abbreviation |
|---|---|
| GRO | Gasoline-range organics |
| n-BB | n-Butylbenzene |
| sec-BB | sec-Butylbenzene |
| ISPB | Isopropylbenzene |
| p-ISPT | p-Isopropyltoluene |
| NAP | Naphthalene |
| n-PB | n-Propylbenzene |
| 1,3,5-TMB | 1,3,5-Trimethylbenzene |
| 1,2,4-TMB | 1,2,4-Trimethylbenzene |
| BZ | Benzene |
| TOL | Toluene |
| EB | Ethylbenzene |
| m,p-XYL | m,p-Xylene |
| o-XYL | o-Xylene |
| MTBE | Methyl tert-butyl ether |

**The following compounds were analyzed for, but not detected. Full laboratory report presented in Appendix F.**

| | | |
|---|---|---|
| Bromobenzene | Dibromomethane | trans-1,3-Dichloropropene |
| Bromochloromethane | 1,2-Dichlorobenzene | Hexachlorobutadiene |
| Bromodichloromethane | 1,3-Dichlorobenzene | Methylene chloride |
| Bromoform | 1,4-Dichlorobenzene | Styrene |
| Bromomethane | Dichlorodifluoromethane | 1,1,2,2-Tetrachloroethane |
| tert-Butylbenzene | 1,1-Dichloroethane | 1,1,1,2-Tetrachloroethane |
| Carbon tetrachloride | 1,2-Dichloroethane | Tetrachloroethene |
| Chlorobenzene | 1,1-Dichloroethene | 1,2,3-Trichlorobenzene |
| Chloroethane | cis-1,2-Dichloroethene | 1,2,4-Trichlorobenzene |
| Chloroform | trans-1,2-Dichloroethene | 1,1,2-Trichloroethane |
| Chloromethane | 1,2-Dichloropropane | 1,1,1-Trichloroethane |
| 2-Chlorotoluene | 1,3-Dichloropropane | Trichloroethene |
| 4-Chlorotoluene | 2,2-Dichloropropane | Trichlorofluoromethane |
| Dibromochloromethane | 1,1-Dichloropropene | 1,2,3-Trichloropropane |
| 1,2-Dibromo-3-chloropropane | cis-1,3-Dichloropropene | Vinyl chloride |
| 1,2-Dibromoethane | | |

*Appendix A*
*Permits*

LOP # 00001359

9M

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

DEPT. OF HEALTH SVCS
OCT 06 2017
ENVIRONMENTAL HEALTH & SAFETY

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment/LOP Lead

*For Office Use Only*
Amount Paid Exempt
Receipt Number _____ PE 1425
Payment Date _____ Rev. Code _____
Site ID# PR0013704 FA0003178
Permit # SR0014361

#2

**Permit Type:**

■ Monitoring Well ☐ Borings ☐ Destruct ☐ Environmental Assessment

**Well Type:** ☐ Remediation Well ☐ Extraction Well ☐ Soil Vapor
■ Other Monitoring well utilized for collection of GW samples with regards to dissolved phase COC delineation.

# On-Site Well 4 ID # GW-1 through GW-4 # Off-Site Well _____ ID # _____

# On-Site Boring _____ ID # _____ # Off-Site Boring _____ ID # _____

**Submit legal right-of-entry/off-site well address/encroachment permit**

Site Address 2592 Lakeville Highway Petaluma, California AP# 005-060-042-000

Facility Name Former Darling International Inc. property

Site Owner Baywood LLC. Phone _____

Street 414 Aviation Blvd. City Santa Rosa State CA Zip 95403

Responsible Party Darling Ingredients Inc. Phone _____

Street 251 O'Conner Ridge Suite 300 City Irving State TX Zip 75038

Consultant Chris Berg License#/Type 9428 P.G. Phone 1-916-924-9378

Street 2525 Natomas Park Dr Suite 350 City Sacramento State CA Zip 95833

License #/Type _____ Email Christopher.Berg@erm.com

Drilling Contractor Cascade Drilling, L.P. Phone 530-662-2829

Street 2086 East Main Street City Woodland State CA Zip 95776

C-57 License 938110

Disposal method for soil cuttings Store in DOT drums, profiled, and disposed of accordingly

Disposal method for development water Store in DOT drums, profiled, and disposed of accordingly

Drilling method Direct push with auger; utilizing a DPT 7730 rig

Method of drill equipment rinsate containment and disposal Store in DOT drums, profiled, and disposed of accordingly

If destroying a well, abandonment method not applicable

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leach field? ○Yes ◉No
50 feet of any sanitary sewer line? ○Yes ◉No
25 feet of any private sanitary sewer line? ○Yes ◉No

In addition, all monitoring wells must include an ***identification system*** affixed to the interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

| *For Office Use Only* |
|---|
| Address _____ |
| _____ |
| Site ID# _____ |
| Permit # _____ |

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Environmental Health and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by the Department of Health Services, Environmental Health and Safety Section within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

_____ Date 9/28/17

Signature of Well Driller—***no proxies (Wet Signature Required)***

Insurance Carrier Aspen Specialty Insurance Company Expiration Date 11/01/17

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

---

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by _____ Date 10/18/17

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ____/____/____

RWQCB/LOP approval _____ Date 10/18/17



Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party

9M

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

DEPT OF HEALTH SVCS
OCT 06 2017
ENVIRONMENTAL HEALTH & SAFETY

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment/LOP Lead

*For Office Use Only*
Amount Paid exempt
Receipt Number _____ PE _____
Payment Date _____ Rev. Code _____
Site ID# PR0013706 FA0003178
Permit # SR0014360

#1

**Permit Type:**

☐ Monitoring Well ■ Borings ☐ Destruct ☐ Environmental Assessment

**Well Type:** ☐ Remediation Well ☐ Extraction Well ☐ Soil Vapor
☐ Other _____

# On-Site Well _____ ID # _____ # Off-Site Well _____ ID # _____

# On-Site Boring 4 ID # MiHPT-1 through MiHPT-4 # Off-Site Boring _____ ID # _____

**Submit legal right-of-entry/off-site well address/encroachment permit**

Site Address 2592 Lakeville Highway Petaluma, California AP# 005-060-042-000

Facility Name Former Darling International Inc. property

Site Owner Baywood LLC. Phone _____

Street 414 Aviation Blvd. City Santa Rosa State CA Zip 95403

Responsible Party Darling Ingredients Inc. Phone _____

Street 251 O'Conner Ridge Suite 300 City Irving State TX Zip 75038

Consultant Chris Berg License#/Type 9428 P.G. Phone 1-916-924-9378

Street 2525 Natomas Park Dr Suite 350 City Sacramento State CA Zip 95833

License #/Type _____ Email Christopher.Berg@erm.com

Drilling Contractor Cascade Drilling, L.P. Phone 530-662-2829

Street 2086 East Main Street City Woodland State CA Zip 95776

C-57 License 938110

Disposal method for soil cuttings Store in DOT drums, profiled, and disposed of accordingly

Disposal method for development water not applicable

Drilling method Direct push

Method of drill equipment rinsate containment and disposal Store in DOT drums, profiled, and disposed of accordingly

If destroying a well, abandonment method not applicable

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leach field? ○Yes ◉No
50 feet of any sanitary sewer line? ○Yes ◉No
25 feet of any private sanitary sewer line? ○Yes ◉No

In addition, all monitoring wells must include an ***identification system*** affixed to the interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

| *For Office Use Only* |
|---|
| Address _____ |
| _____ |
| Site ID# _____ |
| Permit # _____ |

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Environmental Health and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by the Department of Health Services, Environmental Health and Safety Section within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

_____ Date 9/28/17

Signature of Well Driller—***no proxies (Wet Signature Required)***

Insurance Carrier Aspen Specialty Insurance Company Expiration Date 11/01/17

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

---

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by _____ Date 10/18/17

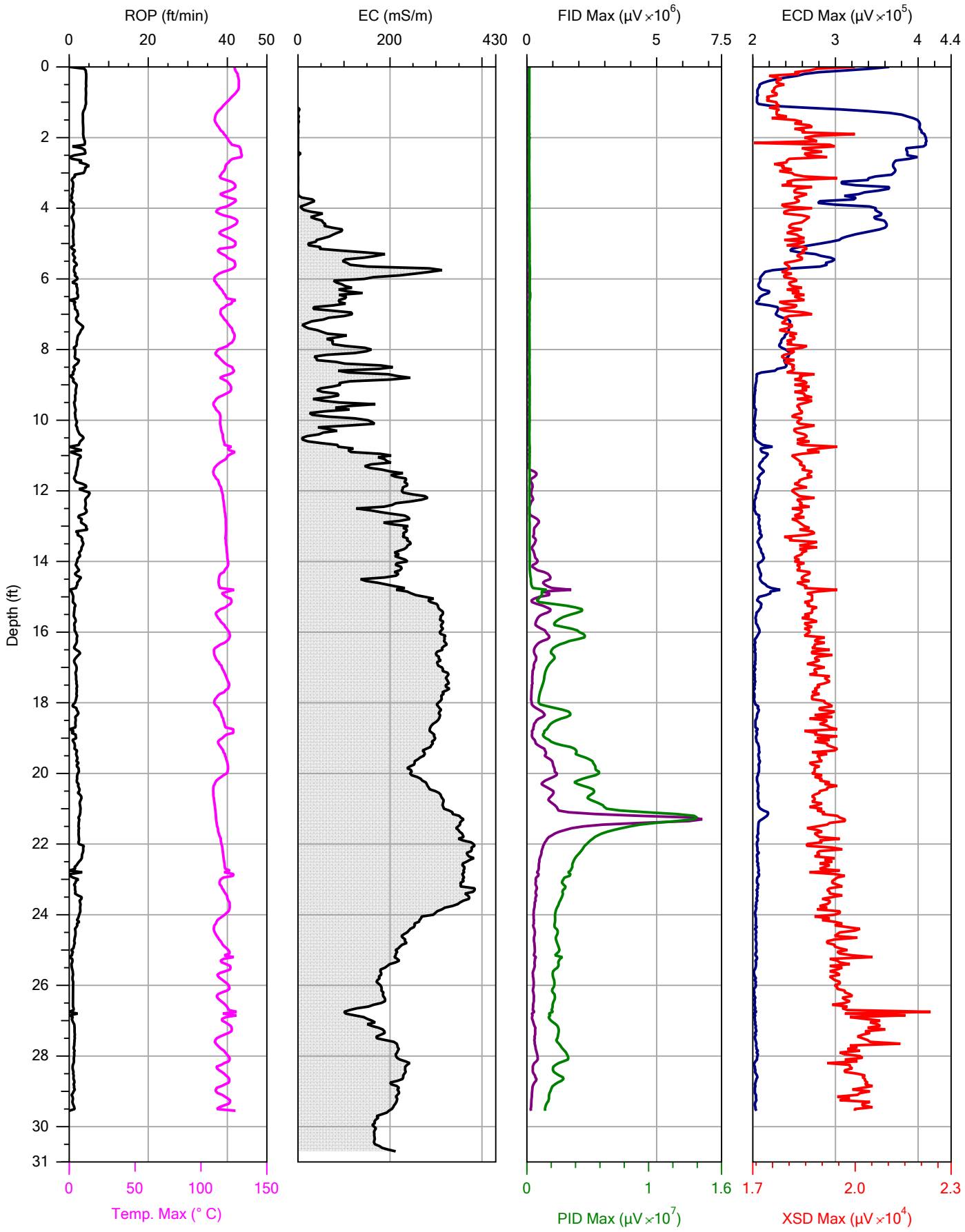
Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ___/___/___

RWQCB/LOP approval _____ Date 10/18/17



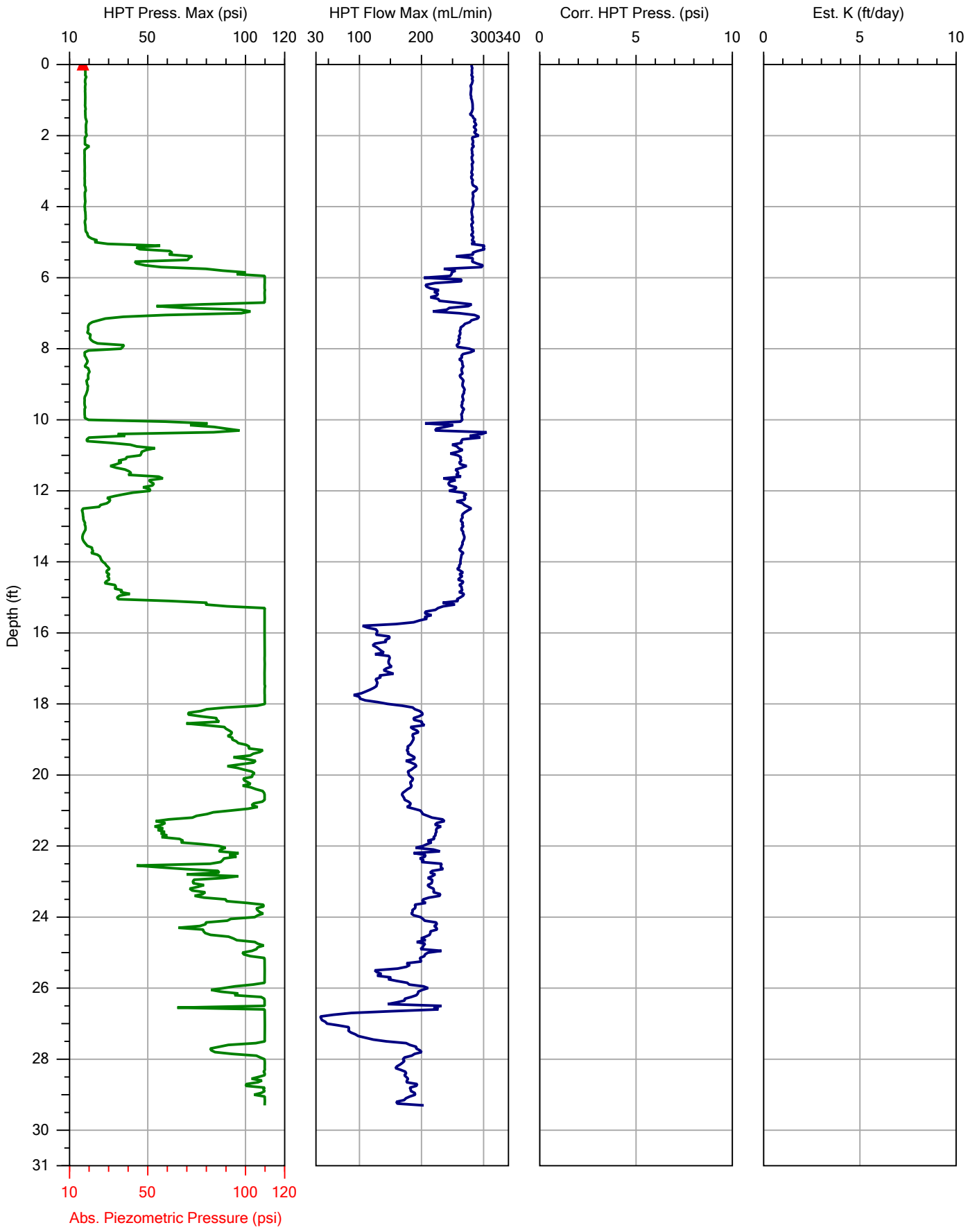
Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party

*Appendix B*
*MiHPT Investigation Results*



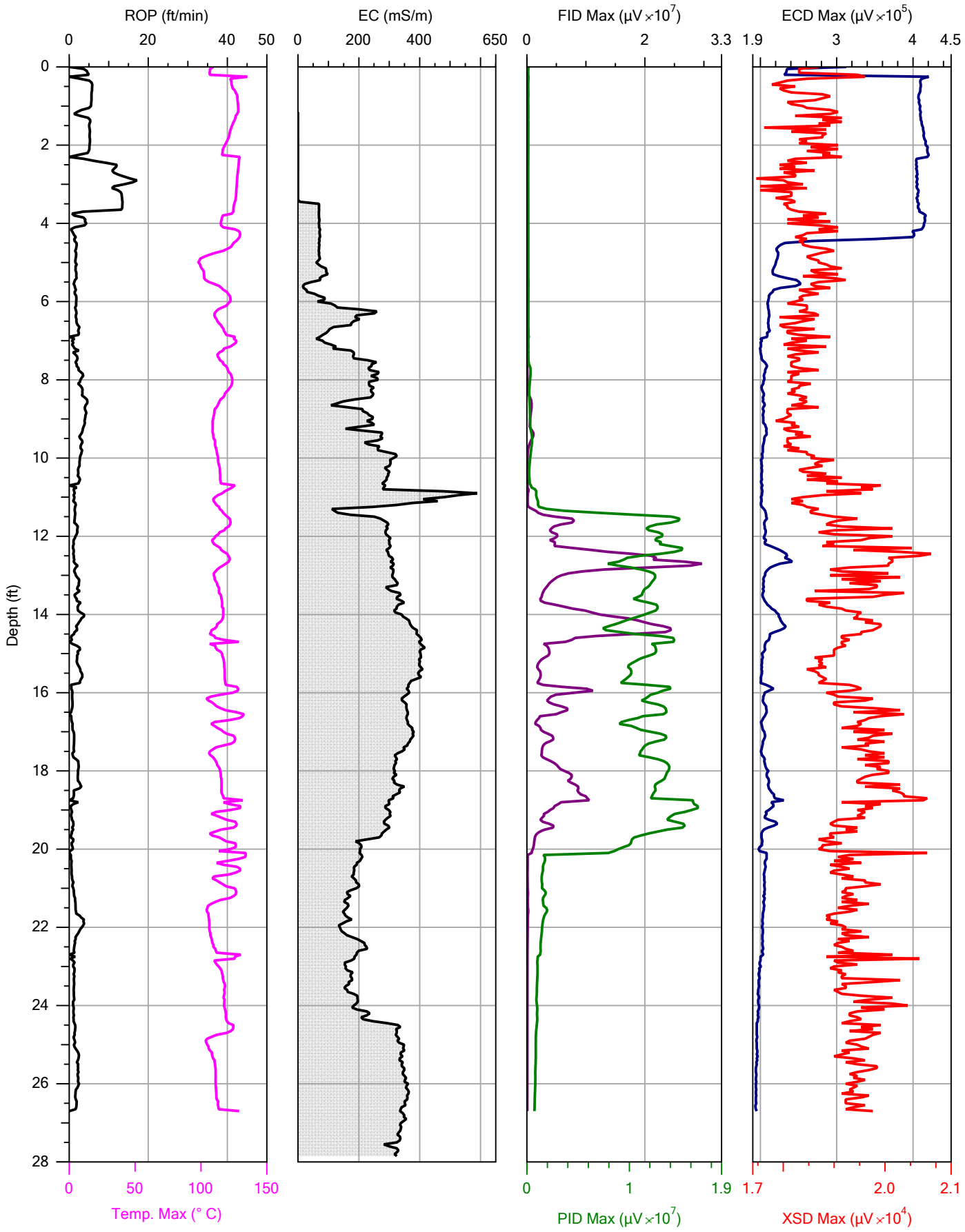

CASCADE
DRILLING | TECHNICAL SERVICES

| | | |
|---|---|---|
| | | File: MIHPT1.MHP |
| Company: Cascade | Operator: Blackburn | Date: 11/10/2017 |
| Project ID: Darling Ingredients Petaluma | Client: ERM | Location: Petaluma, CA |



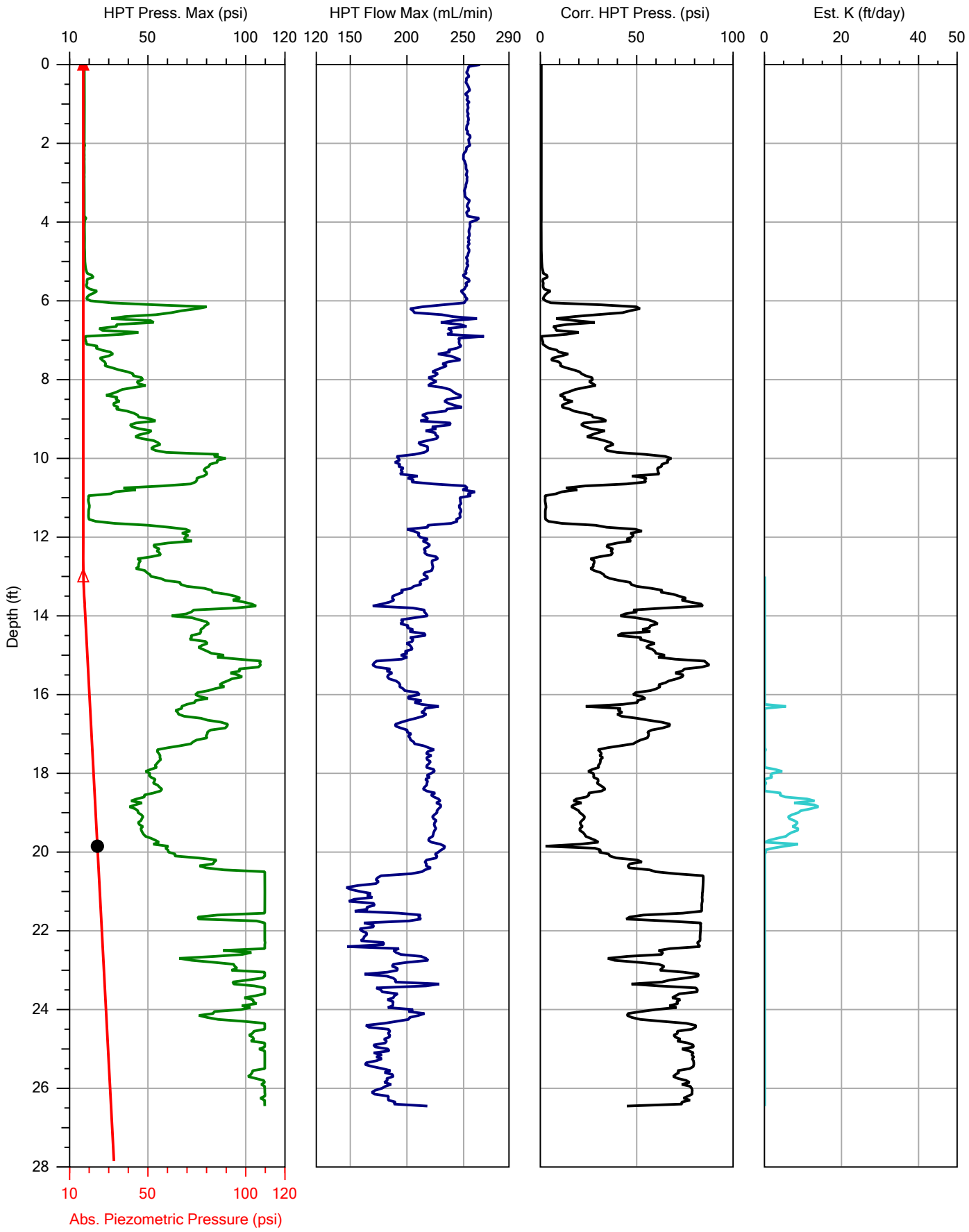

CASCADE
DRILLING | TECHNICAL SERVICES

| | | |
|---|---|---|
| | | File: MIHPT1.MHP |
| Company: Cascade | Operator: Blackburn | Date: 11/10/2017 |
| Project ID: Darling Ingredients Petaluma | Client: ERM | Location: Petaluma, CA |



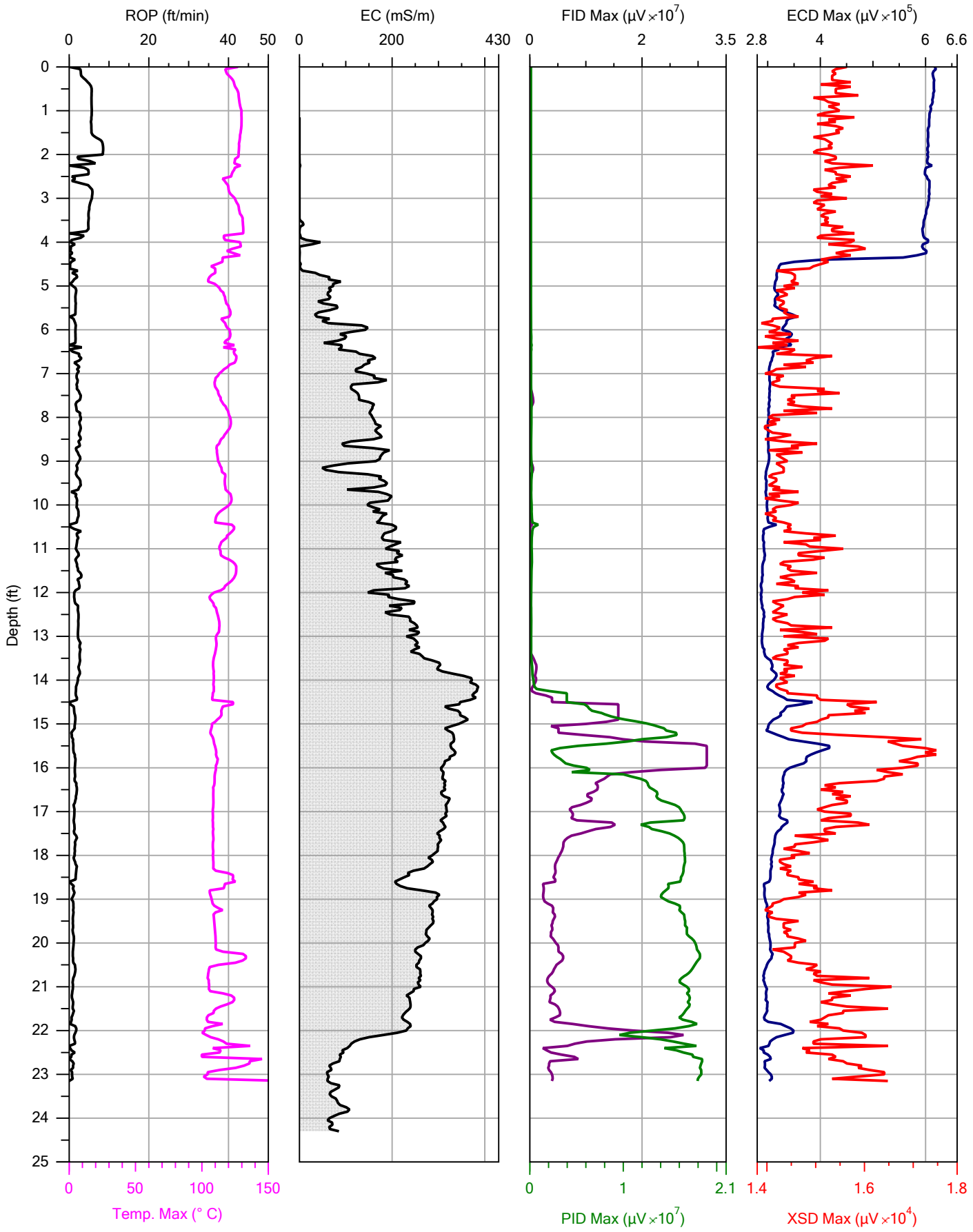

CASCADE
DRILLING | TECHNICAL SERVICES

| | | |
|---|---|---|
| | | File: MIHPT2.MHP |
| Company: Cascade | Operator: Blackburn | Date: 11/10/2017 |
| Project ID: Darling Ingredients Petaluma | Client: ERM | Location: Petaluma, CA |



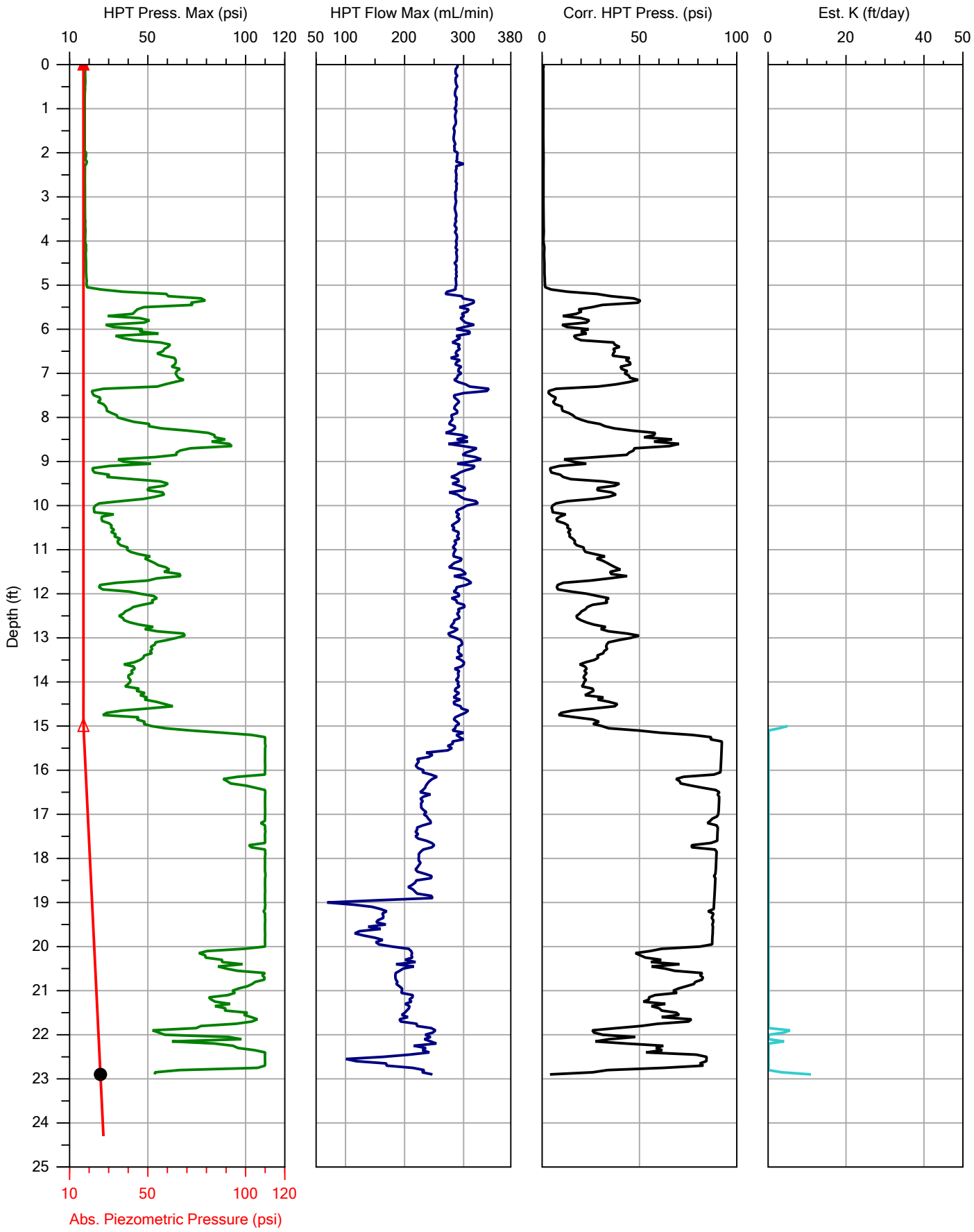

CASCADE
DRILLING | TECHNICAL SERVICES

| | | |
|---|---|---|
| | | File: MIHPT2.MHP |
| Company: Cascade | Operator: Blackburn | Date: 11/10/2017 |
| Project ID: Darling Ingredients Petaluma | Client: ERM | Location: Petaluma, CA |



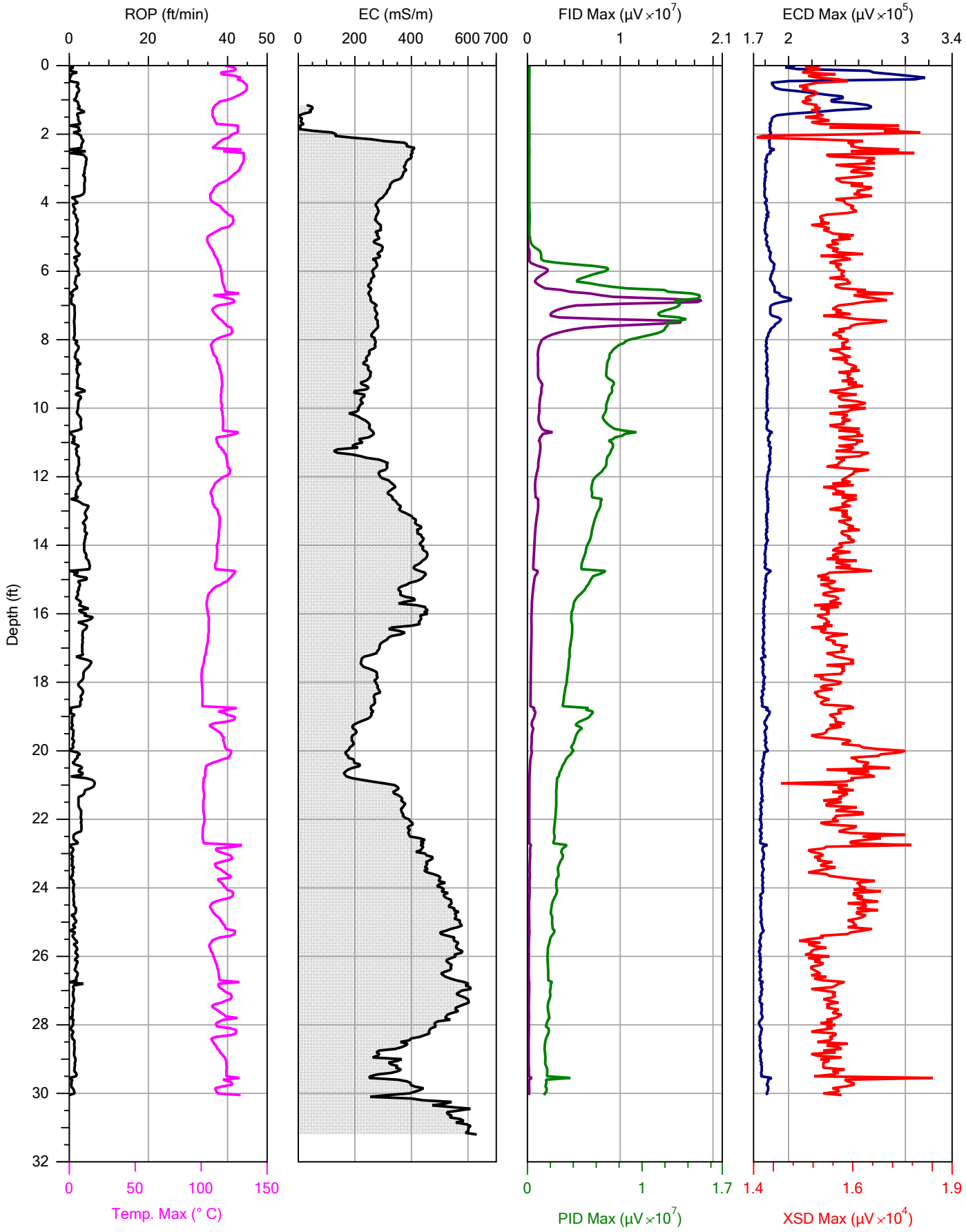

CASCADE
DRILLING | TECHNICAL SERVICES

| | | |
|---|---|---|
| | | File: MIHPT3.MHP |
| Company: Cascade | Operator: Blackburn | Date: 11/10/2017 |
| Project ID: 130.17.1115 | Client: ERM | Location: Petaluma, CA |



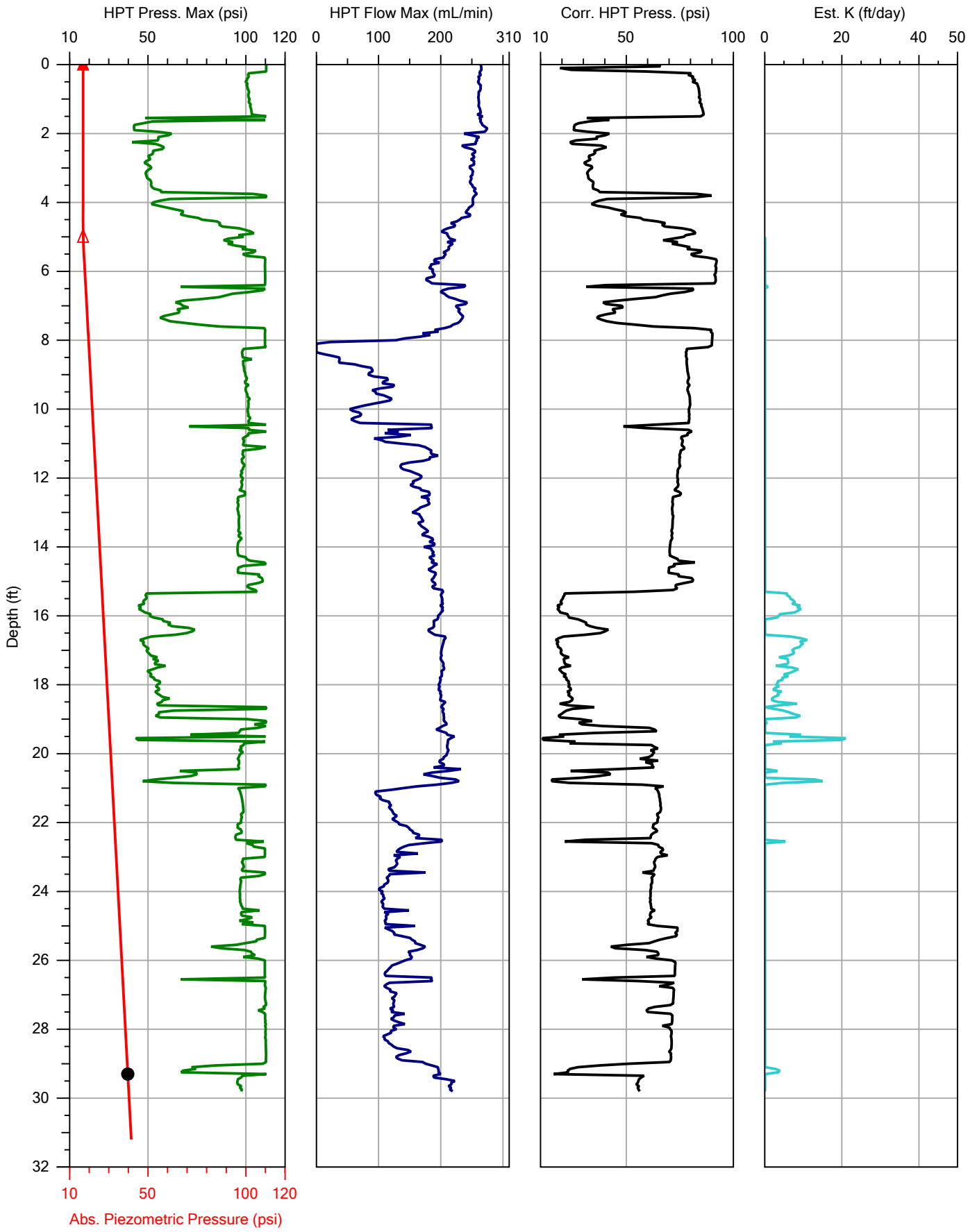

CASCADE
DRILLING | TECHNICAL SERVICES

| | | |
|---|---|---|
| | | File: MIHPT3.MHP |
| Company: Cascade | Operator: Blackburn | Date: 11/10/2017 |
| Project ID: 130.17.1115 | Client: ERM | Location: Petaluma, CA |



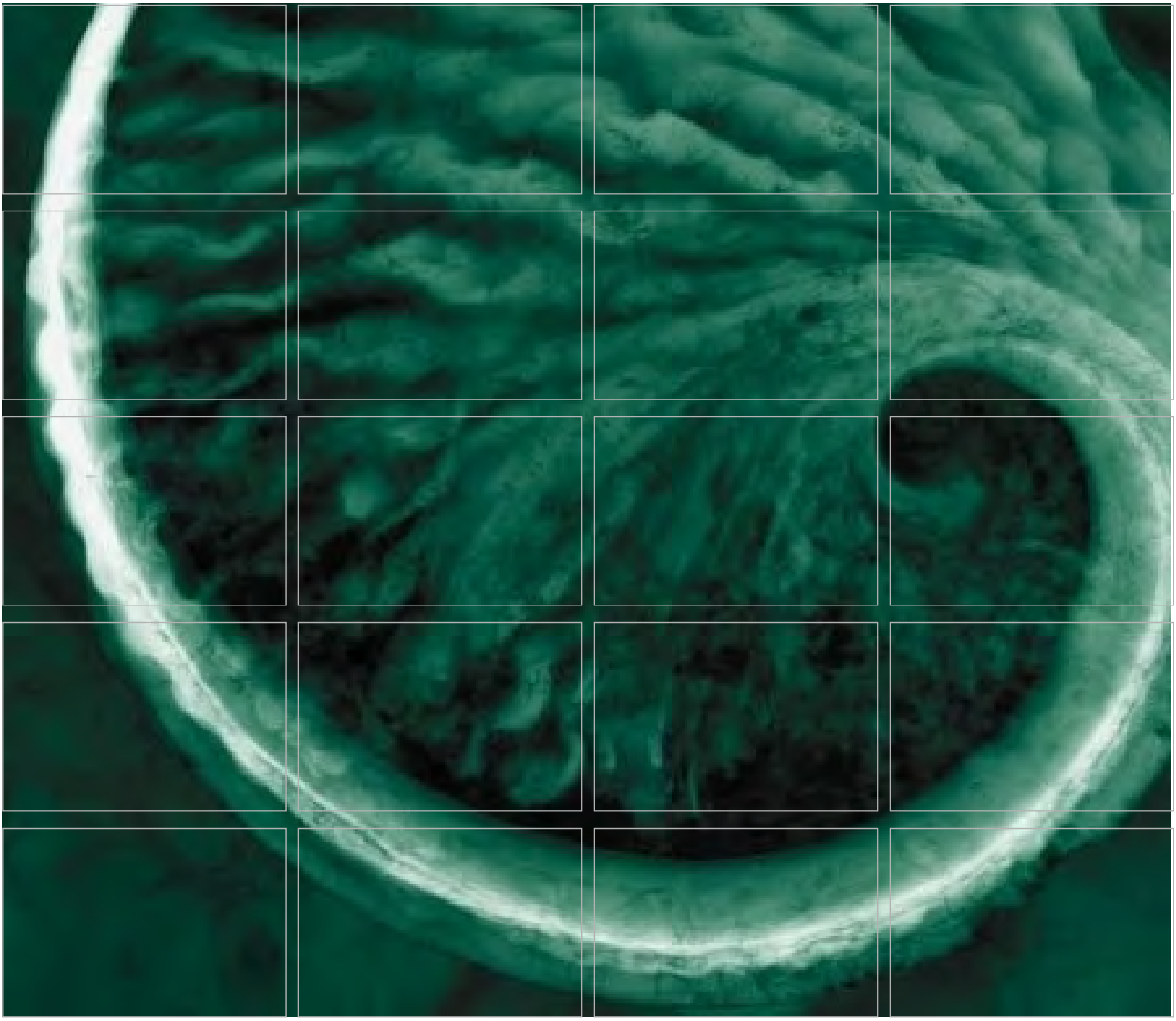

CASCADE
DRILLING | TECHNICAL SERVICES

| | | |
|---|---|---|
| | | File: MIHPT4.MHP |
| Company: Cascade | Operator: Blackburn | Date: 11/10/2017 |
| Project ID: Darling Ingredients Petaluma | Client: ERM | Location: Petaluma, CA |




CASCADE
DRILLING | TECHNICAL SERVICES

| | | |
|---|---|---|
| | | File: MIHPT4.MHP |
| Company: Cascade | Operator: Blackburn | Date: 11/10/2017 |
| Project ID: Darling Ingredients Petaluma | Client: ERM | Location: Petaluma, CA |



# Additional Site Characterization Workplan

**Prepared for:**
Darling Ingredients Inc.

**2592 Lakeville Highway**
**Petaluma, California**
**EHS Site #00001359,**
**SFBRWQCB #49-0142**

August 2017

www.erm.com

ERM

*The business of sustainability*

Darling Ingredients Inc.

# Additional Site Characterization Workplan

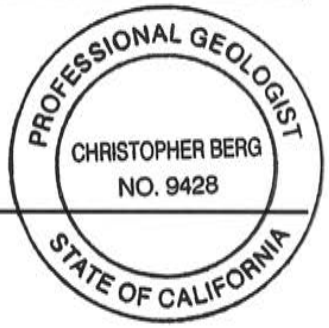
2592 Lakeville Highway
Petaluma, California

August 2017

Project No. 0334845

Cecile Fleckten, Partner
*Principal-in-Charge*

Christopher Berg, P.G.
*Project Manager*




**Environmental Resources Management**
1277 Treat Blvd, Suite 500
Walnut Creek, California 94596
T: 925-946-0455
F: 925-946-9968

*TABLE OF CONTENTS*


*LIST OF FIGURES* *ii*

*LIST OF ACRONYMS* *iii*

*1.0 INTRODUCTION* *1*

*1.1 SITE DESCRIPTION* *1*

*1.2 BACKGROUND* *1*

*1.3 RECENT ACTIVITIES* *2*

*1.4 WORKPLAN OBJECTIVE* *4*

*2.0 FIELD INVESTIGATION* *6*

*2.1 TECHNICAL APPROACH / BENCH STUDY* *6*

*2.2 DIRECT-PUSH INVESTIGATION* *7*

*2.3 MONITORING WELL INSTALLATION* *8*

*2.4 SAMPLE COLLECTION* *9*

*2.4.1 Bulk Soil Collection* *9*

*2.4.2 Bulk Water Collection* *10*

*2.4.3 Groundwater Sample Collection and Analysis* *10*

*2.5 DECONTAMINATION PROCEDURES* *11*

*2.6 WASTE MANAGEMENT* *12*

*3.0 DATA EVALUATION AND REPORTING* *13*

*4.0 SCHEDULE* *14*

*LIST OF FIGURES*

*(Figures immediately follow the text)*

*Figure 1* *Site Location*

*Figure 2* *Approximate Extent of Remedial Excavation and Contaminant Concentrations in Soil Vapor in the Former UST Remediation Area*

*Figure 3* *Proposed Sampling Locations*

*Figure 4* *Monitoring Well Construction Diagram*

*LIST OF ACRONYMS*

| | |
|---|---|
| AEI | AEI Consultants |
| bgs | Below ground surface |
| bngs | Below native ground surface |
| DO | Dissolved oxygen |
| DOT | Department of Transporation |
| ERM | ERM-West, Inc. |
| ESL | Environmental screening level |
| FS/CAP | Feasibility Study/Corrective Action Plan |
| LGL | Leaching to Groundwater Levels – Nondrinking Water |
| LTCP | Low-Threat Underground Storage Tank Case Closure Policy |
| MiHPT | Membrane Interface Hydraulic Profiling |
| ORP | Oxidation reduction potential |
| PID | Photoionization Detector |
| PVC | Polyvinyl chloride |
| RSSE | Residential Shallow Soil Exposure |
| SFBRWQCB | San Francisco Bay Regional Water Quality Control Board |
| SOD | Soil oxidant demand |
| TPH-G | Total petroleum hydrocarbons as gasoline |
| USEPA | United States Environmental Protection Agency |
| UST | Underground storage tank |
| VOC | Volatile organic compound |

## 1.0 INTRODUCTION

On behalf of Darling Ingredients Inc. (Darling), ERM-West, Inc. (ERM) has prepared this *Additional Site Investigation Workplan* (Workplan) in response to Sonoma County's 18 April 2017 Feasibility Study/Corrective Action Plan (FS/CAP) Directive to identify and implement a remedial action plan to address areas of concern indicating residual petroleum hydrocarbons impacts. This Workplan includes a summary of the objectives for the additional site characterization activities, proposed scope of work, and technical methodology that will be used to collect additional data to support the selection of a remedial alternative.

## 1.1 SITE DESCRIPTION

The property is located at 2592 Lakeview Highway in Petaluma, California (Figure 1). The property is currently bounded by a dog park to the west, apartments to the north, and a warehouse to the east. The southern portion of the property is surrounded by undeveloped land, and abuts the Petaluma River.

## 1.2 BACKGROUND

The former facility was operated by the Royal Tallow Company between approximately 1941 and 1986. As part of its operations, Royal Tallow operated two fuel underground storage tanks (USTs) containing regular unleaded gasoline. The Sonoma County Leaking Underground Storage Tank Local Oversight Program opened Case EHS Site #00001359 (San Francisco Bay Regional Water Quality Control Board [SFBRWQCB] #49-0142) for the USTs in 1989. Between 1989 and 2004, Royal Tallow removed the USTs, investigated soil and groundwater conditions around the area of the USTs, and excavated accessible soil showing impacts from gasoline-range petroleum hydrocarbons.

Approximately 2,400 cubic yards of hydrocarbon-impacted soil was excavated from the former USTs' location in phases between November 2000 and June 2001 (*Soil Remediation Report*, MFG, Inc., 2002). The approximate lateral limits of the excavation are shown on Figure 2 and the depth of excavation was approximately 5 feet below ground surface (bgs). The excavated soil was treated on site via ex situ bioremediation. Once confirmation sampling showed that the bioremediated soil contained hydrocarbon concentrations below the target remediation levels, the

treated soil was returned to the excavation area as backfill. The backfill was graded and compacted. The final ground surface approximated the surrounding and original site grade.

All work was conducted under County and SFBRWQCB oversight and was documented in the *Soil Remediation Report* (MFG, Inc., 2002). The County, with SFBRWQCB approval, closed the UST case on 30 July 2004, after reviewing the *Soil Remediation Report* and all underlying data, including confirmation sampling. The County determined that: (1) the cleanup action met the cleanup goals to a sufficiently protective degree based upon the prevalent commercial/industrial use at the time; (2) additional corrective action could be required if the land use changed; and (3) future site development should address the presence of any residual petroleum hydrocarbon impacts.

These historical remedial actions at the site are described in further detail in the *Soil Remediation Report* (MFG, Inc., 2002).

## *1.3 RECENT ACTIVITIES*

In September 2015, the County received a *Phase II Subsurface Investigation Report* (Phase II Report) from AEI Consultants (AEI), dated 2 September 2014. The report contained analytical results exceeding environmental screening levels in the area of the former USTs.

On 9 December 2015, Darling received notice from the County that it had reopened the previously closed case. The case was reopened based on the publication of data in the Phase II Report (AEI 2014).

Pursuant to request by Darling to conduct additional investigation, between 28 November and 22 December 2016, ERM installed 10 temporary soil vapor probes (W-01 through W-10) using direct-push, dual-tube drilling technology. Soil vapor probes were advanced through imported soil stockpiled (placed by landowner) on top of the former excavation area utilizing the direct-push, dual-tube drilling technology. The soil vapor probes were advanced to a total depth of approximately 5 feet below native ground surface (bngs) (i.e., the surface prior to the placement of imported soil by the current landowner over the former excavation area). At each soil vapor probe location, soil samples were also collected via Terra Core™ at depth intervals directly beneath native ground surface and immediately above groundwater, at approximately 1 to 7 feet bngs.

Soil vapor sample analytical results revealed that nine soil vapor sample locations contained benzene and ethylbenzene concentrations that exceeded Soil Tier 1 Environmental Screening Levels (Tier 1 ESL), Leaching to Groundwater Levels – Nondrinking Water (LGL); and/or Direct Exposure to Human Health Risk Levels – Residential Shallow Soil Exposure (RSSE).

In addition, 10 soil samples were selected for analysis based on corresponding soil gas sample analytical results and photoionization detector (PID) readings from field observations noted at the soil sample collection depth. Soil samples were put on hold at the laboratory and were analyzed when gas samples indicated detections of constituents of concern. Eight soil sample locations contained benzene, toluene, ethylbenzene, and xylene concentrations that exceeded either Tier 1 ESL LGL and/or RSSE screening levels. Six soil sample locations contained total petroleum hydrocarbons as gasoline (TPH-G) concentrations that exceeded the corresponding Tier 1 ESL and three soil sample locations contained TPH-G concentrations that exceeded the corresponding RSSE. The results of the soil vapor and soil sampling were initially reported in a *Soil Vapor Investigation Summary Report* prepared by ERM on behalf of Darling and submitted to the County on 20 February 2017 (ERM 2017).

On 18 April 2017, the County responded to the *Soil Vapor Investigation Summary Report* (ERM 2017). The County concurred with ERM's conclusion that an evaluation of remedial approaches is warranted based upon the sample results and directed Darling to prepare a supplemental report comparing the sample results to applicable screening criteria in the California State Water Resources Control Board's "Low-Threat Underground Storage Tank Case Closure Policy" (LCTP) (17 August 2012). The County is required to apply the LTCP criteria in considering whether a site requires further corrective action or is appropriate for closure pursuant to California Health and Safety Code Section 25296.10.

In response to the County's Directive, Darling submitted a R*evised Soil Vapor Investigation Summary Report* to the County on 24 May 2017, which compares sample results from the 28 November and 22 December 2016 investigation to screening criteria in the LTCP. Similar to the results reported in the initial *Soil Vapor Investigation Summary Report*, benzene and ethylbenzene concentrations were reported in the supplemental report to have exceeded soil vapor screening criteria set forth in Appendix 4 of the LTCP. In addition, six soil sample locations contained benzene concentrations that exceeded the applicable residential soil screening criteria set forth in Table 1 of the LTCP.

Because the soil vapor and soil sampling results exceed applicable LTCP screening criteria, Darling is required under the County's 18 April 2017 letter to: (1) prepare an FS/CAP directive to identify and implement a remedial action plan to address site conditions and cleanup; (2) include a cost evaluation of at least three viable remedial alternatives; (3) include a timeline/schedule for remedy implementation; and (4) evaluate previous remedial events to ensure that the selected remedial alternative design and its implementation will be effective and successful.

On 26 April 2017, Darling sent a response to the County's 18 April 2017 letter, identifying the need for additional site characterization activities as a prerequisite for selecting a viable remedial alternative. On 9 May 2017, the County agreed with the addition of and rationale for the additional site characterization activities.

## *1.4 WORKPLAN OBJECTIVE*

This Workplan is focused on collecting data to support the development of a site conceptual model and evaluation of remedial alternatives as part of the County's FS/CAP Directive. The objectives of this Workplan are as follows:

- Delineate the volatile organic compound (VOC)- and total petroleum hydrocarbons-impacted soil and groundwater near the location of previously excavated soil to support development of a site conceptual model for the residual petroleum hydrocarbons;
- Evaluate soil properties (i.e., hydraulic conductivity, pore size, grain-size distribution, soil oxidant demand [SOD], total organic carbon, and metals) to support the assessment of remedial technologies;
- Evaluate groundwater properties (i.e., hydraulic conductivity, dissolved oxygen [DO], oxidation reduction potential [ORP], pH, natural attenuation parameters, metals, and alkalinity) to support the assessment of remedial technologies; and
- Perform bench tests to evaluate the technical feasibility of viable remedial technologies.

Darling has developed the following scope of work to collect the data and materials needed to satisfy the objectives identified above:

- Install and sample four temporary monitoring wells completed to a depth of approximately 15 feet bngs to delineate TPH-G distribution in groundwater. As shown on Figure 3, three borings will be installed

downgradient (south side of the clean stockpile) and one boring upgradient (north side of the imported stockpile).

- Perform four Membrane Interface Hydraulic Profiling (MiHPT) borings to 15 feet bngs to measure field values of hydrostatic pressure, electrical conductivity, hydraulic conductivity, and VOC concentrations. As shown on Figure 3, three MiHPT borings will be advanced downgradient (south side of the clean stockpile) and one boring upgradient (north side of the imported stockpile).
- Collect representative soil and groundwater samples from the site to perform a bench-scale study to evaluate the viability of potential in situ remedial alternatives.

The methods and procedures for this work are described in the following sections.

## *2.0 FIELD INVESTIGATION*

The four MiHPT locations will be drilled with a direct-push rig with an MiHPT tip. These borings will be abandoned by pressure grouting once the probe is removed from the borehole. The MiHPT data will be used to select the location for collection of a representative soil sample and groundwater monitoring well locations.

The four temporary monitoring wells will be drilled and installed using the hollow-stem auger drilling technique.

All proposed drilling locations will be cleared for subsurface utilities using the public utility notification service and a private utility locator. Following clearance for presence of subsurface utilities, the selected drilling locations will be hand augered or air knife cleared to a minimum depth of 5 feet bgs. Borings will be relocated, as needed, to avoid any subsurface obstructions.

## *2.1 TECHNICAL APPROACH / BENCH STUDY*

Based on a preliminary screening of remediation technologies, in situ chemical oxidation is identified as a potentially effective approach to address residual petroleum hydrocarbon-impacted soil and groundwater at the site. However, additional testing is needed to fully understand this technology's site-specific applicability and effectiveness. Representative soil and groundwater samples will be sent to Prima Environmental Laboratory (Prima) to conduct a bench-scale study to determine technology-specific remediation parameters to further evaluate the feasibility of the selected remediation technique.

The bench study will be designed through collaboration between ERM and Prima with the following objectives:

- Evaluate the effectiveness of hydrogen peroxide activated persulfate and catalyzed hydrogen peroxide. Oxidants would be delivered via in situ soil mixing.
- Estimate the amount of oxidant consumed during in situ chemical oxidation applications.
- Identify conditions that may limit the effectiveness of remedial approaches, such as SOD.

Once Prima receives soil from the impacted zone, it will be sieved to remove particles greater than 4 mesh (3/16 inch), then homogenized, and then used to set up the batch studies. Homogenized soil will be analyzed for:

- TPH-G;
- Hexavalent chromium;
- Total metals; and
- Total organic carbon.

The impacted site groundwater will be analyzed for:

- TPH-G;
- Hexavalent chromium;
- Dissolved metals;
- Alkalinity;
- ORP;
- pH; and
- Sulfate.

To compare the remediation technologies, microcosms will be constructed using a phased approach. SOD analysis and evaluation of hydrogen peroxide activated persulfate and catalyzed hydrogen peroxide will be conducted after the soil and groundwater have been characterized. Once the SOD/persistence test is completed, the chemicals of concern oxidation/secondary effects test will take place. The chemicals of concern oxidation tests consist of preparing six reactors of soil, groundwater (if needed), and oxidant solution into a thick slurry. The slurries are mixed and connected to Tedlar bags to collect off-gas. After 7 days, the slurries will be analyzed for TPH-G, hexavalent chromium, ORP, pH, and residual hydrogen peroxide and sodium persulfate. Off-gases, if generated in sufficient volume, will be analyzed for TPH-G to confirm losses are due to destruction, not volatilization. If needed, the hydrogen peroxide activated persulfate-high oxidant test will last approximately 28 days.

## 2.2 *DIRECT-PUSH INVESTIGATION*

Four MiHPT borings will be advanced using a direct-push drilling rig operated by a California-certified C-57 driller and under an approved

permit obtained from Sonoma County. Borings will be advanced to approximately 15 feet bngs. The horizontal and vertical locations of the borings will be surveyed to record the location.

As stated previously, the MiHPT data will be used to select the location for collection of a representative soil sample, which will be advanced/ collected using a direct-push drilling rig.

## *2.3 MONITORING WELL INSTALLATION*

The four temporary monitoring wells will be drilled using hollow-stem augers operated by a California-certified C-57 driller and under an approved permit obtained from Sonoma County. Borings will be advanced to approximately 15 feet bngs. Soil cuttings will be logged continuously, screened using a PID, and described in a boring log in accordance with the Unified Soil Classification System (American Society for Testing and Materials D 2488-00) under the direction of a California Professional Geologist. Soil samples will be collected from each boring at changes in lithology, the groundwater interface, and if evidence of contamination is observed by visual, olfactory, or PID. Collected soil samples will be analyzed if evidence of contamination is observed.

Each monitoring well will be constructed using 10 feet of 2-inch-diameter, machine-slotted, polyvinyl chloride (PVC) well screen (0.010-inch openings) and 2-inch-diameter, Schedule 40, blank PVC casing set from the top of the screened interval to ground surface. All well casing and screen joints will be flush-threaded, and no glues or solvents will be used.

The well screen and casing will be placed and centered in the boring, and the annulus will be filled with 2/12 or No. 3 clean silica sand from the bottom of the boring to 2 feet above the top of the screen. A transition seal consisting of 2 feet of hydrated bentonite will be placed above the sand, and a surface seal consisting of neat cement, cement/bentonite grout, or sand cement will be placed from the top of the transition seal to just below ground surface. The monitoring wells will be completed with a flush-mounted well box. Monitoring well construction details are provided on Figure 4.

The monitoring wells will be developed following the procedures outlined in the *Monitoring Well Development Guidelines for Superfund Project Managers* dated April 1992 (United States Environmental Protection Agency [USEPA] 1992). After allowing at least 48 hours for aquifer equilibration and following well development activities, groundwater

samples will be collected from the wells and an aquifer/slug test will be performed at one of the four temporary monitoring wells to determine/verify the hydraulic conductivity values collected during the MiHPT survey.

## *2.4 SAMPLE COLLECTION*

### *2.4.1 Bulk Soil Collection*

One boring will be drilled to collect approximately 5 kilograms of impacted soils. If it is not possible to collect enough soil from the first boring, a second boring will be drilled directly adjacent to the first boring. The boring(s) will be advanced using a direct-push drilling rig operated by a California-certified C-57 driller and under an approved permit obtained from Sonoma County. The bulk samples will be collected from the impacted interval. The impacted interval is defined where PID readings are 100 parts per million or greater and where soil staining is observed. This interval is approximately 3 to 9 feet bngs and occurs within the original excavation footprint (Figure 2). The bulk soil samples will be collected in acetate soil liners and capped for shipment to Prima in El Dorado Hills, California. Upon completion of the soil collection, the borings will be backfilled with neat cement or other materials as required by Sonoma County. The horizontal and vertical locations of the boring(s) will be surveyed to record the location. The soil samples will be placed on ice in a cooler for shipment to the laboratory within 24 hours. Soil samples will be used to conduct a bench study. The bench study will include analysis for SOD and base buffering capacity; and the bench study results will be used to determine the contaminant degradation ratio in order to evaluate if in situ remedial technologies are a viable option.

A second boring will be drilled to collect approximately 1 kilogram of clean soils for the SOD study. If it is not possible to collect enough soil from the first boring, a second boring will be drilled directly adjacent to the first boring. The boring(s) will be advanced using a direct-push drilling rig operated by a California-certified C-57 driller and under an approved permit obtained from Sonoma County. If possible, the bulk samples will be collected from similar depth as the impacted bulk samples. The clean samples will be collected from a downgradient location outside of the impacted zone. The bulk soil samples will be collected in acetate soil liners and capped for shipment to the laboratory. Upon completion of the soil collection, the borings will be backfilled with neat cement or other materials as required by Sonoma County. The horizontal and vertical locations of the boring(s) will be surveyed to

record the location. The soil samples will be placed on ice in a cooler for shipment to the laboratory within 24 hours.

### *2.4.2 Bulk Water Collection*

Three liters of impacted water will be collected from the monitoring well with the highest concentrations on TPH-G and benzene. Impacted groundwater samples will be collected using a portable pump and purging equipment connected to disposable tubing.

A minimum of 3 well casing volumes of water will be purged using the portable pump. Field parameters to be measured will be collected with a flow cell equipped with probes to monitor the following parameters: turbidity, conductivity, ORP, DO, pH, and temperature. Additional purging may be necessary if temperature, pH, electrical conductivity, DO, and ORP have not stabilized. A maximum of 5 purge volumes will be removed if the field parameters have not stabilized to within 10 percent. Following the stabilization of water quality parameters, three liters of water will be collected in 1-liter amber glass jars. The samples will be placed on ice in a cooler for shipment to Prima within 24 hours.

One liter of clean water will be collected in a 1-liter amber glass jar from the unimpacted well downgradient from the impacted zone. The sample will placed on ice in a cooler for shipment to Prima within 24 hours.

Groundwater samples will be used to set up the bench study and will include analysis for SOD. The bench study results will be used to determine the contaminant degradation ratio in order to evaluate if in situ remedial technologies are a viable option.

### *2.4.3 Groundwater Sample Collection and Analysis*

Groundwater samples will be collected from the temporary monitoring wells using portable pumps and purging equipment connected to disposable tubing and sent to an Environmental Laboratory Accreditation Program certified laboratory.

A minimum of 3 well casing volumes of water will be purged using the portable pump. Additional purging may be necessary if temperature, pH, electrical conductivity, DO, and ORP have not stabilized. A maximum of 5 purge volumes will be removed if the field parameters have not stabilized to within 10 percent.

The volume of groundwater purged will be measured using a digital flow meter or by tracking the volume in a 5-gallon bucket. Each purge volume will be calculated as follows:

$V = 7.48(3.14)(r^2)(D_{well}-D_{water})$

where:

V = One purge volume [gallons]
7.48 = Conversion factor [gallons/cubic foot]
3.14 = Pi
r = Radius of well casing [feet]
$D_{well}$ = Depth of monitoring well from top of casing [feet]
$D_{water}$ = Depth to water from top of casing [feet]

The purge water will be collected and stored in a properly labeled Department of Transportation (DOT)-approved container.

Field parameters to be measured will be collected with a flow cell equipped with probes to monitor the following parameters: turbidity, conductivity, ORP, DO, pH, and temperature.

Groundwater samples will be collected in laboratory-supplied containers and submitted for the following analyses:

- VOCs (including tetrachloroethene, 1,2-dichloroethane, and ethylene dibromide) by USEPA Method 8260b; and
- TPH-G by USEPA Method 8015.

Two rounds of groundwater sampling will be conducted 3 months apart to determine if there are temporal variations in groundwater.

## *2.5 DECONTAMINATION PROCEDURES*

Non-dedicated well installation equipment (e.g., auger flights) will be decontaminated between boring locations using either a three-stage wash and rinse or steam cleaning system. Water generated during decontamination will be temporarily stored on site in DOT-approved drums, profiled, and disposed of accordingly. Upon completion of the MiHPT survey, the borings will be backfilled with neat cement or other sealing material as required by Sonoma County.

## *2.6 WASTE MANAGEMENT*

Waste generated during the additional site characterization activities will be placed in appropriately labeled, DOT-approved, 55-gallon steel drums and temporarily stored on site. The waste will be profiled consistent with California Department of Toxic Substances Control requirements and will be disposed of at a licensed disposal facility.

## *3.0 DATA EVALUATION AND REPORTING*

The results of the investigation activities will be used to assist in remedial alternative selection and will be documented as part of the Feasibility Study process. A complete report of the additional site characterization activities will be prepared and submitted to the County (hard copy and electronic versions) detailing all aspects of the fieldwork and any deviations from the approved Workplan. The report will provide the laboratory analytical reports and an evaluation of the data/observations.

Darling will also upload relevant information to GeoTracker.

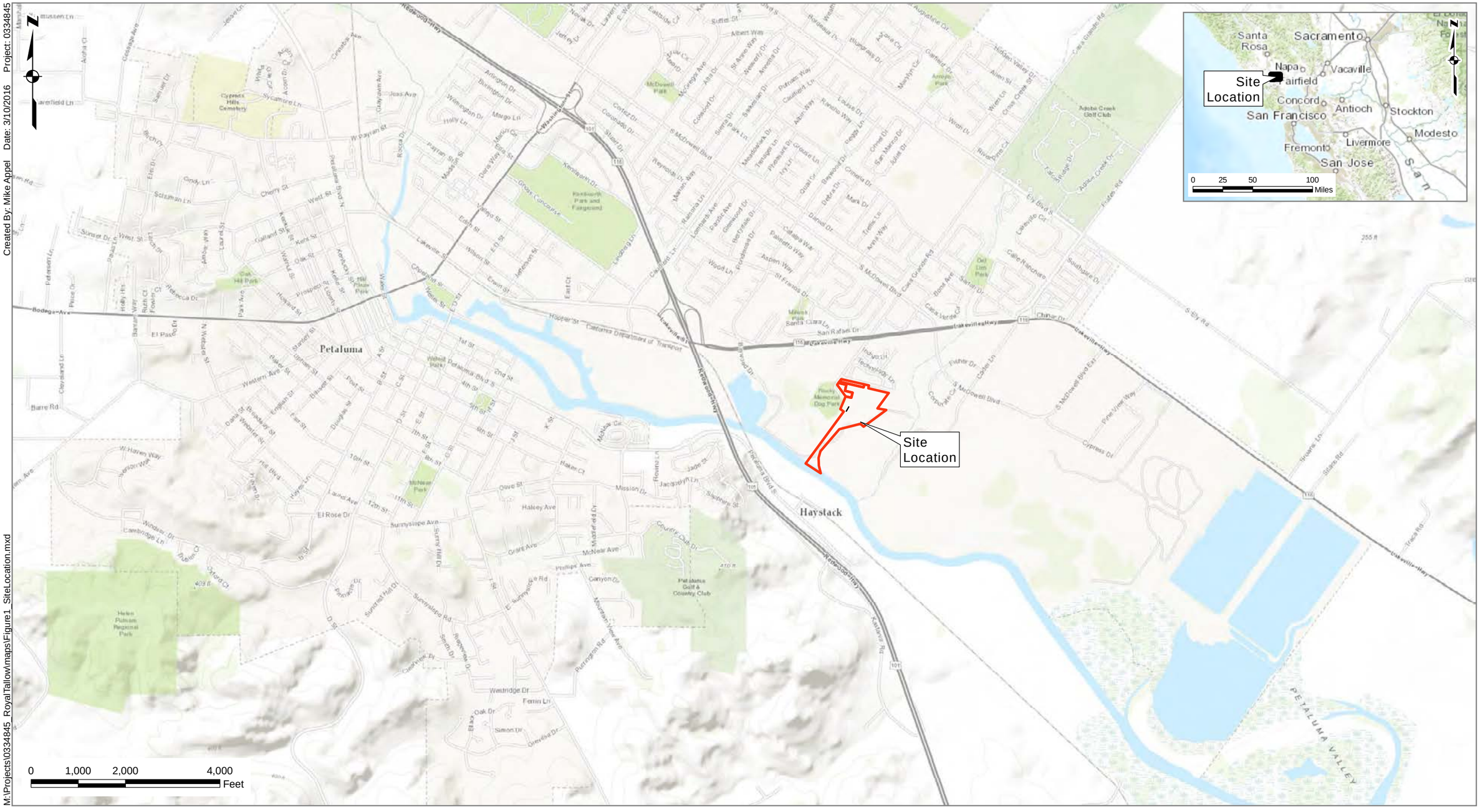
## *4.0 SCHEDULE*

Darling expects to perform this fieldwork following Workplan approval in September 2017.

*Figures*

Created By: Mike Appel Date: 3/10/2016 Project: 0334845

M:\Projects\0334845_RoyalTallow\maps\Figure1_SiteLocation.mxd




**Legend**

Subject Property

**Figure 1**
*Site Location*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

Source: ESRI World Topography Webservice NAD 1983 StatePlane California II FIPS 0402 Feet

Project: 0334845
Date: 6/12/2017
Created By: Mike Appel




**W-04**
Ben: 40000
Tol: 480
EB: 4300
mp-Xyl: 7400
o-Xyl: 1200
TPH-G: 1200000

**W-03**
Ben: 190000
Tol: 2600
EB: 20000
mp-Xyl: 34000
o-Xyl: 3300
TPH-G: **16000000 J**

**W-05**
Ben: 150000
Tol: 8200
EB: 19000
mp-Xyl: 44000
o-Xyl: 17000
TPH-G: **1200000**

**W-01**
Ben: 1700
Tol: 100
EB: 2200
mp-Xyl: 2900
o-Xyl: 390
TPH-G: 94000

**W-06**
Ben: 10000
Tol: 200
EB: 750
mp-Xyl: 2400
o-Xyl: 310
TPH-G: 150000

**W-10**
Ben: 190000
Tol: ND
EB: 9900
mp-Xyl: 11000
o-Xyl: 3000
TPH-G: 5300000 J

**W-07**
Ben: 430
Tol: ND
EB: ND
mp-Xyl: ND
o-Xyl: ND
TPH-G: 35000 NJ

**W-09**
Ben: 36000
Tol: ND
EB: ND
mp-Xyl: ND
o-Xyl: ND
TPH-G: **1300000 NJ**

**W-08**
Ben: 23000
Tol: 1400
EB: ND
mp-Xyl: ND
o-Xyl: ND
TPH-G: **770000 NJ**

**W-02**
Ben: ND
Tol: 14
EB: ND
mp-Xyl: ND
o-Xyl: ND
TPH-G: 2000 NJ

General Groundwater Flow Direction

Truck Scale Pad

G-1 G-2 G-3 G-4

Former Auto Maintenance

Former Building Footprint

0 25 50 100 Feet

M:\Projects\0334845_RoyalTallow\maps\Figure2 SV Sample Results.mxd

## Legend

- Soil Vapor Sample Location (2016)
- AEI Soil Vapor Sample Location (2014) Proximate to the Former USTs
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation
- Parcel Boundaries

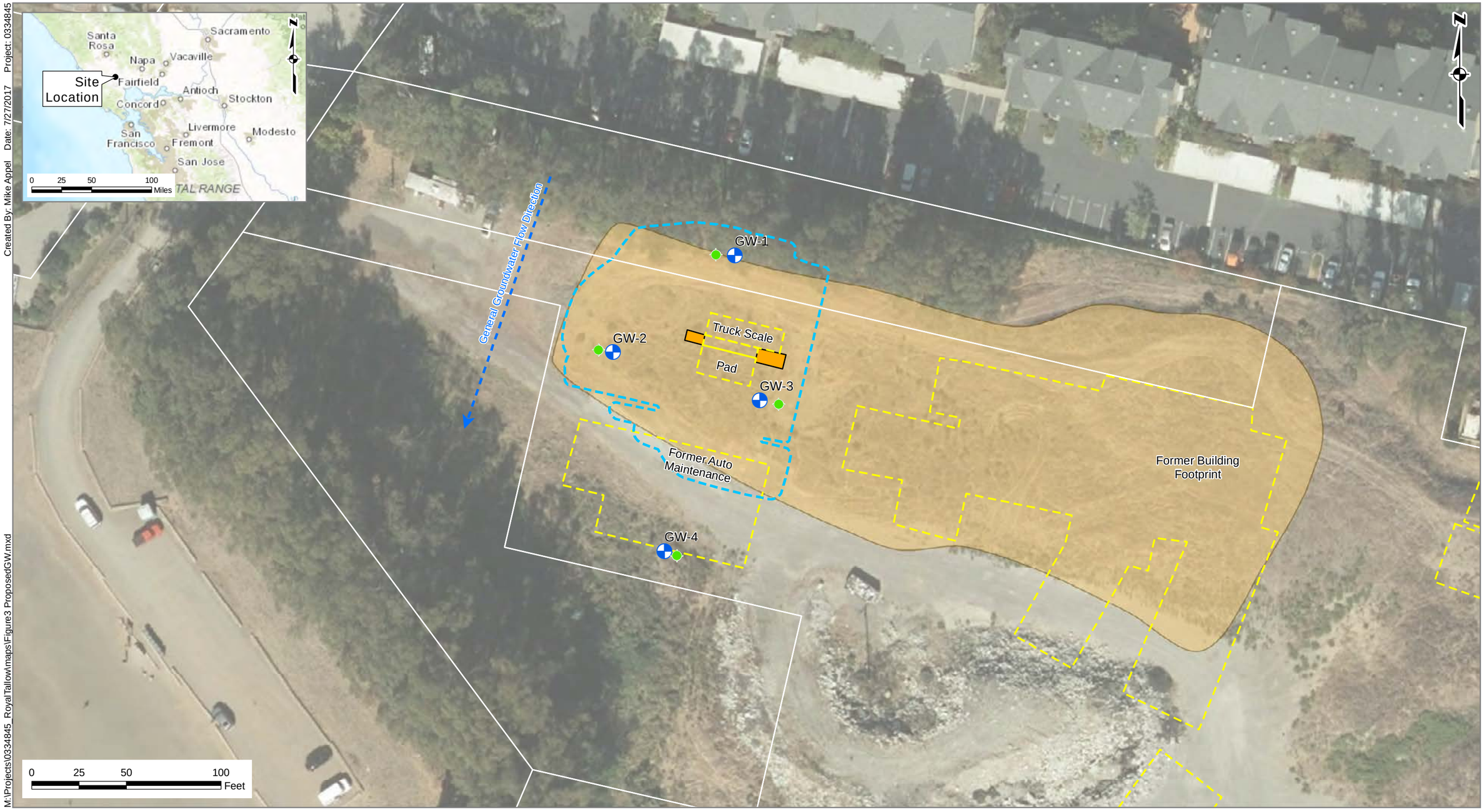
Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All historical locations approximate. Taken from historical locations figures.
**Orange** concentrations exceed LTCP Soil Gas Criteria (Residential) w/ Bioattenuation.
**Green** concentrations exceed the LTCP Soil Gas Criteria (Residential) w/o Bioattenuation.
ND = Analyte Not Detected.
If the noted concentration exceeds the LTCP Soil Gas Criteria w/ Bioattenuation Value (Orange) then it also exceeds the LTCP Soil Gas Criteria w/o Bioattenuation (Green).
All results in micrograms per liter (µg/m3).

**Figure 2**
*Approximate Extent of Remedial Excavation and Contaminant Concentrations in Soil Vapor in the Former UST Remediation Area*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com
ERM

Created By: Mike Appel Date: 7/27/2017 Project: 0334845




M:\Projects\0334845_RoyalTallow\maps\Figure3 ProposedGW.mxd

## Legend

- Proposed MiHPT Locations
- Approximate Groundwater Sample/Well Location
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation
- Parcel Boundaries

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All locations approximate. Taken from historical locations figures.

**Figure 3**
*Proposed Sampling Locations*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

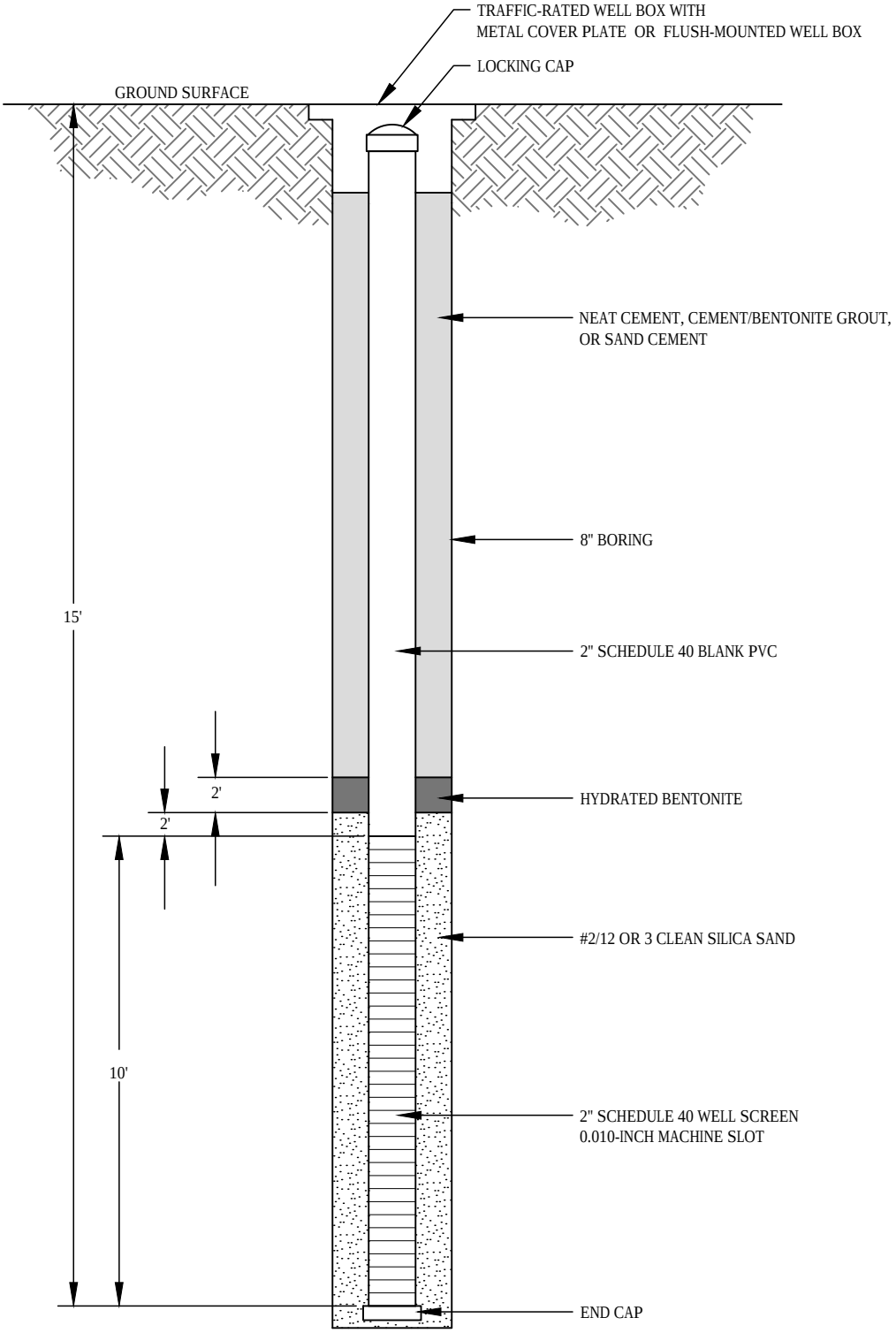



**Figure 4**

*Monitoring Well Construction Diagram*
*2592 Lakeville Highway*
*Petaluma, California*

NOTE
APPROXIMATE WELL DEPTH AND SCREEN INTERVAL. TOTAL DEPTH OF WELL AND SCREEN INTERVAL WILL BE DETERMINED IN THE FIELD.

NOT TO SCALE

Environmental Resources Management
www.erm.com

ERM

J. Rahmani 7/26/2017 0334845.04 G:\DWGS\0334845 Lakeville Highway\04\033484504-04.dwg

ERM

2525 Natomas Park Drive
Suite 350
Sacramento, CA 95833

Telephone: +1-916-924-9378
Fax: +1-916-920-9378

www.erm.com

5 September 2018

Mr. Glenn Morelli
625 Fifth Street
Santa Rosa, CA 95404

Reference: 0334845.07

Subject: Feasibility Study and Corrective Action Plan Addendum
2592 Lakeville Highway, Petaluma, California
EHS Site #00001359
SFBRWQCB #49-0142

Dear Mr. Morelli:

On behalf of Darling Ingredients Inc. (Darling), ERM-West, Inc. (ERM) has prepared this *Feasibility Study and Corrective Action Plan Addendum* (Addendum) for the former Royal Tallow property located at 2592 Lakeville Highway in Petaluma, California. This document has been prepared pursuant to a request by the Sonoma County Department of Health Services (SCDHS) in correspondence to Darling dated 15 August 2018.

Based on comments made during the Joint Execution Team (JET) meeting on 14 August 2018, discussion related to the selected remedial alternative (Remedial Alternative 3 – Soil Excavation with In Situ Chemical Oxidant Mixing), and SCDHS directives established in the 15 August 2018 correspondence, Darling has prepared this Addendum to the *Feasibility Study and Corrective Action Plan* (FS/CAP; ERM, June 2018) to include:

- Identification of Excavation Performance Criteria for the selected remedial alternative (i.e., Remedial Alternative 3);
- Inclusion of a contingency plan (i.e., deed covenant) and discussion related to utilization of a soil and groundwater management plan (SGMP); and
- Presentation of an ex situ thermal soil treatment technology being evaluated as an alternative to traditional off-site disposal of impacted soils.

Details regarding each of these additional remedial components (i.e., excavation performance criteria, contingency plan, SGMP, and ex situ thermal treatment technology) are discussed further below.

**Excavation Performance Criteria**

As stated in Section 5.2.3 of the FS/CAP, Remedial Alternative 3 will utilize an active approach that would remove residual (sorbed) phase petroleum underground storage tank (UST)-related constituents of concern (COCs) via soil excavation to a target depth of approximately 10 feet below native ground surface and would include the use of an in situ chemical oxidation (ISCO) compound at the base of the excavation in order to reduce residual COCs following backfill activities. In order to establish the lateral limits of the proposed excavation, the following excavation performance criteria have been identified:

- Soil excavation will begin within the most contaminated portion of the site relative to the former USTs (adjacent to and east of W-10 and west of the former USTs) and will expand vertically and laterally, as necessary, through an iterative process.
  - The vertical extent of the proposed soil excavation is well defined based on historical data (i.e., MiHPT survey, soil borings, and field observations) and will be primarily driven by field observations (i.e., photoionization detector readings and visual indicators). In an effort to maximize the effectiveness of the ISCO compound and address any residual contamination at depth, the vertical limits of the soil excavation are largely fixed at 10 feet below native ground surface.
  - The lateral extent of the proposed soil excavation will be expanded based on either visible evidence of soil impacts or where laboratory analyses of soil confirmation samples report COC concentrations greater than remedial goals.
- Confirmation soil samples will be collected to determine whether impacted soils have been removed such that the remaining soil does not contain COCs with concentrations exceeding remedial goals for the proposed designated land use.
  - To facilitate the soil excavation process, soil confirmation samples analytical results will first be compared against the Low Threat Closure Policy (LTCP) soil criteria (i.e., Direct Contact and Volatilization to Outdoor Air) for benzene.
  - In the event that benzene concentrations in soil confirmation samples are less than the LTCP soil criteria and/or nondetect, then total petroleum hydrocarbons in the gasoline range (TPH-G) concentrations will be utilized to determine the lateral extent of the excavation.
  - If TPH-G concentrations are found to exceed the Residential Shallow Soil Exposure Environmental Screening Level (San Francisco Bay Regional Water Quality Control Board 2016) for TPH-G, established at 740 milligrams per kilogram (mg/kg), then additional sidewall soils will be excavated; followed by the collection of additional confirmation samples.
  - If soil confirmation sample analytical results are equal to and/or less than 740 mg/kg, then representative soils will be left in place.
- Confirmation soil samples will be collected and submitted for the following analysis:
  - Volatile organic compounds using United States Environmental Protection Agency (USEPA) Method 8260B; and
  - TPH-G using USEPA Method 8260B.

**Contingency Plan**

As discussed in Section 6.2 of the FS/CAP, post-excavation monitoring (collection of two semiannual groundwater and soil vapor samples) will occur for up to 1 year following remedy implementation and completion of field activities (i.e., excavation). Post-excavation monitoring will be conducted in order to measure the success of the remedy implementation and to confirm the occurrence of natural attenuation of COC concentrations.

In the event that COC concentrations in soil vapor and shallow groundwater exceed levels protective of human health and the environment, additional controls (i.e., deed covenant, SGMP) will be considered for implementation for all COCs and media (i.e., soil and groundwater).

***Deed Covenant***

If approved by the JET, the deed covenant could be implemented to prevent exposure to impacted media and would alert future site owners/residents to current site conditions and monitoring and maintenance requirements for all impacted areas, and forbid potential future alternation and/or unauthorized use of the remediation area of concern unless approved by the SCDHS and/or the State Water Resources Control Board.

***Soil and Groundwater Management Plan***

An SGMP would be developed, by Darling in collaboration with the JET, in order to provide a framework for managing potentially impacted soil and groundwater within the remediation area of concern (as shown on Figure 4 of the FS/CAP) during subsurface activities, such as utility work, construction, or dewatering. Owner or duly authorized representative shall provide a copy of the SGMP to parties engaging in work activities that involve handling potentially impacted soil and/or groundwater. Workers shall adhere to the SGMP except in the case of a superseding federal, state, and/or local regulation.

**Ex Situ Thermal Soil Treatment Technology**

As part of the development of the Project Implementation Plan (PEP), additional cost benefit evaluation is being conducted with regards to the soil disposal component of Remedial Alternative 3. Darling is evaluating the effectiveness, implementability, and cost saving benefits of an onsite ex situ thermal soil treatment technology offered by Reterro, Inc. (Reterro) of Pleasanton, California.

In July 2018, Reterro performed a bench-scale treatability test study on an impacted soil sample collected during the additional site characterization activities conducted by ERM in November 2017. As reflected in Attachment A (Reterro Bench Scale Test Results), the bench scale test indicated favorable Evaporative Desorption Technology (EDT) soil treatment results and demonstrated that sufficient air flow could be obtained through the soil media. The bench scale test concluded that the impacted soil at the site can be processed with full-scale EDT to achieve the soil remediation objectives.

The PEP will be compiled utilizing the offsite disposal option, as presented in the FS/CAP; however, evaluation of Reterro's ex situ thermal soil treatment technology will continue in tandem to the preparation of the PEP and could be considered during the design phase once a final remedial alternative is selected by the JET.

**Closing**

If you have any questions or concerns regarding this FS/CAP Addendum, please do not hesitate to contact Christopher Berg at (916) 769-9050 if you have any questions.

Sincerely,

Christopher Berg, P.G.
Project Manager




Mark Ransom, P.E.
Partner-in-Charge

*Attachment A*

*Reterro Bench Scale*
*Test Results*

July 20, 2018

Mr. Arun Chemburkar, P.E.
ERM West
1277 Treat Blvd., #500
Walnut Creek, CA 94597

Subject: Reterro Bench Scale Test Results
Evaporative Desorption Technology
2592 Lakeville Highway, Petaluma, California

Mr. Chemburkar,

Reterro, Inc. (Reterro) is pleased to provide the bench scale test results for soil samples collected during an ERM site investigation at 2592 Lakeville Highway in Petaluma, California (the "site"). Soil in the area of the collected sample was reportedly impacted with petroleum hydrocarbons; primarily total petroleum hydrocarbons as gasoline (TPHg) and volatile organic compounds (VOCs). The purpose of this Evaporative Desorption Technology (EDT) bench test was to evaluate whether EDT is a viable remedial alternative for on-site soil remediation.

## 1.0 EDT BENCH TEST SUMMARY

ERM provided a soil sample comprised of seven small sample tubes. In advance of EDT bench testing, Reterro submitted untreated samples for chemical analyses to determine the pre-EDT concentrations of TPHg and VOCs.

Given the limited amount of soil, one bench test was completed on the sample to evaluate the reduction of contaminant concentrations in soils. Chemical analyses of the post-bench test soil sample confirmed contaminant removal is feasible by the EDT process.

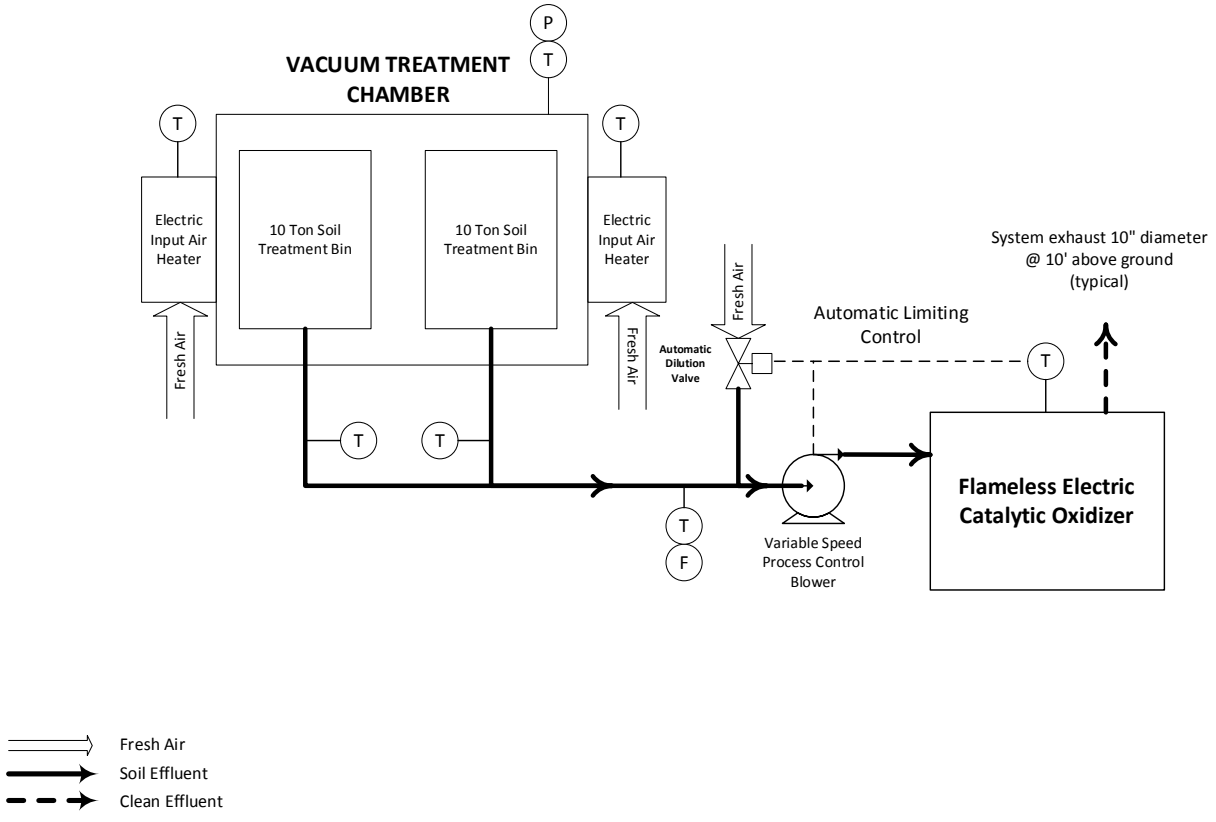
## 2.0 BENCH TEST RESULTS

### 2.1 Introduction to Evaporative Desorption Technology

Reterro developed EDT as a method to remove a wide range of contaminants in soil including petroleum hydrocarbons, VOCs and semi-VOCs. EDT is a mobile all-electric, thermal low pressure system designed for high throughput, and is a remediation alternative accomplished by placing the chemically-impacted material into treatment bins fitted with vapor extraction lines that couple with a vacuum extraction system. The EDT units are thermally-insulated treatment chambers that hold two approximate 10-ton capacity material treatment bins, and include electric inlet blowers and electric heaters which inject heated air into the chambers. The heated air is drawn through the material treatment bins to volatize the contaminants. As the soil heats

up, the contaminants are removed from the EDT chambers in the vapor stream and, depending on the type of contaminant(s), either adsorbed on to granular activated carbon or destroyed by a catalytic or thermal oxidizer. A schematic of the EDT system equipped with a catalytic oxidizer for TPH removal and destruction is shown as Figure 1.

**Figure 1.**
**EDT System Schematic**




## 2.2 Bench Scale Test Overview

Bench scale testing was performed on the soil sample provided by ERM. Photo-documentation of the soil sample as-received is presented below.

**Soil Sample As-received**




Reterro composited the sample tubes into a single soil sample in advance of testing. The pre- and post-bench test samples were submitted for chemical analyses to McCampbell Analytical, Inc., of Pittsburg, California, under chain-of-custody documentation. Chemical analyses were performed to test for the presence of TPHg and VOCs by EPA Method 8260B. Certified analytical reports for all laboratory tests are included as Attachment A. Select analytical data are tabulated in Table 1.

Reterro performed one EDT bench test at a treatment control temperature of 450$^{o}$F and treatment time of 4 hours to evaluate the reduction of contaminant concentrations in soils.

### 2.3 Physical Soil Characteristics

Based on visual evaluation, the as-received sample appeared to comprise predominantly moist, moderate plasticity clay with silt and sand.

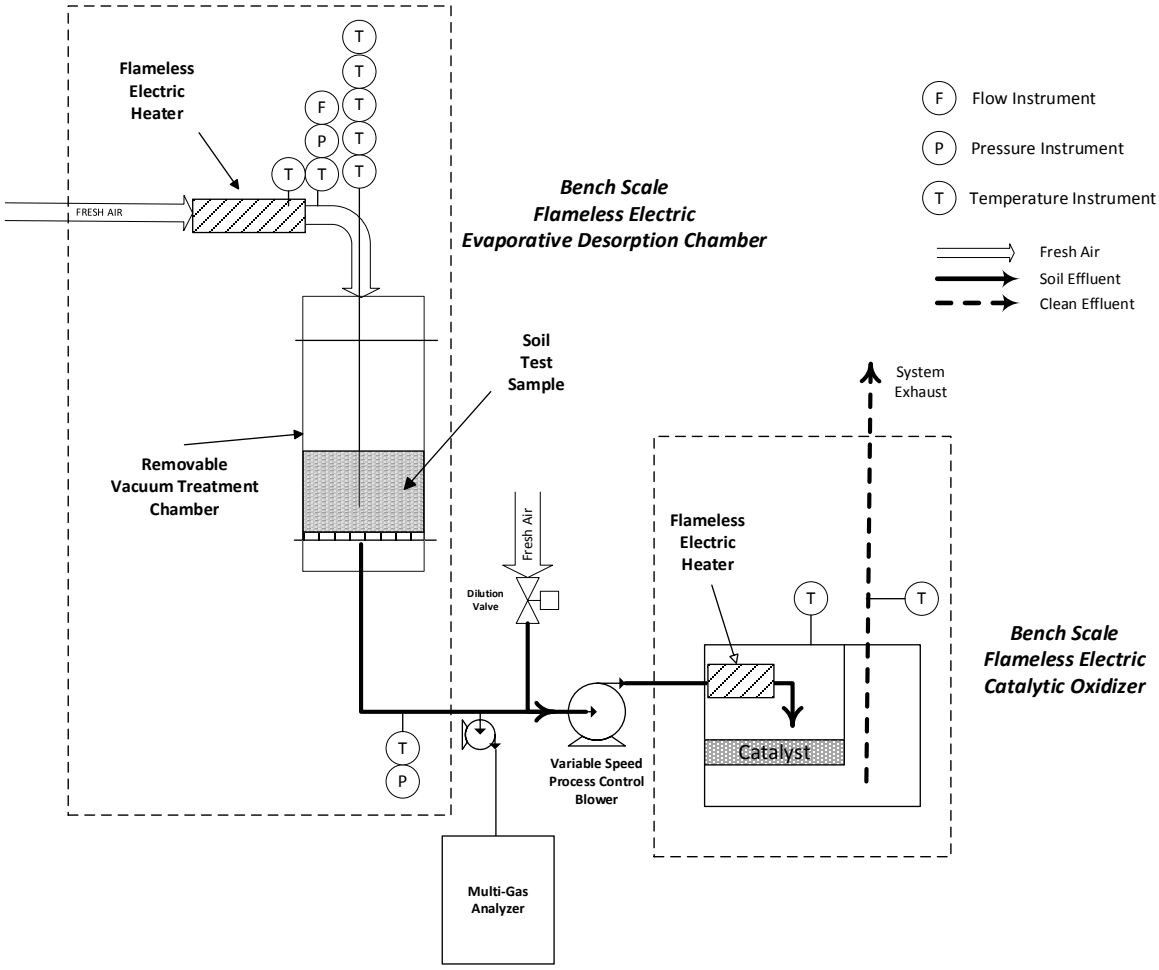
## 2.4 EDT Bench Scale Testing

The purpose of EDT bench scale testing is to provide an initial evaluation of treatability of representative soil conditions that would likely be encountered at the site during full scale excavation and EDT soil treatment. The bench scale test was performed using the Reterro mobile EDT test laboratory, which is designed to test small samples and provide a correlation to full-size treatment batches. Specifically, Reterro evaluated air flow through the soil sample, temperature profile within the soil, and contaminant mass removal.

For the test, an approximate 12-inch column of soil was placed in the test chamber. A multi-element thermocouple stack was inserted in the sample to provide continuous temperature readings at various depths within the soil column. Heated air was then injected into the top of the sample chamber, and the air was drawn through the soil column by a vacuum applied at the bottom of the test chamber to heat the soil to the necessary temperature to volatize the contaminant mass. Reterro simulates production conditions by establishing a near surface target temperature and observes the resulting behavior as temperature increases through the soil column.

The EDT test chamber multi-element k-type thermocouple stack measures temperature at one-half inch, 4 inches, 8 inches, and 12 inches from the surface of the outlet screen. For the selected sample size the thermocouple element at 12 inches measures soil temperature near the heat facing (hotter) surface at the top of the soil column and the one-half inch element measures soil temperature near the exit screen (colder) surface at the base of the soil column. A schematic of the EDT test chamber is presented below as Figure 2.

**Figure 2.**
**Evaporative Desorption Test Chamber Schematic**




The bench scale test run was completed using a temperature of 450°F measured near the surface of the soil column. Heated air flow through the soil column was maintained at a consistent 2 standard cubic feet per minute. Once the target near surface soil control temperature was achieved, the temperature was held for approximately 4 hours.

The following parameters were monitored and recorded during the test: soil inlet pressure, soil outlet pressure, air flow volume, soil temperature at various depths through the soil column, air space temperature above the soil column, heater element temperature, and effluent vapor temperature at the outlet of the test chamber. The effluent vapor was monitored using a MultiRAE PRO Model: PGM6248 portable gas analyzer fit with a photo-ionization detector (PID) to measure the concentration of VOCs as well as sensors for $O_2$, CO, $H_2S$, $NO_2$, and %-Lower Explosive Limit (LEL). System pressures were measured using Siemens Sitran P-3000 pressure transducers and mass flow was measured with a Sierra Instruments Fastflo 620s Mass Flow

Analyzer. Summary graphs depicting time-series temperature and air flow data for the bench scale test run are included as Attachment B.

Following the bench scale test run, the soil was spread on a clean tray and a soil sample was collected for analytical testing as indicated in the photographs below. Since the volatized contaminants must move linearly from surface to outlet through the entire soil column to reach the effluent port, bench test soil samples were collected from near the bottom of the treated soil column. Near bottom sampling assured that the analyses are skewed toward the least favorable, not the most favorable, result. The intent of the testing was to establish a removal trend that correlates to expected production EDT conditions. Analytical results for pre- and post-EDT test are summarized in Table 1.

**Evaporative Desorption Test Chamber**
**Post Test Sampling Sequence**




The temperature curves for the heater and the 12-inch thermocouple positions (located above the soil column) in the test chamber show the expected relationships and heat loss in the air inlet line for all test runs. Heating within the soil column, as shown by thermocouples at 8 inches, 4 inches and one-half inch, progressed uniformly and predictably in agreement with the hardware models and consistent with prior test experience. This confirms homogeneity of airflow within the soil and a relatively uniform compaction of the soil within the test chamber. Given the low levels of petroleum hydrocarbons and VOCs in the tested soil, effluent vapor contained only low levels of VOC during bench testing.

The tested soil contained cohesive silt and clay. Given this cohesiveness, the pre-test soil with native moisture content tended to form small clumps when the sample was mixed or handled. The pre-test material remained in small clumps when placed in the bench test chamber, and as the soil dried during the EDT process, the small clumps set in place. When the treated soil was

removed from the test chamber the soil typically stayed in small clumps, which could be crushed with moderated finger pressure.

Of note, the EDT process (at full- and test-scale) does not significantly alter the geotechnical properties of the soil because the process does not reach temperatures that will destroy organic matter or chemically alter or vitrify the soil particles such that it would become difficult to compact. Typically, for geotechnical purposes, the only post-EDT soil conditioning required is rehydration to achieve optimum moisture content for compaction.

**Soil Sample following EDT Bench Test**



## 3.0 EVALUATION OF EDT BENCH SCALE TESTING

The soil treatment requirements as provided by ERM are included in Table 1. Table 1 compares pre- and post-bench test analytical results. As shown, the pre-bench test sample contained only low concentrations (well below the soil treatment requirements) of TPHg and naphthalene.

The bench scale test indicated predictable behavior for EDT soil treatment, and demonstrated that air flow can be obtained through the soil media. Time-series temperature data of the bench

test soil column show that the full 12-inch soil column reached temperature of 150$^{o}$F in approximately 2.5 hours; a target temperature for the evaporative desorption of gasoline range hydrocarbons and benzene, toluene, ethylbenzene and total xylenes. Analytical data showed the expected decrease in TPHg and naphthalene concentrations.

The analytical and temperature data demonstrate that site soil can be treated to meet the relevant cleanup requirements for this soil with appropriate temperature and EDT process time. Based on these test results, as well as prior experience with similar soil and contaminant type, it is our conclusion that the impacted soil from the site can be processed with full-scale EDT to achieve the soil remediation objective, at a process time between 2 and 2.5 hours.

## 4.0 CLOSING

Should you have any questions regarding this report or require additional information, please contact the undersigned at your convenience.

Sincerely,

**Reterro, Inc.**



Joe Muzzio, P.G., C.E.G. (CA)
Technical Program Manager, RME

Steve Bay
Chief Operating Officer

**Attachments**: Table 1- Pre- and Post-Bench Test Soil Analytical Data
Attachment A – Certified Analytical Reports
Attachment B – Bench Test Instrumentation Data

**TABLE 1**
**ERM/ 2592 Lakeville Highway, Petaluma, CA**
**Evaporative Desorption Technology Soil Treatability Bench Test**
**Total Petroleum Hydrocarbons as gasoline and Volatile Organic Compounds**

| *Laboratory Methods* | | | | | *EPA Method 8260B* | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bench Test Sample ID** | **Bench Test Process hr/Temp** | **Test Run #** | **Date** | **PID[1] (ppmv)** | **TPHg (C4-C12) (mg/kg)** | **Benzene (mg/kg)** | **Toluene (mg/kg)** | **Ethylbenzene (mg/kg)** | **Xylenes (mg/kg)** | **MTBE (mg/kg)** | **TBA (mg/kg)** | **Naphthalene (mg/kg)** |
| ***Pre-EDT Bench Test Analytical Results*** | | | | | | | | | | | | |
| **Pre-BT Soil** | NA | NA | 6/25/2018 | **160** | **45** | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.50 | **0.15** |
| ***Post-EDT Bench Test Analytical Results*** | | | | | | | | | | | | |
| **2506181245024001** | 4hr/450F | 1 | 6/25/2018 | **60** | **2.3** | <0.0050 | **0.0078** | <0.0050 | **0.027** | <0.0050 | <0.050 | **0.010** |
| | | | | | | | | | | | | |
| ***Potential Soil Cleanup Standard[2]*** | | | | | | | | | | | | |
| *As provided by ERM* | | | | | *NS* | *1.9* | *NS* | *21* | *NS* | *NS* | *NS* | *10* |

**Notes:**

[1]: Measured at time of sample collection
[2]: Low threat closure cleanup standards
PID: Photo-ionization detector
PPMV: Parts per million by volume
mg/kg: Milligrams per kilogram
<0.050: Less than laboratory method detection limit
TPHg: Total Petroleum Hydrocarbon as gasoline (with carbon range)
MTBE: Methyl tertiary butyl ether
TBA: Tertiary butyl alcohol

Attachment A

Certified Analytical Reports

McCampbell Analytical, Inc.

*"When Quality Counts"*

# Analytical Report

**WorkOrder:** 1806D68

**Report Created for:** Reterro Inc.

7650 Hawthorne Avenue
Livermore, CA 94550

**Project Contact:** Joe Muzzio
**Project P.O.:**
**Project:** ERM/Petaluma

**Project Received:** 06/27/2018

Analytical Report reviewed & approved for release on 07/05/2018 by:

Yen Cao
Project Manager

***The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.***

McCampbell Analytical, Inc.
*"When Quality Counts"*
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Glossary of Terms & Qualifier Definitions

**Client:** Reterro Inc.
**Project:** ERM/Petaluma
**WorkOrder:** 1806D68

## Glossary Abbreviation

| | |
|---|---|
| %D | Serial Dilution Percent Difference |
| 95% Interval | 95% Confident Interval |
| DF | Dilution Factor |
| DI WET | (DISTLC) Waste Extraction Test using DI water |
| DISS | Dissolved (direct analysis of 0.45 µm filtered and acidified water sample) |
| DLT | Dilution Test (Serial Dilution) |
| DUP | Duplicate |
| EDL | Estimated Detection Limit |
| ERS | External reference sample. Second source calibration verification. |
| ITEF | International Toxicity Equivalence Factor |
| LCS | Laboratory Control Sample |
| MB | Method Blank |
| MB % Rec | % Recovery of Surrogate in Method Blank, if applicable |
| MDL | Method Detection Limit |
| ML | Minimum Level of Quantitation |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| N/A | Not Applicable |
| ND | Not detected at or above the indicated MDL or RL |
| NR | Data Not Reported due to matrix interference or insufficient sample amount. |
| PDS | Post Digestion Spike |
| PDSD | Post Digestion Spike Duplicate |
| PF | Prep Factor |
| RD | Relative Difference |
| RL | Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.) |
| RPD | Relative Percent Deviation |
| RRT | Relative Retention Time |
| SPK Val | Spike Value |
| SPKRef Val | Spike Reference Value |
| SPLP | Synthetic Precipitation Leachate Procedure |
| ST | Sorbent Tube |
| TCLP | Toxicity Characteristic Leachate Procedure |
| TEQ | Toxicity Equivalents |
| WET (STLC) | Waste Extraction Test (Soluble Threshold Limit Concentration) |

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Glossary of Terms & Qualifier Definitions

**Client:** Reterro Inc.
**Project:** ERM/Petaluma
**WorkOrder:** 1806D68

## Analytical Qualifiers

| | |
|---|---|
| e2/e8 | Diesel range compounds are significant; no recognizable pattern; and/or Pattern resembles kerosene/kerosene range/jet fuel range. |
| e4 | Gasoline range compounds are significant. |

## Quality Control Qualifiers

| | |
|---|---|
| F2 | LCS/LCSD recovery and/or RPD is out of acceptance criteria. |
| F3 | The surrogate standard recovery and/or RPD is outside of acceptance limits. |

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Received:** | 6/27/18 12:42 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 6/27/18-6/29/18 | **Analytical Method:** | SW8260B |
| **Project:** | ERM/Petaluma | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **Pre-BT Soil'** | **1806D68-001A** | **Soil** | **06/25/2018 15:48** | **GC38 06291825.D** | **160739** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Benzene | ND | 0.050 | 10 | 06/29/2018 22:40 |
| t-Butyl alcohol (TBA) | ND | 0.50 | 10 | 06/29/2018 22:40 |
| Ethylbenzene | ND | 0.050 | 10 | 06/29/2018 22:40 |
| Methyl-t-butyl ether (MTBE) | ND | 0.050 | 10 | 06/29/2018 22:40 |
| Naphthalene | **0.15** | 0.050 | 10 | 06/29/2018 22:40 |
| Toluene | ND | 0.050 | 10 | 06/29/2018 22:40 |
| Xylenes, Total | ND | 0.050 | 10 | 06/29/2018 22:40 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Dibromofluoromethane | 107 | 82-136 | 06/29/2018 22:40 |
| Toluene-d8 | 103 | 92-139 | 06/29/2018 22:40 |
| 4-BFB | 105 | 82-135 | 06/29/2018 22:40 |
| Benzene-d6 | 94 | 55-122 | 06/29/2018 22:40 |
| Ethylbenzene-d10 | 70 | 58-141 | 06/29/2018 22:40 |
| 1,2-DCB-d4 | 90 | 51-107 | 06/29/2018 22:40 |

Analyst(s): KF

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **2506181245024001** | **1806D68-002A** | **Soil** | **06/25/2018 15:40** | **GC38 06291811.D** | **160663** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Benzene | ND | 0.0050 | 1 | 06/29/2018 13:44 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 06/29/2018 13:44 |
| Ethylbenzene | ND | 0.0050 | 1 | 06/29/2018 13:44 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 06/29/2018 13:44 |
| Naphthalene | **0.010** | 0.0050 | 1 | 06/29/2018 13:44 |
| Toluene | **0.0078** | 0.0050 | 1 | 06/29/2018 13:44 |
| Xylenes, Total | **0.027** | 0.0050 | 1 | 06/29/2018 13:44 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Dibromofluoromethane | 97 | 82-136 | 06/29/2018 13:44 |
| Toluene-d8 | 112 | 92-139 | 06/29/2018 13:44 |
| 4-BFB | 113 | 82-135 | 06/29/2018 13:44 |
| Benzene-d6 | 88 | 55-122 | 06/29/2018 13:44 |
| Ethylbenzene-d10 | 117 | 58-141 | 06/29/2018 13:44 |
| 1,2-DCB-d4 | 80 | 51-107 | 06/29/2018 13:44 |

Analyst(s): TK

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Received:** | 6/27/18 12:42 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 6/27/18-6/29/18 | **Analytical Method:** | SW8260B |
| **Project:** | ERM/Petaluma | **Unit:** | mg/kg |

## TPH(g)

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **Pre-BT Soil'** | **1806D68-001A** | **Soil** | **06/25/2018 15:48** | **GC38 06291825.D** | **160739** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | **45** | 2.5 | 10 | 06/29/2018 22:40 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Dibromofluoromethane | 110 | 82-136 | 06/29/2018 22:40 |
| Benzene-D6 | 83 | 55-122 | 06/29/2018 22:40 |

Analyst(s): KF

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **2506181245024001** | **1806D68-002A** | **Soil** | **06/25/2018 15:40** | **GC38 06291811.D** | **160663** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | **2.3** | 0.25 | 1 | 06/29/2018 13:44 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Dibromofluoromethane | 109 | 82-136 | 06/29/2018 13:44 |
| Benzene-D6 | 95 | 55-122 | 06/29/2018 13:44 |

Analyst(s): TK

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Received:** | 6/27/18 12:42 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 6/27/18 | **Analytical Method:** | SW8015B |
| **Project:** | ERM/Petaluma | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **Pre-BT Soil'** | **1806D68-001A** | **Soil** | **06/25/2018 15:48** | **GC9a 07031880.D** | **160605** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | **9.6** | 1.0 | 1 | 07/04/2018 10:26 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| C9 | 94 | 74-123 | 07/04/2018 10:26 |

Analyst(s): JIS  Analytical Comments: e2/e8,e4

McCampbell Analytical, Inc.
*"When Quality Counts"*
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/27/18 | **BatchID:** | 160663 |
| **Date Analyzed:** | 6/28/18 - 7/1/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16, GC38 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160663 |

## QC Summary Report for SW8260B

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| Acetone | ND | 0.10 | - | - | - |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | - | - | - |
| Benzene | ND | 0.0050 | - | - | - |
| Bromobenzene | ND | 0.0050 | - | - | - |
| Bromochloromethane | ND | 0.0050 | - | - | - |
| Bromodichloromethane | ND | 0.0050 | - | - | - |
| Bromoform | ND | 0.0050 | - | - | - |
| Bromomethane | ND | 0.0050 | - | - | - |
| 2-Butanone (MEK) | ND | 0.020 | - | - | - |
| t-Butyl alcohol (TBA) | ND | 0.050 | - | - | - |
| n-Butyl benzene | ND | 0.0050 | - | - | - |
| sec-Butyl benzene | ND | 0.0050 | - | - | - |
| tert-Butyl benzene | ND | 0.0050 | - | - | - |
| Carbon Disulfide | ND | 0.0050 | - | - | - |
| Carbon Tetrachloride | ND | 0.0050 | - | - | - |
| Chlorobenzene | ND | 0.0050 | - | - | - |
| Chloroethane | ND | 0.0050 | - | - | - |
| Chloroform | ND | 0.0050 | - | - | - |
| Chloromethane | ND | 0.0050 | - | - | - |
| 2-Chlorotoluene | ND | 0.0050 | - | - | - |
| 4-Chlorotoluene | ND | 0.0050 | - | - | - |
| Dibromochloromethane | ND | 0.0050 | - | - | - |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | - | - | - |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | - | - | - |
| Dibromomethane | ND | 0.0050 | - | - | - |
| 1,2-Dichlorobenzene | ND | 0.0050 | - | - | - |
| 1,3-Dichlorobenzene | ND | 0.0050 | - | - | - |
| 1,4-Dichlorobenzene | ND | 0.0050 | - | - | - |
| Dichlorodifluoromethane | ND | 0.0050 | - | - | - |
| 1,1-Dichloroethane | ND | 0.0050 | - | - | - |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | - | - | - |
| 1,1-Dichloroethene | ND | 0.0050 | - | - | - |
| cis-1,2-Dichloroethene | ND | 0.0050 | - | - | - |
| trans-1,2-Dichloroethene | ND | 0.0050 | - | - | - |
| 1,2-Dichloropropane | ND | 0.0050 | - | - | - |
| 1,3-Dichloropropane | ND | 0.0050 | - | - | - |
| 2,2-Dichloropropane | ND | 0.0050 | - | - | - |
| 1,1-Dichloropropene | ND | 0.0050 | - | - | - |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/27/18 | **BatchID:** | 160663 |
| **Date Analyzed:** | 6/28/18 - 7/1/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16, GC38 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160663 |

## QC Summary Report for SW8260B

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | ND | 0.0050 | - | - | - |
| trans-1,3-Dichloropropene | ND | 0.0050 | - | - | - |
| Diisopropyl ether (DIPE) | ND | 0.0050 | - | - | - |
| Ethylbenzene | ND | 0.0050 | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | - | - | - |
| Freon 113 | ND | 0.0050 | - | - | - |
| Hexachlorobutadiene | ND | 0.0050 | - | - | - |
| Hexachloroethane | ND | 0.0050 | - | - | - |
| 2-Hexanone | ND | 0.0050 | - | - | - |
| Isopropylbenzene | ND | 0.0050 | - | - | - |
| 4-Isopropyl toluene | ND | 0.0050 | - | - | - |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | - | - | - |
| Methylene chloride | ND | 0.0050 | - | - | - |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | - | - | - |
| Naphthalene | ND | 0.0050 | - | - | - |
| n-Propyl benzene | ND | 0.0050 | - | - | - |
| Styrene | ND | 0.0050 | - | - | - |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | - | - | - |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | - | - | - |
| Tetrachloroethene | ND | 0.0050 | - | - | - |
| Toluene | ND | 0.0050 | - | - | - |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | - | - | - |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | - | - | - |
| 1,1,1-Trichloroethane | ND | 0.0050 | - | - | - |
| 1,1,2-Trichloroethane | ND | 0.0050 | - | - | - |
| Trichloroethene | ND | 0.0050 | - | - | - |
| Trichlorofluoromethane | ND | 0.0050 | - | - | - |
| 1,2,3-Trichloropropane | ND | 0.0050 | - | - | - |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | - | - | - |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | - | - | - |
| Vinyl Chloride | ND | 0.0050 | - | - | - |
| Xylenes, Total | ND | 0.0050 | - | - | - |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/27/18 | **BatchID:** | 160663 |
| **Date Analyzed:** | 6/28/18 - 7/1/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16, GC38 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160663 |

## QC Summary Report for SW8260B

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | |
| Dibromofluoromethane | 0.142 | | 0.12 | 114 | 87-127 |
| Toluene-d8 | 0.159 | | 0.12 | 127 | 93-141 |
| 4-BFB | 0.0114 | | 0.012 | 91 | 84-137 |
| Benzene-d6 | 0.0892 | | 0.10 | 89 | 67-131 |
| Ethylbenzene-d10 | 0.129 | | 0.10 | 129 | 78-153 |
| 1,2-DCB-d4 | 0.0825 | | 0.10 | 83 | 63-109 |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/27/18 | **BatchID:** | 160663 |
| **Date Analyzed:** | 6/28/18 - 7/1/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16, GC38 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160663 |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Acetone | 1.08 | 0.964 | 1 | 108 | 96 | 48-156 | 11.6 | 20 |
| tert-Amyl methyl ether (TAME) | 0.0418 | 0.0357 | 0.050 | 84 | 71 | 56-115 | 15.9 | 20 |
| Benzene | 0.0444 | 0.0400 | 0.050 | 89 | 80 | 63-131 | 10.4 | 20 |
| Bromobenzene | 0.0513 | 0.0461 | 0.050 | 103 | 92 | 66-127 | 10.7 | 20 |
| Bromochloromethane | 0.0514 | 0.0461 | 0.050 | 103 | 92 | 64-124 | 10.9 | 20 |
| Bromodichloromethane | 0.0450 | 0.0410 | 0.050 | 90 | 82 | 64-120 | 9.34 | 20 |
| Bromoform | 0.0412 | 0.0374 | 0.050 | 82 | 75 | 48-92 | 9.74 | 20 |
| Bromomethane | 0.0524 | 0.0461 | 0.050 | 105 | 92 | 25-163 | 13.0 | 20 |
| 2-Butanone (MEK) | 0.168 | 0.152 | 0.20 | 84 | 76 | 51-133 | 10.3 | 20 |
| t-Butyl alcohol (TBA) | 0.192 | 0.170 | 0.20 | 96 | 85 | 52-129 | 12.3 | 20 |
| n-Butyl benzene | 0.0738 | 0.0630 | 0.050 | 148 | 126 | 83-200 | 15.7 | 20 |
| sec-Butyl benzene | 0.0520 | 0.0455 | 0.050 | 104 | 91 | 81-199 | 13.3 | 20 |
| tert-Butyl benzene | 0.0619 | 0.0548 | 0.050 | 124 | 110 | 79-178 | 12.1 | 20 |
| Carbon Disulfide | 0.0444 | 0.0390 | 0.050 | 89 | 78 | 64-136 | 13.0 | 20 |
| Carbon Tetrachloride | 0.0693 | 0.0613 | 0.050 | 139 | 123 | 66-140 | 12.3 | 20 |
| Chlorobenzene | 0.0499 | 0.0445 | 0.050 | 100 | 89 | 73-116 | 11.5 | 20 |
| Chloroethane | 0.0489 | 0.0438 | 0.050 | 98 | 88 | 35-147 | 11.2 | 20 |
| Chloroform | 0.0513 | 0.0461 | 0.050 | 103 | 92 | 65-130 | 10.6 | 20 |
| Chloromethane | 0.0400 | 0.0345 | 0.050 | 80 | 69 | 30-137 | 14.6 | 20 |
| 2-Chlorotoluene | 0.0460 | 0.0419 | 0.050 | 92 | 84 | 75-152 | 9.21 | 20 |
| 4-Chlorotoluene | 0.0462 | 0.0409 | 0.050 | 92 | 82 | 71-148 | 12.2 | 20 |
| Dibromochloromethane | 0.0471 | 0.0415 | 0.050 | 94 | 83 | 61-106 | 12.7 | 20 |
| 1,2-Dibromo-3-chloropropane | 0.0123 | 0.0113 | 0.020 | 61 | 56 | 36-120 | 8.28 | 20 |
| 1,2-Dibromoethane (EDB) | 0.0444 | 0.0389 | 0.050 | 89 | 78 | 67-118 | 13.1 | 20 |
| Dibromomethane | 0.0463 | 0.0410 | 0.050 | 93 | 82 | 61-116 | 12.1 | 20 |
| 1,2-Dichlorobenzene | 0.0381 | 0.0347 | 0.050 | 76 | 69 | 59-106 | 9.12 | 20 |
| 1,3-Dichlorobenzene | 0.0417 | 0.0385 | 0.050 | 83 | 77 | 75-129 | 7.96 | 20 |
| 1,4-Dichlorobenzene | 0.0436 | 0.0388 | 0.050 | 87 | 78 | 66-127 | 11.7 | 20 |
| Dichlorodifluoromethane | 0.0271 | 0.0226 | 0.050 | 54 | 45 | 13-74 | 18.0 | 20 |
| 1,1-Dichloroethane | 0.0509 | 0.0458 | 0.050 | 102 | 92 | 65-134 | 10.6 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 0.0602 | 0.0535 | 0.050 | 120 | 107 | 57-131 | 11.7 | 20 |
| 1,1-Dichloroethene | 0.0494 | 0.0428 | 0.050 | 99 | 86 | 62-127 | 14.3 | 20 |
| cis-1,2-Dichloroethene | 0.0500 | 0.0445 | 0.050 | 100 | 89 | 66-130 | 11.8 | 20 |
| trans-1,2-Dichloroethene | 0.0521 | 0.0458 | 0.050 | 104 | 92 | 60-131 | 12.8 | 20 |
| 1,2-Dichloropropane | 0.0421 | 0.0379 | 0.050 | 84 | 76 | 63-127 | 10.6 | 20 |
| 1,3-Dichloropropane | 0.0439 | 0.0395 | 0.050 | 88 | 79 | 68-124 | 10.6 | 20 |
| 2,2-Dichloropropane | 0.0581 | 0.0516 | 0.050 | 116 | 103 | 63-150 | 12.0 | 20 |
| 1,1-Dichloropropene | 0.0535 | 0.0474 | 0.050 | 107 | 95 | 67-134 | 12.0 | 20 |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/27/18 | **BatchID:** | 160663 |
| **Date Analyzed:** | 6/28/18 - 7/1/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16, GC38 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160663 |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 0.0458 | 0.0409 | 0.050 | 92 | 82 | 65-138 | 11.2 | 20 |
| trans-1,3-Dichloropropene | 0.0475 | 0.0414 | 0.050 | 95 | 83 | 66-124 | 13.7 | 20 |
| Diisopropyl ether (DIPE) | 0.0429 | 0.0387 | 0.050 | 86 | 77 | 58-129 | 10.4 | 20 |
| Ethylbenzene | 0.0603 | 0.0532 | 0.050 | 121 | 106 | 73-145 | 12.6 | 20 |
| Ethyl tert-butyl ether (ETBE) | 0.0451 | 0.0411 | 0.050 | 90 | 82 | 62-125 | 9.30 | 20 |
| Freon 113 | 0.0463 | 0.0397 | 0.050 | 93 | 79 | 55-116 | 15.4 | 20 |
| Hexachlorobutadiene | 0.0957 | 0.0808 | 0.050 | 191, F2 | 162 | 75-178 | 16.9 | 20 |
| Hexachloroethane | 0.0568 | 0.0502 | 0.050 | 114 | 101 | 75-152 | 12.1 | 20 |
| 2-Hexanone | 0.0308 | 0.0280 | 0.050 | 62 | 56 | 41-113 | 9.66 | 20 |
| Isopropylbenzene | 0.0579 | 0.0508 | 0.050 | 116 | 102 | 67-172 | 13.0 | 20 |
| 4-Isopropyl toluene | 0.0598 | 0.0526 | 0.050 | 120 | 105 | 88-171 | 12.8 | 20 |
| Methyl-t-butyl ether (MTBE) | 0.0456 | 0.0413 | 0.050 | 91 | 83 | 58-122 | 10.0 | 20 |
| Methylene chloride | 0.0466 | 0.0426 | 0.050 | 93 | 85 | 57-140 | 8.93 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.0325 | 0.0286 | 0.050 | 65 | 57 | 42-117 | 12.7 | 20 |
| Naphthalene | 0.0232 | 0.0217 | 0.050 | 46 | 43 | 29-65 | 6.85 | 20 |
| n-Propyl benzene | 0.0546 | 0.0483 | 0.050 | 109 | 97 | 85-174 | 12.4 | 20 |
| Styrene | 0.0379 | 0.0345 | 0.050 | 76 | 69 | 63-126 | 9.35 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0554 | 0.0496 | 0.050 | 111 | 99 | 68-131 | 11.2 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0330 | 0.0294 | 0.050 | 66 | 59 | 45-121 | 11.6 | 20 |
| Tetrachloroethene | 0.0687 | 0.0591 | 0.050 | 137 | 118 | 65-150 | 15.0 | 20 |
| Toluene | 0.0514 | 0.0449 | 0.050 | 103 | 90 | 72-135 | 13.6 | 20 |
| 1,2,3-Trichlorobenzene | 0.0311 | 0.0286 | 0.050 | 62 | 57 | 35-80 | 8.48 | 20 |
| 1,2,4-Trichlorobenzene | 0.0387 | 0.0363 | 0.050 | 77 | 73 | 45-103 | 6.45 | 20 |
| 1,1,1-Trichloroethane | 0.0660 | 0.0586 | 0.050 | 132 | 117 | 67-137 | 11.9 | 20 |
| 1,1,2-Trichloroethane | 0.0423 | 0.0382 | 0.050 | 85 | 76 | 67-117 | 10.2 | 20 |
| Trichloroethene | 0.0575 | 0.0514 | 0.050 | 115 | 103 | 62-135 | 11.2 | 20 |
| Trichlorofluoromethane | 0.0541 | 0.0466 | 0.050 | 108 | 93 | 56-124 | 14.9 | 20 |
| 1,2,3-Trichloropropane | 0.0421 | 0.0378 | 0.050 | 84 | 76 | 58-133 | 10.9 | 20 |
| 1,2,4-Trimethylbenzene | 0.0488 | 0.0437 | 0.050 | 98 | 87 | 78-161 | 11.2 | 20 |
| 1,3,5-Trimethylbenzene | 0.0524 | 0.0463 | 0.050 | 105 | 93 | 85-170 | 12.4 | 20 |
| Vinyl Chloride | 0.0452 | 0.0386 | 0.050 | 90 | 77 | 32-142 | 15.7 | 20 |
| Xylenes, Total | 0.146 | 0.130 | 0.15 | 97 | 87 | 70-137 | 11.4 | 20 |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/27/18 | **BatchID:** | 160663 |
| **Date Analyzed:** | 6/28/18 - 7/1/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16, GC38 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160663 |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | | |
| Dibromofluoromethane | 0.144 | 0.142 | 0.12 | 115 | 114 | 87-127 | 0.801 | 20 |
| Toluene-d8 | 0.162 | 0.159 | 0.12 | 130 | 127 | 93-141 | 1.97 | 20 |
| 4-BFB | 0.0120 | 0.0123 | 0.012 | 96 | 98 | 84-137 | 2.20 | 20 |
| Benzene-d6 | 0.0954 | 0.0858 | 0.10 | 95 | 86 | 67-131 | 10.6 | 20 |
| Ethylbenzene-d10 | 0.140 | 0.126 | 0.10 | 140 | 126 | 78-153 | 10.9 | 20 |
| 1,2-DCB-d4 | 0.0839 | 0.0790 | 0.10 | 84 | 79 | 63-109 | 6.01 | 20 |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/28/18 | **BatchID:** | 160739 |
| **Date Analyzed:** | 6/29/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160739 |

## QC Summary Report for SW8260B

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| Acetone | ND | 0.10 | - | - | - |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | - | - | - |
| Benzene | ND | 0.0050 | - | - | - |
| Bromobenzene | ND | 0.0050 | - | - | - |
| Bromochloromethane | ND | 0.0050 | - | - | - |
| Bromodichloromethane | ND | 0.0050 | - | - | - |
| Bromoform | ND | 0.0050 | - | - | - |
| Bromomethane | ND | 0.0050 | - | - | - |
| 2-Butanone (MEK) | ND | 0.020 | - | - | - |
| t-Butyl alcohol (TBA) | ND | 0.050 | - | - | - |
| n-Butyl benzene | ND | 0.0050 | - | - | - |
| sec-Butyl benzene | ND | 0.0050 | - | - | - |
| tert-Butyl benzene | ND | 0.0050 | - | - | - |
| Carbon Disulfide | ND | 0.0050 | - | - | - |
| Carbon Tetrachloride | ND | 0.0050 | - | - | - |
| Chlorobenzene | ND | 0.0050 | - | - | - |
| Chloroethane | ND | 0.0050 | - | - | - |
| Chloroform | ND | 0.0050 | - | - | - |
| Chloromethane | ND | 0.0050 | - | - | - |
| 2-Chlorotoluene | ND | 0.0050 | - | - | - |
| 4-Chlorotoluene | ND | 0.0050 | - | - | - |
| Dibromochloromethane | ND | 0.0050 | - | - | - |
| 1,2-Dibromo-3-chloropropane | ND | 0.0040 | - | - | - |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | - | - | - |
| Dibromomethane | ND | 0.0050 | - | - | - |
| 1,2-Dichlorobenzene | ND | 0.0050 | - | - | - |
| 1,3-Dichlorobenzene | ND | 0.0050 | - | - | - |
| 1,4-Dichlorobenzene | ND | 0.0050 | - | - | - |
| Dichlorodifluoromethane | ND | 0.0050 | - | - | - |
| 1,1-Dichloroethane | ND | 0.0050 | - | - | - |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | - | - | - |
| 1,1-Dichloroethene | ND | 0.0050 | - | - | - |
| cis-1,2-Dichloroethene | ND | 0.0050 | - | - | - |
| trans-1,2-Dichloroethene | ND | 0.0050 | - | - | - |
| 1,2-Dichloropropane | ND | 0.0050 | - | - | - |
| 1,3-Dichloropropane | ND | 0.0050 | - | - | - |
| 2,2-Dichloropropane | ND | 0.0050 | - | - | - |
| 1,1-Dichloropropene | ND | 0.0050 | - | - | - |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/28/18 | **BatchID:** | 160739 |
| **Date Analyzed:** | 6/29/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160739 |

## QC Summary Report for SW8260B

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | ND | 0.0050 | - | - | - |
| trans-1,3-Dichloropropene | ND | 0.0050 | - | - | - |
| Diisopropyl ether (DIPE) | ND | 0.0050 | - | - | - |
| Ethylbenzene | ND | 0.0050 | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | - | - | - |
| Freon 113 | ND | 0.0050 | - | - | - |
| Hexachlorobutadiene | ND | 0.0050 | - | - | - |
| Hexachloroethane | ND | 0.0050 | - | - | - |
| 2-Hexanone | ND | 0.0050 | - | - | - |
| Isopropylbenzene | ND | 0.0050 | - | - | - |
| 4-Isopropyl toluene | ND | 0.0050 | - | - | - |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | - | - | - |
| Methylene chloride | ND | 0.0050 | - | - | - |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | - | - | - |
| Naphthalene | ND | 0.0050 | - | - | - |
| n-Propyl benzene | ND | 0.0050 | - | - | - |
| Styrene | ND | 0.0050 | - | - | - |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | - | - | - |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | - | - | - |
| Tetrachloroethene | ND | 0.0050 | - | - | - |
| Toluene | ND | 0.0050 | - | - | - |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | - | - | - |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | - | - | - |
| 1,1,1-Trichloroethane | ND | 0.0050 | - | - | - |
| 1,1,2-Trichloroethane | ND | 0.0050 | - | - | - |
| Trichloroethene | ND | 0.0050 | - | - | - |
| Trichlorofluoromethane | ND | 0.0050 | - | - | - |
| 1,2,3-Trichloropropane | ND | 0.0050 | - | - | - |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | - | - | - |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | - | - | - |
| Vinyl Chloride | ND | 0.0050 | - | - | - |
| Xylenes, Total | ND | 0.0050 | - | - | - |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/28/18 | **BatchID:** | 160739 |
| **Date Analyzed:** | 6/29/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160739 |

## QC Summary Report for SW8260B

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | |
| Dibromofluoromethane | 0.118 | | 0.12 | 94 | 87-127 |
| Toluene-d8 | 0.171 | | 0.12 | 137 | 93-141 |
| 4-BFB | 0.0100 | | 0.012 | 80,F3 | 84-137 |
| Benzene-d6 | 0.0970 | | 0.10 | 97 | 67-131 |
| Ethylbenzene-d10 | 0.0958 | | 0.10 | 96 | 78-153 |
| 1,2-DCB-d4 | 0.0840 | | 0.10 | 84 | 63-109 |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/28/18 | **BatchID:** | 160739 |
| **Date Analyzed:** | 6/29/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160739 |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Acetone | 1.12 | 1.00 | 1 | 112 | 100 | 48-156 | 11.0 | 20 |
| tert-Amyl methyl ether (TAME) | 0.0428 | 0.0410 | 0.050 | 86 | 82 | 56-115 | 4.31 | 20 |
| Benzene | 0.0508 | 0.0489 | 0.050 | 102 | 98 | 63-131 | 3.78 | 20 |
| Bromobenzene | 0.0406 | 0.0404 | 0.050 | 81 | 81 | 66-127 | 0 | 20 |
| Bromochloromethane | 0.0455 | 0.0433 | 0.050 | 91 | 87 | 64-124 | 4.92 | 20 |
| Bromodichloromethane | 0.0460 | 0.0445 | 0.050 | 92 | 89 | 64-120 | 3.25 | 20 |
| Bromoform | 0.0370 | 0.0360 | 0.050 | 74 | 72 | 48-92 | 2.79 | 20 |
| Bromomethane | 0.0671 | 0.0623 | 0.050 | 134 | 125 | 25-163 | 7.34 | 20 |
| 2-Butanone (MEK) | 0.154 | 0.150 | 0.20 | 77 | 75 | 51-133 | 2.17 | 20 |
| t-Butyl alcohol (TBA) | 0.158 | 0.145 | 0.20 | 79 | 72 | 52-129 | 8.49 | 20 |
| n-Butyl benzene | 0.0604 | 0.0604 | 0.050 | 121 | 121 | 83-200 | 0 | 20 |
| sec-Butyl benzene | 0.0646 | 0.0591 | 0.050 | 129 | 118 | 81-199 | 8.86 | 20 |
| tert-Butyl benzene | 0.0481 | 0.0435 | 0.050 | 96 | 87 | 79-178 | 10.0 | 20 |
| Carbon Disulfide | 0.0478 | 0.0454 | 0.050 | 96 | 91 | 64-136 | 5.06 | 20 |
| Carbon Tetrachloride | 0.0498 | 0.0478 | 0.050 | 100 | 96 | 66-140 | 4.17 | 20 |
| Chlorobenzene | 0.0490 | 0.0471 | 0.050 | 98 | 94 | 73-116 | 3.99 | 20 |
| Chloroethane | 0.0576 | 0.0549 | 0.050 | 115 | 110 | 35-147 | 4.84 | 20 |
| Chloroform | 0.0504 | 0.0487 | 0.050 | 101 | 97 | 65-130 | 3.47 | 20 |
| Chloromethane | 0.0518 | 0.0491 | 0.050 | 104 | 98 | 30-137 | 5.31 | 20 |
| 2-Chlorotoluene | 0.0567 | 0.0537 | 0.050 | 113 | 107 | 75-152 | 5.37 | 20 |
| 4-Chlorotoluene | 0.0605 | 0.0563 | 0.050 | 121 | 113 | 71-148 | 7.16 | 20 |
| Dibromochloromethane | 0.0435 | 0.0426 | 0.050 | 87 | 85 | 61-106 | 2.20 | 20 |
| 1,2-Dibromo-3-chloropropane | 0.0137 | 0.0173 | 0.020 | 68 | 87 | 36-120 | 23.3,F2 | 20 |
| 1,2-Dibromoethane (EDB) | 0.0439 | 0.0429 | 0.050 | 88 | 86 | 67-118 | 2.40 | 20 |
| Dibromomethane | 0.0428 | 0.0414 | 0.050 | 86 | 83 | 61-116 | 3.29 | 20 |
| 1,2-Dichlorobenzene | 0.0419 | 0.0410 | 0.050 | 84 | 82 | 59-106 | 2.00 | 20 |
| 1,3-Dichlorobenzene | 0.0471 | 0.0455 | 0.050 | 94 | 91 | 75-129 | 3.53 | 20 |
| 1,4-Dichlorobenzene | 0.0463 | 0.0437 | 0.050 | 93 | 87 | 66-127 | 5.81 | 20 |
| Dichlorodifluoromethane | 0.0188 | 0.0175 | 0.050 | 38 | 35 | 13-74 | 7.30 | 20 |
| 1,1-Dichloroethane | 0.0517 | 0.0497 | 0.050 | 103 | 99 | 65-134 | 3.86 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 0.0510 | 0.0492 | 0.050 | 102 | 98 | 57-131 | 3.67 | 20 |
| 1,1-Dichloroethene | 0.0445 | 0.0430 | 0.050 | 89 | 86 | 62-127 | 3.53 | 20 |
| cis-1,2-Dichloroethene | 0.0491 | 0.0460 | 0.050 | 98 | 92 | 66-130 | 6.44 | 20 |
| trans-1,2-Dichloroethene | 0.0494 | 0.0472 | 0.050 | 99 | 94 | 60-131 | 4.51 | 20 |
| 1,2-Dichloropropane | 0.0485 | 0.0475 | 0.050 | 97 | 95 | 63-127 | 2.08 | 20 |
| 1,3-Dichloropropane | 0.0488 | 0.0479 | 0.050 | 98 | 96 | 68-124 | 1.97 | 20 |
| 2,2-Dichloropropane | 0.0528 | 0.0503 | 0.050 | 106 | 101 | 63-150 | 4.85 | 20 |
| 1,1-Dichloropropene | 0.0505 | 0.0484 | 0.050 | 101 | 97 | 67-134 | 4.30 | 20 |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/28/18 | **BatchID:** | 160739 |
| **Date Analyzed:** | 6/29/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160739 |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 0.0524 | 0.0515 | 0.050 | 105 | 103 | 65-138 | 1.79 | 20 |
| trans-1,3-Dichloropropene | 0.0529 | 0.0513 | 0.050 | 106 | 103 | 66-124 | 3.01 | 20 |
| Diisopropyl ether (DIPE) | 0.0491 | 0.0475 | 0.050 | 98 | 95 | 58-129 | 3.29 | 20 |
| Ethylbenzene | 0.0508 | 0.0480 | 0.050 | 102 | 96 | 73-145 | 5.72 | 20 |
| Ethyl tert-butyl ether (ETBE) | 0.0486 | 0.0466 | 0.050 | 97 | 93 | 62-125 | 4.01 | 20 |
| Freon 113 | 0.0413 | 0.0392 | 0.050 | 83 | 78 | 55-116 | 5.11 | 20 |
| Hexachlorobutadiene | 0.0639 | 0.0608 | 0.050 | 128 | 122 | 75-178 | 4.95 | 20 |
| Hexachloroethane | 0.0434 | 0.0436 | 0.050 | 87 | 87 | 75-152 | 0 | 20 |
| 2-Hexanone | 0.0312 | 0.0286 | 0.050 | 63 | 57 | 41-113 | 8.99 | 20 |
| Isopropylbenzene | 0.0413 | 0.0361 | 0.050 | 83 | 72 | 67-172 | 13.5 | 20 |
| 4-Isopropyl toluene | 0.0692 | 0.0671 | 0.050 | 138 | 134 | 88-171 | 3.08 | 20 |
| Methyl-t-butyl ether (MTBE) | 0.0458 | 0.0438 | 0.050 | 92 | 88 | 58-122 | 4.40 | 20 |
| Methylene chloride | 0.0485 | 0.0460 | 0.050 | 97 | 92 | 57-140 | 5.30 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.0368 | 0.0343 | 0.050 | 74 | 69 | 42-117 | 6.95 | 20 |
| Naphthalene | 0.0187 | 0.0185 | 0.050 | 37 | 37 | 29-65 | 0 | 20 |
| n-Propyl benzene | 0.0635 | 0.0581 | 0.050 | 127 | 116 | 85-174 | 8.83 | 20 |
| Styrene | 0.0470 | 0.0406 | 0.050 | 94 | 81 | 63-126 | 14.5 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0488 | 0.0474 | 0.050 | 98 | 95 | 68-131 | 3.03 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0337 | 0.0344 | 0.050 | 67 | 69 | 45-121 | 2.09 | 20 |
| Tetrachloroethene | 0.0492 | 0.0471 | 0.050 | 98 | 94 | 65-150 | 4.43 | 20 |
| Toluene | 0.0529 | 0.0506 | 0.050 | 106 | 101 | 72-135 | 4.45 | 20 |
| 1,2,3-Trichlorobenzene | 0.0228 | 0.0228 | 0.050 | 46 | 46 | 35-80 | 0 | 20 |
| 1,2,4-Trichlorobenzene | 0.0313 | 0.0321 | 0.050 | 63 | 64 | 45-103 | 2.62 | 20 |
| 1,1,1-Trichloroethane | 0.0495 | 0.0476 | 0.050 | 99 | 95 | 67-137 | 3.89 | 20 |
| 1,1,2-Trichloroethane | 0.0462 | 0.0438 | 0.050 | 92 | 88 | 67-117 | 5.36 | 20 |
| Trichloroethene | 0.0460 | 0.0439 | 0.050 | 92 | 88 | 62-135 | 4.54 | 20 |
| Trichlorofluoromethane | 0.0428 | 0.0402 | 0.050 | 86 | 80 | 56-124 | 6.34 | 20 |
| 1,2,3-Trichloropropane | 0.0377 | 0.0373 | 0.050 | 75 | 75 | 58-133 | 0 | 20 |
| 1,2,4-Trimethylbenzene | 0.0541 | 0.0536 | 0.050 | 108 | 107 | 78-161 | 0.886 | 20 |
| 1,3,5-Trimethylbenzene | 0.0701 | 0.0697 | 0.050 | 140 | 139 | 85-170 | 0.580 | 20 |
| Vinyl Chloride | 0.0392 | 0.0367 | 0.050 | 78 | 73 | 32-142 | 6.48 | 20 |
| Xylenes, Total | 0.152 | 0.138 | 0.15 | 101 | 92 | 70-137 | 10.0 | 20 |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/28/18 | **BatchID:** | 160739 |
| **Date Analyzed:** | 6/29/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160739 |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | | |
| Dibromofluoromethane | 0.130 | 0.130 | 0.12 | 104 | 104 | 87-127 | 0 | 20 |
| Toluene-d8 | 0.169 | 0.169 | 0.12 | 135 | 135 | 93-141 | 0 | 20 |
| 4-BFB | 0.0118 | 0.0118 | 0.012 | 94 | 94 | 84-137 | 0 | 20 |
| Benzene-d6 | 0.103 | 0.0973 | 0.10 | 103 | 97 | 67-131 | 5.25 | 20 |
| Ethylbenzene-d10 | 0.106 | 0.0982 | 0.10 | 106 | 98 | 78-153 | 7.61 | 20 |
| 1,2-DCB-d4 | 0.0857 | 0.0828 | 0.10 | 86 | 83 | 63-109 | 3.47 | 20 |

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/27/18 | **BatchID:** | 160663 |
| **Date Analyzed:** | 6/28/18 - 7/1/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16, GC38 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160663 |

## QC Summary Report for SW8260B

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 0.25 | - | - | - |
| **Surrogate Recovery** | | | | | |
| Dibromofluoromethane | 0.154 | | 0.12 | 124 | 70-130 |
| Benzene-D6 | 0.0818 | | 0.10 | 82 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH(g) (C6-C12) | 0.756 | 0.673 | 1 | 76 | 67 | 67-117 | 11.7 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Dibromofluoromethane | 0.133 | 0.134 | 0.12 | 106 | 108 | 87-127 | 1.23 | 20 |
| Benzene-D6 | 0.0977 | 0.0922 | 0.10 | 98 | 92 | 67-131 | 5.79 | 20 |

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/28/18 | **BatchID:** | 160739 |
| **Date Analyzed:** | 6/29/18 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC16, GC38 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160739 |

## QC Summary Report for SW8260B

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 0.25 | - | - | - |
| **Surrogate Recovery** | | | | | |
| Dibromofluoromethane | 0.128 | | 0.12 | 102 | 70-130 |
| Benzene-D6 | 0.0994 | | 0.10 | 99 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH(g) (C6-C12) | 0.874 | 0.866 | 1 | 87 | 87 | 67-117 | 0 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Dibromofluoromethane | 0.130 | 0.129 | 0.12 | 104 | 103 | 87-127 | 0.289 | 20 |
| Benzene-D6 | 0.0992 | 0.100 | 0.10 | 99 | 100 | 67-131 | 0.885 | 20 |

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Reterro Inc. | **WorkOrder:** | 1806D68 |
| **Date Prepared:** | 6/27/18 | **BatchID:** | 160605 |
| **Date Analyzed:** | 6/27/18 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC9a | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | ERM/Petaluma | **Sample ID:** | MB/LCS/LCSD-160605 |

## QC Report for SW8015B w/out SG Clean-Up

| Analyte | MB Result | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | - | - | - |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | - | - | - |
| **Surrogate Recovery** | | | | | |
| C9 | 21.6 | | 25 | 86 | 72-122 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 44.1 | 44.3 | 40 | 110 | 111 | 75-128 | 0.530 | 30 |
| **Surrogate Recovery** | | | | | | | | |
| C9 | 21.5 | 21.4 | 25 | 86 | 86 | 72-122 | 0 | 30 |

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1806D68** **ClientCode: RIL**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Dry-Weight

**Report to:**
Joe Muzzio
Reterro Inc.
7650 Hawthorne Avenue
Livermore, CA 94550
(925) 227-1192 FAX:
Email: jmuzzio@reterro.com
cc/3rd Party:
PO:
Project: ERM/Petaluma

**Bill to:**
Accounts Payable
Reterro Inc.
7650 Hawthorne Avenue
Livermore, CA 94550
kmarshall@reterro.com

**Requested TAT:** 5 days;

***Date Received:*** **06/27/2018**
***Date Logged:*** **06/27/2018**

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1806D68-001 | Pre-BT Soil' | Soil | 6/25/2018 15:48 | ☐ | A | A | A | | | | | | | | | |
| 1806D68-002 | 2506181245024001 | Soil | 6/25/2018 15:40 | ☐ | A | A | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8260B_S | 2 | 8260GAS_S | 3 | TPH(D)_S | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Prepared by: Nancy Palacios**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# WORK ORDER SUMMARY

**Client Name:** RETERRO INC. **Project:** ERM/Petaluma **Work Order:** 1806D68
**Client Contact:** Joe Muzzio **QC Level:** LEVEL 2
**Contact's Email:** jmuzzio@reterro.com **Comments:** **Date Logged:** 6/27/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | De-chlorinated | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1806D68-001A | Pre-BT Soil' | Soil | SW8015B (Diesel) | 1 | 4OZ aGJ, Unpres | ☐ | 6/25/2018 15:48 | 5 days | | ☐ | |
| | | | SW8260B (TPH-gas) | | | ☐ | | 5 days | | ☐ | |
| | | | SW8260B (VOCs) <Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, t-Butyl alcohol (TBA), Toluene, Xylenes, Total> | | | ☐ | | 5 days | | ☐ | |
| 1806D68-002A | 2506181245024001 | Soil | SW8260B (TPH-gas) | 1 | 4OZ aGJ, Unpres | ☐ | 6/25/2018 15:40 | 5 days | | ☐ | |
| | | | SW8260B (VOCs) <Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, t-Butyl alcohol (TBA), Toluene, Xylenes, Total> | | | ☐ | | 5 days | | ☐ | |

**NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

**- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

# McCampbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
www.mccampbell.com / main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

1806068

# CHAIN OF CUSTODY RECORD

**TURN AROUND TIME:** RUSH ☐ 1 DAY ☐ 2 DAY ☐ 3 DAY ☐ 5 DAY ☒

GeoTracker EDF ☐ PDF ☐ EDD ☐ Write On (DW) ☐ EQuIS ☐ 10 DAY ☐

Effluent Sample Requiring "J" flag ☐ UST Clean Up Fund Project ☐; Claim #_____

| | |
|---|---|
| **Report To:** Joe Muzzio | **Bill To:** Reterro Inc. |
| **Company:** Reterro Inc | 7650 Hawthorne Ave |
| | Livermore, CA 94550 |
| **Tele:** (408) 429-4624 | **E-Mail:** jmuzzio@reterro.com |
| **Project #:** | **Project Name:** ERM / Petaluma |
| **Project Location:** Petaluma CA | **Purchase Order#** |
| **Sampler Signature:** | |

| SAMPLE ID | Location/ Field Point Name | SAMPLING Date | SAMPLING Time | # Containers | MATRIX: Ground Water | Waste Water | Drinking Water | Sea Water | Soil | Air | Sludge | Other | METHOD PRESERVED: HCL | $HNO_3$ | Other | TPH as Gas, BTEX, MTBE, TBA, Naphthalene (EPA 524.2 / 624 / 8260) | TPH as Diesel (8015) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pre-BT Soil' | | 6/25 | 15:40 | 1 | | | | | | | | | | | | X | X |
| 2506181245024001 | | 6/25 | 15:40 | 1 | | | | | | | | | | | | X | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

**Analysis Request**

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

*** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| | 6/27/18 | 1242 | |
| Relinquished By: | Date: | Time: | Received By: |
| Relinquished By: | Date: | Time: | Received By: |

ICE/t ☐ ☐ ☐ ☐ **COMMENTS:**
GOOD CONDITION_____
HEAD SPACE ABSENT_____
DECHLORINATED IN LAB_____
APPROPRIATE CONTAINERS_____
PRESERVED IN LAB_____

VOAS O&G METALS OTHER HAZARDOUS:
PRESERVATION_____ pH<2_____

McCampbell Analytical, Inc.
*"When Quality Counts"*

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Reterro Inc.** | Date and Time Received | **6/27/2018 12:42** |
| Project: | **ERM/Petaluma** | Date Logged: | **6/27/2018** |
| | | Received by: | Jena Alfaro |
| WorkOrder №: | **1806D68** Matrix: Soil | Logged by: | Nancy Palacios |
| Carrier: | Client Drop-In | | |

## Chain of Custody (COC) Information

| | | | | | | |
|---|---|---|---|---|---|---|
| Chain of custody present? | Yes | ☑ | No | ☐ | | |
| Chain of custody signed when relinquished and received? | Yes | ☑ | No | ☐ | | |
| Chain of custody agrees with sample labels? | Yes | ☑ | No | ☐ | | |
| Sample IDs noted by Client on COC? | Yes | ☑ | No | ☐ | | |
| Date and Time of collection noted by Client on COC? | Yes | ☑ | No | ☐ | | |
| Sampler's name noted on COC? | Yes | ☐ | No | ☑ | | |
| COC agrees with Quote? | Yes | ☐ | No | ☐ | NA | ☑ |

## Sample Receipt Information

| | | | | | | |
|---|---|---|---|---|---|---|
| Custody seals intact on shipping container/cooler? | Yes | ☐ | No | ☐ | NA | ☑ |
| Shipping container/cooler in good condition? | Yes | ☑ | No | ☐ | | |
| Samples in proper containers/bottles? | Yes | ☑ | No | ☐ | | |
| Sample containers intact? | Yes | ☑ | No | ☐ | | |
| Sufficient sample volume for indicated test? | Yes | ☑ | No | ☐ | | |

## Sample Preservation and Hold Time (HT) Information

| | | | | | | |
|---|---|---|---|---|---|---|
| All samples received within holding time? | Yes | ☐ | No | ☑ | NA | ☐ |
| Samples Received on Ice? | Yes | ☑ | No | ☐ | | |
| (Ice Type: WET ICE ) | | | | | | |
| Sample/Temp Blank temperature | Temp: 12.1°C | | | | NA | ☐ |
| Water - VOA vials have zero headspace / no bubbles? | Yes | ☐ | No | ☐ | NA | ☑ |
| Sample labels checked for correct preservation? | Yes | ☑ | No | ☐ | | |
| pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? | Yes | ☐ | No | ☐ | NA | ☑ |
| UCMR Samples: | | | | | | |
| pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)? | Yes | ☐ | No | ☐ | NA | ☑ |
| Free Chlorine tested and acceptable upon receipt (<0.1mg/L)? | Yes | ☐ | No | ☐ | NA | ☑ |

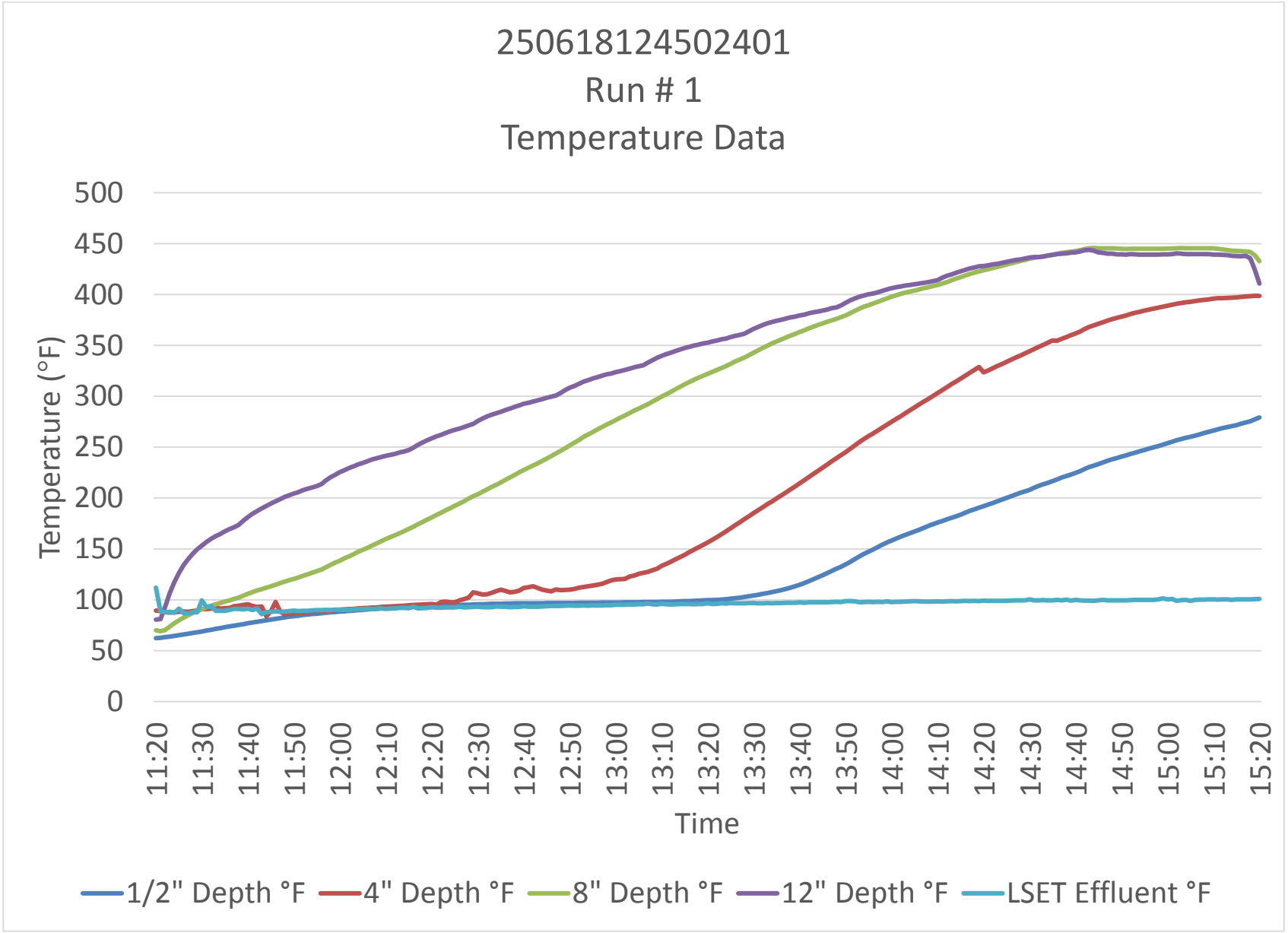
Comments: Method SW8260B (TPH-gas) was received with temperature condition not met. Method SW8260B (TPH-gas) was received past its 0.25-day holding time.

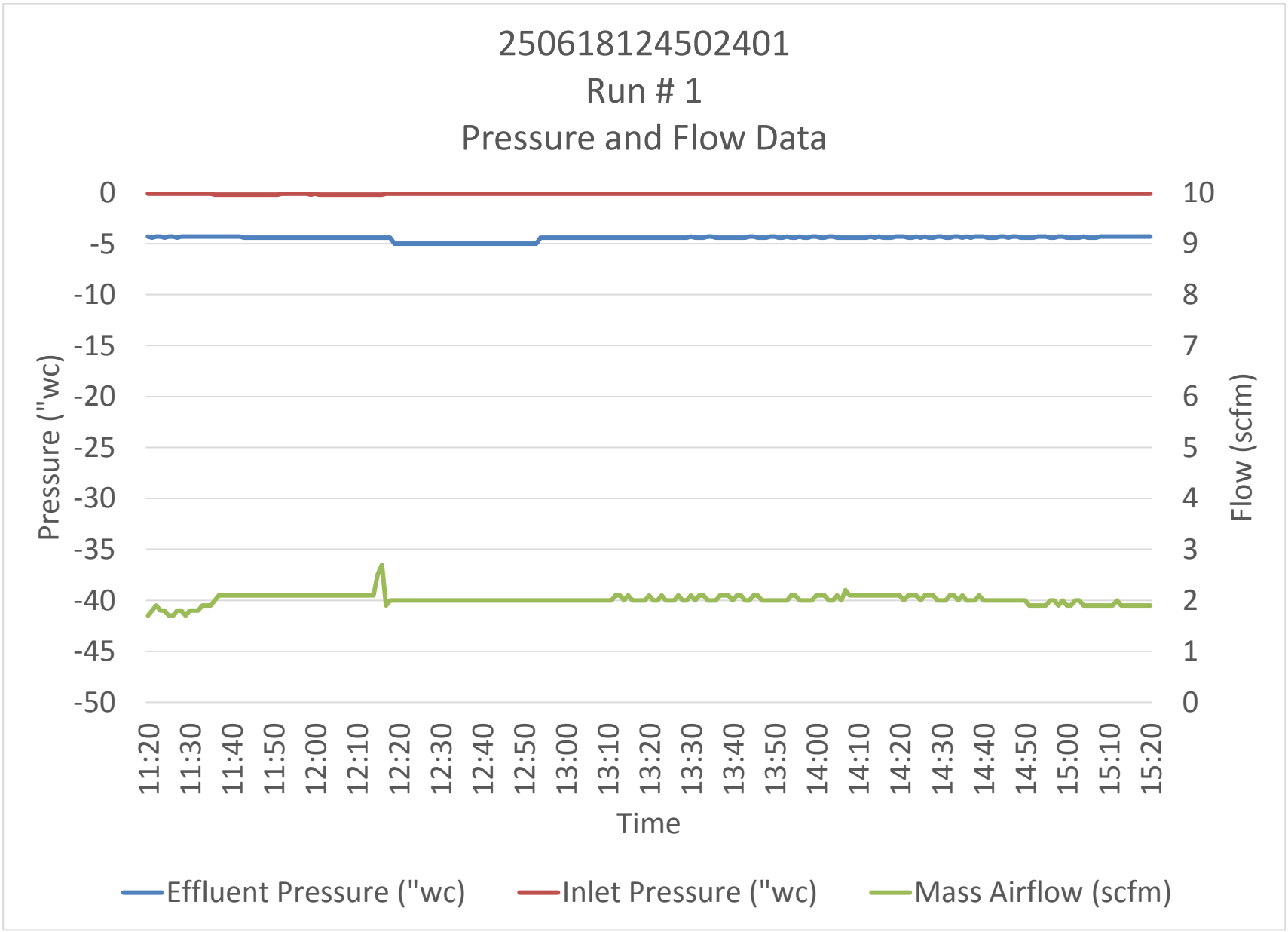
reterro
cleaning our earth

# Attachment B

# Bench Test Instrumentation Data

---


250618124502401
Run # 1
Temperature Data
Temperature (°F)
500
450
400
350
300
250
200
150
100
50
0
11:20
11:30
11:40
11:50
12:00
12:10
12:20
12:30
12:40
12:50
13:00
13:10
13:20
13:30
13:40
13:50
14:00
14:10
14:20
14:30
14:40
14:50
15:00
15:10
15:20
Time
1/2" Depth °F
4" Depth °F
8" Depth °F
12" Depth °F
LSET Effluent °F


250618124502401
Run # 1
Pressure and Flow Data
Pressure ("wc)
Flow (scfm)
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
10
9
8
7
6
5
4
3
2
1
0
11:20
11:30
11:40
11:50
12:00
12:10
12:20
12:30
12:40
12:50
13:00
13:10
13:20
13:30
13:40
13:50
14:00
14:10
14:20
14:30
14:40
14:50
15:00
15:10
15:20
Time
Effluent Pressure ("wc)
Inlet Pressure ("wc)
Mass Airflow (scfm)

AEI Consultants
Environmental & Engineering Services

September 2, 2014

# PHASE II SUBSURFACE INVESTIGATION

**Property Identification:**

2592 Lakeville Highway
Petaluma, California

AEI Project No. 327703

**Prepared for:**
DeNova Homes, Inc.
1500 Willow Pass Court
Concord, California 94520

**Prepared by:**
AEI Consultants
2500 Camino Diablo
Walnut Creek, California 94597
(925) 746-6000

Environmental & Engineering Due Diligence

Site Investigation & Remediation

Energy Performance & Benchmarking

Industrial Hygiene

Construction Consulting

Construction, Site Stabilization & Stormwater Services

Zoning Analysis Reports & ALTA Surveys

# TABLE OF CONTENTS

**1.0 SITE DESCRIPTION ..... 1**

**2.0 BACKGROUND ..... 2**

**3.0 INVESTIGATION EFFORTS ..... 3**

3.1 Health and Safety Plan ..... 4
3.2 Permitting and Utility Clearance ..... 4
3.3 Drilling and Sample Collection ..... 4
3.4 Soil Gas Sample Collection ..... 7
3.5 Boring Destruction ..... 8
3.6 Investigation Derived Wastes ..... 8

**4.0 FINDINGS ..... 8**

4.1 Geology and Hydrogeology ..... 8
4.2 Analytical Results ..... 8

**5.0 SUMMARY ..... 11**

**6.0 REPORT LIMITATIONS AND RELIANCE ..... 12**

**FIGURES**

Figure 1 Site Location Map
Figure 2 Boring Locations
Figure 3 Stockpile Locations

**TABLES**

Table 1 Soil Sample Data Summary (Organic Constituents)
Table 2 Soil Sample Data Summary (CAM 17 Metals)
Table 3 Stockpiled Soil Data Summary (Organic Constituents)
Table 4 Stockpiled Soil Data Summary (CAM 17 Metals)
Table 5 Groundwater Sample Data Summary (Organic Constituents)
Table 6 Groundwater Sample Data Summary (CAM 17 Metals)
Table 7 Soil Gas Sample Data Summary

**APPENDICES**

Appendix A Permits
Appendix B Boring Logs
Appendix C Laboratory Analytical Reports

September 2, 2014

DeNova Homes, Inc.
Attn: Mr. Trent Sanson
1500 Willow Pass Court
Concord, California 94520

**Subject:** **Phase II Subsurface Investigation**
2592 Lakeville Highway
Petaluma, California
AEI Project No. 327703

Dear Mr. Sanson:

AEI Consultants (AEI) is pleased to provide this report which describes the activities and presents a summary of the results of the Phase II Subsurface Investigation performed at the above referenced subject property (Figure 1). This investigation was completed in general accordance with the authorized scope of services and limitations outlined in AEI proposal number 36788.

## 1.0 SITE DESCRIPTION

The subject property consists of vacant land located to the south of Lakeville Highway and southeast of Casa Grande Road in a mixed commercial and residential area of Petaluma, California (Figure 2).

The subject property totals approximately 13 acres and is surrounded by a barbed-wire security fence. The property is not currently improved with any permanent structures, but it occupied part-time by a caretaker living in a trailer home parked on-site in the northeast corner of the property. Two large mounds of fill material (primarily soil and rock debris), which reportedly originated from an off-site source, are located along the northern boundary of the property. In addition, a pile of concrete construction debris and a smaller pile of Class II Aggregate (concrete and asphalt) are located in the central portion of the property.

The subject property lies at an elevation of about 10 feet above mean sea level. The nearest surface water body is the Petaluma River, located approximately 0.2 miles to the west-southwest. The land surface slope and direction of groundwater flow beneath the subject property are generally towards the Petaluma River. A wetland area lies between the subject property and the Petaluma River.

Based on a review of the United States Geological Survey (USGS) Geologic Map of Parts of Sonoma County, California, the surficial geology consists of artificial fill material and alluvium overlying fine-grained marine and freshwater marsh deposits. Groundwater generally occurs

between 1 and 7 feet below ground surface (bgs). Additional information related to site geology and groundwater conditions are provided in Section 4.1, below.

## 2.0 BACKGROUND

A Phase I Environmental Site Assessment (ESA) was performed by AEI as detailed in a report dated March 24, 2014 (AEI Project Number 327703). Based on the findings of the Phase I ESA, the subject property was occupied by the Royal Tallow and Soap Company (RTSC) facility from at least 1955 through 1986, when operations ceased. The property has been vacant land since the former facility buildings were demolished in 2008. The Phase I ESA documented multiple recognized environmental conditions (RECs) on the subject property, which are discussed further below.

- Records on file with the Sonoma County Environmental Health Department (SCEHD) indicate that former Northwestern Pacific Railroad spur and right of way was located along northern property boundary from at least 1914 until 1980 (Figure 2). According to a representative of the subject property, Mr. Patrick Imbimbo, the railroad spur was removed in 2008. The railroad spur was identified as a REC due to the historical practice of applying of oils that may have contained polychlorinated biphenyls (PCBs), herbicides and arsenic for pest and weed control. There is also the potential presence of creosote in railroad ties as well as issues related to the historical practice of using coal cinders for track fill material which can contain elevated levels of heavy metals.
- Based on an interview with former RTSC employee, Mr. Pete Terribilini, the facility included a clarifier and a series of waste water disposal ponds. According to Mr. Terribilini, the RTSC facility was washed down daily, and water from this process flowed into a sump located in the southern portion of the facility. The water from this cleaning process was reportedly filled with “tallow and grease”, which were skimmed off the sump daily and returned to the facility for reuse in the manufacturing process. The remaining waste water flowed into waste water ponds on the southern portion of the subject property (Figure 2). Mr. Terribilini stated that he had no knowledge of other chemicals or solvents used on-site during the rendering processes or cleaning/maintenance activities. Although the waste water likely contained mostly organic materials, the sump and waste water ponds were identified as RECs due to the potential that that hazardous materials could have been present in the waste water and been deposited in the sump and/or waste water disposal ponds.
- According to a map on file with the SCEHD, two septic tanks were located east adjacent to the main RTSC rendering plant. The associated leach field extended to the southwest. It is unclear whether the septic system was used solely for restroom waste disposal, or if other waste water was discharged into the system. The septic tank and leach field were identified as RECs due to the long industrial nature of the property, the lack of regulatory oversight, and the potential that hazardous materials could have entered the septic system and leach field.
- During its operational history, an auto maintenance garage with two underground storage tanks (USTs) was located on the northwestern portion of the property. Based on information available in the Case Closure Summary and Remedial Action Completion Certificate on file with the State Water Resources Control Board (SWRCB) GeoTracker

online database, one 1,000-gallon UST and one 2,000-gallon UST, both containing regular unleaded gasoline, were removed from the northwestern portion (west of the RTSC facility buildings) of the subject property on June 30, 1990. During tank removal activities, holes were observed in both USTs and the backfill was noted as contaminated around both USTs. Gasoline-related petroleum hydrocarbons were detected in soil and groundwater samples during removal of the former USTs. Remediation activities conducted to address the impacted media included the excavation of approximately 2,400 cubic yards of contaminated soil followed by installation of a 10 groundwater well monitoring network, and extraction, treatment, and disposal of approximately 88,000-gallons of groundwater. Upon site closure, all contaminants in groundwater were below laboratory reporting limits except 1,2-dichloroethane (1,2-DCA) which was detected at 0.0016 parts per million (ppm). However, elevated levels of gasoline constituents were reported as remaining in soils in the vicinity of the USTs. It was also noted that soil and groundwater were not tested for diesel or motor oil.

Additionally, during remediation of soils in the area of the former USTs, soil borings were advanced and samples were taken from the area of the auto maintenance garage which indicated high levels of total petroleum hydrocarbons as gasoline (TPH-g) in soil. However, it does not appear that the soils in this area were excavated, and it appears likely that contamination remains in place.

As a stipulation for granting Site closure, the SCEHD stated that future site development should address residual soil contamination in the vicinity of the former UST area.

- According to the property contact Mr. Patrick Imbimbo, fill material from an off-site source has been stockpiled on the northern portion of the subject property. Mr. Imbimbo stated that the soil was deemed as "clean" before it was deposited on the subject property, and that there are plans to use this fill material redevelopment of the subject property. However, no information has been identified to document the origin of the material. Likewise, no soil testing data was identified to verify that there were contaminants in the material.

Given the potential environmental concerns related to the RECs described above and that the property is under consideration for residential development, AEI recommended a subsurface investigation evaluate potential impacts to the subsurface of the subject property, and to assess the suitability of the on-site fill material for residential use.

## 3.0 INVESTIGATION EFFORTS

AEI was retained to perform additional investigation activities at the subject property, including the collection of soil, soil gas, and groundwater samples to evaluate environment conditions on the subject property. All work was performed under the oversight of a California-licensed professional geologist.

AEI performed a site inspection with Mr. Patrick Imbimbo on June 9, 2014 to measure the stockpiled soils and confirm access to soil boring locations. Based on the results of the site inspection, it was determined that two stockpiles of soil are present along the northern boundary of the property (Figure 3). Field measurements indicate that the stockpiles measure

between 10 and 12 feet in thickness and that the total volume of soil present in the stockpiles is approximately 18,000 cubic yards (western stockpile) and 7,000 cubic yards (eastern stockpile).

Additionally, Mr. Imbimbo stated that the former UST area had been excavated to a depth of 12 feet bgs during removal of the tanks and that following removal of the tanks, the impacted soil was used to backfill the excavation. An employee of Mr. Imbimbo had staked out the approximate area of excavation, which generally corresponded with maps and other documentation provided in the Phase I ESA.

Based on information gathered during the site inspection, it was determined that the former UST area, the former septic tank and leach field, and a significant portion of the footprint of the former facility buildings are located beneath the western stockpile, which is estimated at 12 feet in thickness. Where appropriate, soil samples collected to characterize these areas have been labeled as "SP" (stockpile) samples to account for the thickness of the stockpile material above original ground surface. Thus, where borings were completed through the stockpile, the thickness of the stockpiled soil can be subtracted from the total drilling depth to estimate the soil and groundwater sample depth relative to estimated original ground surface.

## 3.1 Health and Safety Plan

A site-specific health and safety plan was prepared, reviewed by onsite personnel, and kept onsite for the duration of the fieldwork.

## 3.2 Permitting and Utility Clearance

Drilling permits were obtained from SCEHD for this investigation (Appendix A). The public underground utility locating service Underground Service Alert (USA) was notified to identify public utilities in the work area. Soil borings were advanced to approximately 5-feet bgs with a hand-augur before advancing drill rig tooling to clear for utilities.

## 3.3 Drilling and Sample Collection

On June 17 through June 19, and June 23, 2014, a total of 62 soil samples were collected from the subject property (Figures 2 and 3). Soil sampling was conducted using a combination of hand-tools and direct-push drilling. The direct-push borings were performed by Environmental Control Associates (ECA) of Aptos, California using GeoProbe® 6600 and 5410 truck-mounted direct-push drilling rigs.

Direct-push borings were completed using 2.25-inch outer diameter rods. Soil cores were collected continuously from the borings by advancing the rods equipped with acetate sample liners in approximately 4-foot intervals. After each interval, the core was retrieved to the surface, the core barrel was disassembled, and the sample liner was transferred to the onsite geologist. The soil borings were logged using the Unified Soil Classification System. A photo ionization detector (PID) was used to field screen the soil samples for the presence of volatile organic compounds (VOCs). PID readings were included on the boring logs (Appendix B).

Following collection, the soil samples were labeled and placed into an iced cooler for transfer to the analytical laboratory. Following soil sample collection, groundwater samples were collected from borings PA-1 through PA-4, PB-1, SMP-1, ST-1, LF-1 and LF-2, AM-1 through AM-3, UST-1 through UST-6, and BLDG-1 through BLDG-3. Groundwater was collected by placing a temporary polyvinyl chloride (PVC) casing inserted into the borehole, allowing the water to

recharge in the borehole, then collecting a groundwater sample using a peristaltic pump. Following collection, the samples were labeled and placed into an iced cooler for transfer to the analytical laboratory.

Soil and groundwater samples were delivered under appropriate chain-of-custody documentation to McCampbell Analytical, Inc. (MAI) of Pittsburg, California for analysis. Soil gas samples were transported by FedEx under appropriate chain-of-custody documentation to Eurofins Air Toxics of Folsom, California for analysis. Laboratory analytical documentation is provided in Appendix C.

All soil sample locations were marked with labeled wooden stakes. Down-hole equipment was properly decontaminated between successive borings. The location and purpose of each boring, along with a summary of samples analyzed, is discussed briefly below.

**Former Railroad Spur Area**

On June 23, 2014, three borings (RS-1 through RS-3) were advanced along the former railroad spur on the northern portion of the subject property. Soil samples were collected from these borings using a shovel and/or hand-auger. Three soil samples (one each from borings RS-1 through RS-3) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- Organo-chlorine Pesticides and PCBs by EPA Method 8081A/8082
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C
- Chlorinated Herbicides by EPA Method 8151A
- PAHs/PNAs by EPA Method 8270C-SIM
- CAM 17 Metals by EPA Method 6020

**Waste Water Ponds Area**

On June 17, 2014, six borings were advanced in the area of the waste water ponds (PA-1 through PA-4, PB-1, and PB-2) for the collection of soil and groundwater samples. Six soil samples (one each from borings PA-1 through PA-4, PB-1 and PB-2) and two groundwater samples (PA-3 and PB-1) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B
- CAM 17 Metals by EPA Method 6020

**Sump**

On June 19, 2014, one boring was advanced in the area of the process sump (SMP-1) for the collection of soil and groundwater samples. One soil sample and one groundwater sample (SMP-1) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B
- CAM 17 Metals by EPA Method 6020

**Septic Tanks and Leach Field Areas**

On June 19, 2014, three borings were advanced in the area of the septic tank (ST-1) and septic tank leach field (LF-1 and LF-2) for the collection of soil and groundwater

samples. Three soil samples and three groundwater samples (one soil and one groundwater sample from each boring) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B
- CAM 17 Metals by EPA Method 6020

**Former Auto Maintenance Area**

On June 17, 2014, three direct-push borings were advanced within the area of the former auto maintenance area (AM-1 through AM-3) for the collection of soil and groundwater samples. Three soil samples and three groundwater samples (one soil and one groundwater sample from each from boring) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B

**Former UST Area**

On June 17, 2014, six direct-push borings were advanced around the area of the former USTs (UST-1 through UST-6) for the collection of soil and groundwater samples. Twelve soil samples (two each from borings UST-1 through UST-6) were analyzed for:

- TPH Multi-range by EPA Method 8015M
- Methyl tert-Butyl Ether (MTBE) and Benzene, Toluene, Ethylbenzene, and Xylenes (MBTEX) by EPA Method 8260B

Six groundwater samples (one each from borings UST-1 through UST-6) were analyzed for:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B

**Former Facility Building Footprint Area**

On June 19, 2014, three direct-push borings (BLDG-1 through BLDG-3) were advanced within the footprint of the former RTSC facility buildings for the collection of soil and groundwater samples. Three soil samples and three groundwater samples (one soil and one groundwater sample from each boring) were analyzed for:

- TPH Multi-range by EPA Method 8015M
- CAM 17 Metals by EPA Method 6020B

**Soil Stockpile Sampling**

Between June 17 and 19, 2014, a total of 26 soil samples were collected from the western stockpile located along the northern portion of the subject property to characterize the material for potential use as on-site fill. The sampling frequency and analyses were selected based on the guidelines outlined in *Information Advisory: Clean Imported Fill Material* by the Department of Toxic Substances Control (DTSC). Twenty-six soil samples collected from nine borings completed in the west stockpile were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- OC Pesticides and PCBs by EPA Method 8080A
- OP Pesticides by EPA Method 8141
- VOCs by EPA Method 8260
- SVOCs by EPA Method 8270
- Chlorinated Herbicides by EPA Method 8151
- PAHs/PNAs by EPA Method 8270
- CAM 17 Metals by EPA Method 6010
- Asbestos by PLM Carb 435

## 3.4 Soil Gas Sample Collection

On June 17 through June 19, 2014, soil gas sampling was conducted on the subject property (Figure 2). Six direct-push borings (G-1 through G-6) were advanced for the construction of temporary soil gas probes and subsequent collection of soil gas samples. The sampling was conducted in general accordance with the guidelines outlined in *Advisory: Active Soil Gas Investigations* by the DTSC.

- Probes G-1 and G-2 were advanced within the former auto maintenance area on the northwestern portion of the subject property. These probes were constructed at approximately 3 feet bgs due to the presence of shallow groundwater observed in adjacent soil borings.
- Probes G-3 and G-4 were advanced through the stockpiled soil within the area of the former USTs on the north-northwestern portion of the subject property. The probes were constructed at approximately 5 feet bgs.
- Probes G-5 and G-6 were advanced through the stockpiled soil within the building footprint on the northern portion of the subject property. Probe G-5 was constructed at approximately 5 feet bgs. Due elevated water levels in the area probe G-6 was constructed at 3 feet bgs.

The soil gas probes were constructed of 0.25-inch diameter Teflon tubing connected to a 1-inch disposable plastic probe tip. Per DTSC's guidance, the probe tip was placed in the middle of an annular filter pack composed of approximately 1 foot of sand, sealed with an appropriate amount of dry granular bentonite, and finished to near ground surface with hydrated granular bentonite to just below ground surface.

A vacuum tightness test was performed on the sampling train prior to soil gas sampling using a clean 60-milliliter (mL) syringe. Once the sample train passed the tightness test, 3 volumes of air were purged from the sample train using a dedicated purge canister. The soil gas sample was then collected into a 1-liter Summa canisters equipped with a flow regulator set at 200 mL per minute. A vacuum gauge was used to measure the initial vacuum pressure in the sampling. A leak check was performed by applying a cloth rag with isopropyl alcohol to the sampling train connection points during sampling.

Soil gas sampling equipment was obtained from Eurofins Air Toxics of Folsom, California. Each canister was individually checked, tested by the laboratory for air tightness and proper vacuum and batch certified for purity prior to shipping. Once sampling was completed, each summa canister was sealed with a slight vacuum prior to sealing. Following collection, the samples

were labeled and stored for transfer to the analytical laboratory to be analyzed for TPH-g and VOCs including naphthalene by EPA Method TO-15

### 3.5 Boring Destruction

Following completion of sample collection and removal of tooling, the borings were backfilled with neat cement grout as required by the permitting agency and completed at the surface with native soil to match the surrounding conditions.

### 3.6 Investigation Derived Wastes

Investigation derived waste was stored on-site in 5-gallon buckets pending receipt of the analytical data.

## 4.0 FINDINGS

For the purpose of providing context to the data obtained during this investigation, analytical results are compared to the December 2013 Environmental Screening Levels (ESLs) established by the San Francisco Bay Regional Water Quality Control Board. The ESLs are considered to be conservative. Under most circumstances, and within the limitations described in the ESL guidance document, the presence of a chemical in soil, soil gas or groundwater at concentrations below the appropriate ESL can generally be assumed to not pose a significant threat to human health or the environment. Additional evaluation may generally be required at sites where a chemical is present at concentrations above corresponding appropriate ESL values. In certain cases, several ESLs are available which consider several exposure scenarios, land or groundwater use, and other site characteristics, the selection of which may be a matter for regulatory consideration and professional judgment. While a detailed exposure pathway and risk analysis is outside of the scope of this assessment, several ESLs are included in the Tables to provided added context to the results.

### 4.1 Geology and Hydrogeology

Native soil encountered in each of the borings generally consisted of clayey silt underlain by a silty sand layer, which is underlain by a hard plastic clay (Appendix B). Soil encountered while drilling through the stockpile was characterized as a mixture of clay, sand, gravel, asphalt pieces, brick debris, and glass fragments. The average thicknesses of the stockpiles ranged between approximately 10 and 12 feet.

Groundwater was encountered in all borings except PB-2. First groundwater was generally encountered in a saturated, silty sand layer in native soil which occurred at an average depth of approximately 12 feet below original ground surface. Groundwater then rose and equilibrated at to depths ranging from approximately 3 to 8 feet below original ground surface.

### 4.2 Analytical Results

The analytical results of soil samples from the Site are summarized in Tables 1 through 4, groundwater samples in Tables 5 and 6, and soil gas samples in Table 7 and are discussed briefly below by location. As requested, the ESL comparison values discussed below are

generally those for residential land use and consider the assumption that groundwater is not considered a current or potential drinking water source; the reader is referred to the Tables and references for additional information. Sample locations are shown on Figures 2 and 3.

**Arsenic in Soil**

Arsenic was detected above the ESL of 0.39 milligrams per kilogram (mg/kg) in all of the soil samples collected from the Site. However, with the exceptions of two samples (PA-3 [former waste water pond] and SP-10 [stockpiled soil]), the concentrations all fall within the range of naturally occurring background concentrations for California soils, the upper bound of which is 11 mg/kg, as reported in the study entitled Background Concentrations of Trace and Major Elements in California Soils (Bradford, 1996). This study is consistent with the findings of the report entitled Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region (Duverge, 2011).

**Former Railroad Spur Area**

All soil constituents tested for in soil collected in the vicinity of the former railroad spur were either below the analytical reporting limits, their respective ESLs, or within a range of expected naturally occurring concentrations.

**Waste Water Ponds**

All analyzed constituents in soil and groundwater were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in the vicinity of the waste water ponds with the exception of the following:

- TPH-mo was detected above the ESL in the soil sample collected from boring PA-3, which was completed within the northern waste water pond area.
- Arsenic and lead were also detected above their ESLs in the soil sample from PA-3, in the northern waste water pond area.
- The metals arsenic, cadmium, cobalt, copper, nickel, vanadium, and zinc were detected above the ESL in groundwater samples collected from the waste water pond areas.

**Sump**

All analyzed constituents in soil and groundwater were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in the vicinity of the sump with the exception of the metals nickel and vanadium which were detected above the ESL in the groundwater sample collected in the vicinity of the sump.

**Septic Tanks and Leach Field Areas**

All constituents were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in soil samples collected from the septic tank and leach field areas. However, several petroleum constituents were detected above their ESLs in groundwater samples collected from the former septic tank and leach field.

The metals barium, cobalt, copper, mercury, and nickel were also detected above their ESLs in groundwater samples collected from the septic tank and leach field.

**Former Auto Maintenance Area**

All analyzed constituents in soil, soil vapor, and groundwater were either below the analytical reporting limits or below the referenced ESLs in the vicinity of the former auto maintenance area with the exception of the following:

- TPH-g and TPH-d were detected above the ESLs, in the soil sample collected from boring AM-1, which was completed near the southeast corner of the former auto maintenance area.
- Several petroleum constituents were detected above their ESLs in groundwater samples beneath the former auto maintenance area with the most elevated concentrations in the vicinity of AM-1 in the southeastern portion of the former auto maintenance area.

**Former UST Area**

Petroleum constituents were detected in the majority of the soil, soil gas, and groundwater samples from this area, as summarized below:

- TPH-g, TPH-d, TPH-mo, benzene, ethylbenzene, and xylenes were detected above their ESLs in soil samples collected from the former UST area.
- Elevated petroleum constituents were detected above the ESL in each of the groundwater samples collected from the former UST area.
- The compounds benzene, ethylbenzene, xylenes, tetrachloroethene (PCE), and TPH-g were detected above their ESLs in the soil gas sample collected from boring G-3.

**Former Facility Building Footprint**

All analyzed constituents in soil, soil vapor, and groundwater were either below the analytical reporting limits or below the referenced ESLs in the vicinity of the former facility building footprint with the exception of the following:

- Lead was detected in soil above the ESL in the soil sample collected from 3.5 feet bgs from boring BLDG-1, which was completed within in the western portion of the former building footprint.
- Benzene was detected above the ESL in the groundwater sample from BLDG-3.

**Soil Stockpile**

All analyzed constituents in soil were either below the analytical reporting limits, within established background levels based on the Bradford 1996 study [0.6 to 11 mg/kg (arsenic), 14.3 to 107.9 mg/kg (lead), and 9 to 509 mg/kg (nickel)], or below their respective ESLs in the soil stockpile samples with the exception of the following:

- TPH-d was detected above the ESL in one sample from the stockpiled soil (SP-12 at 11.5 feet).

- TPH-mo was detected above the ESL for shallow soil (<3 meters) in six samples from the stockpiled soil.
- The OC pesticide dieldrin was detected above the ESL in one sample from the stockpiled soil (SP-10 at 3.5 feet).
- The SVOC phenol was detected in a number of samples from the stockpiled soil; however, none of these detections exceeded the non-drinking water based soil ESL.
- The lead concentration measured in the sample from SP-6 at 8.5 feet and the nickel concentration measured in the sample from SP-10 at 3.5 feet were elevated when compared to other samples collected from the soil stockpile.

## 5.0 SUMMARY

On June 17 through June 19, and June 23, 2014, a total of 62 soil samples, 18 groundwater samples, and six soil vapor samples were collected from the Site (Figures 2 and 3). The samples were collected to assess current subsurface environmental conditions at the Site. Findings were compared with ESLs and/or referenced background levels, if available. These results should be considered when planning for development and use of the property.

## 6.0 REPORT LIMITATIONS AND RELIANCE

This report presents a summary of work completed by AEI Consultants. The completed work includes observations and descriptions of site conditions encountered. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide the requested information, subject to scope of work for which AEI was retained and limitations inherent in this type of work, but it cannot be assumed that they are representative of areas not sampled. This report should not be regarded as a guarantee that no further contamination beyond that which could have been detected within the scope of this investigation is present beneath the subject property. Undocumented, unauthorized releases of hazardous material, the remains of which are not readily identifiable by visual inspection and are of different chemical constituents, are difficult and often impossible to detect within the scope of a chemical specific investigation.

Conclusions and/or recommendations, if any, are based on these analyses and observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document. These services were performed in accordance with generally accepted practices, in the environmental engineering and construction field, which existed at the time and location of the work. No other warranty, either expressed or implied, has been made.

This investigation was prepared for the sole use and benefit of DeNova Homes, Inc. All reports, both verbal and written, whether in draft or final, are for the benefit of DeNova Homes, Inc. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors or assigns. Reliance is provided in accordance with AEI's Proposal and Standard Terms & Conditions executed by DeNova Homes, Inc. on May 27, 2014. The limitation of liability defined in the Terms and Conditions is the aggregate limit of AEI's liability to the client and all relying parties.

If there are any questions regarding our investigation, please do not hesitate to contact AEI at (925) 746-6000.

Sincerely,
**AEI Consultants**

Diego Gonzalez
Project Geologist

David Provance, PG
Senior Project Manager

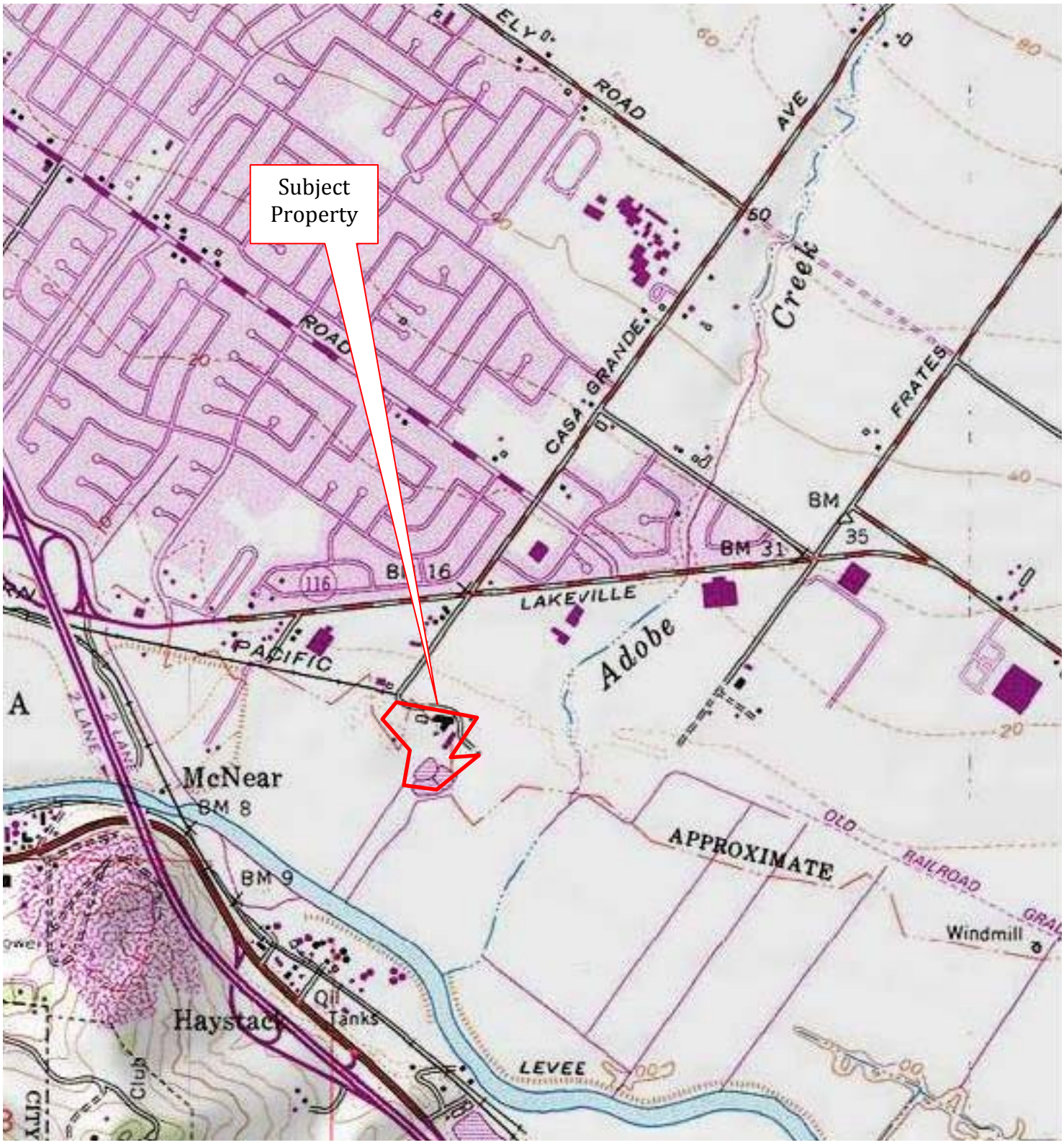



Peter McIntyre, PG
Executive Vice President



AEI Consultants

# FIGURES




# SITE LOCATION MAP

2592 Lakeville Highway, Petaluma, California, 94954

N

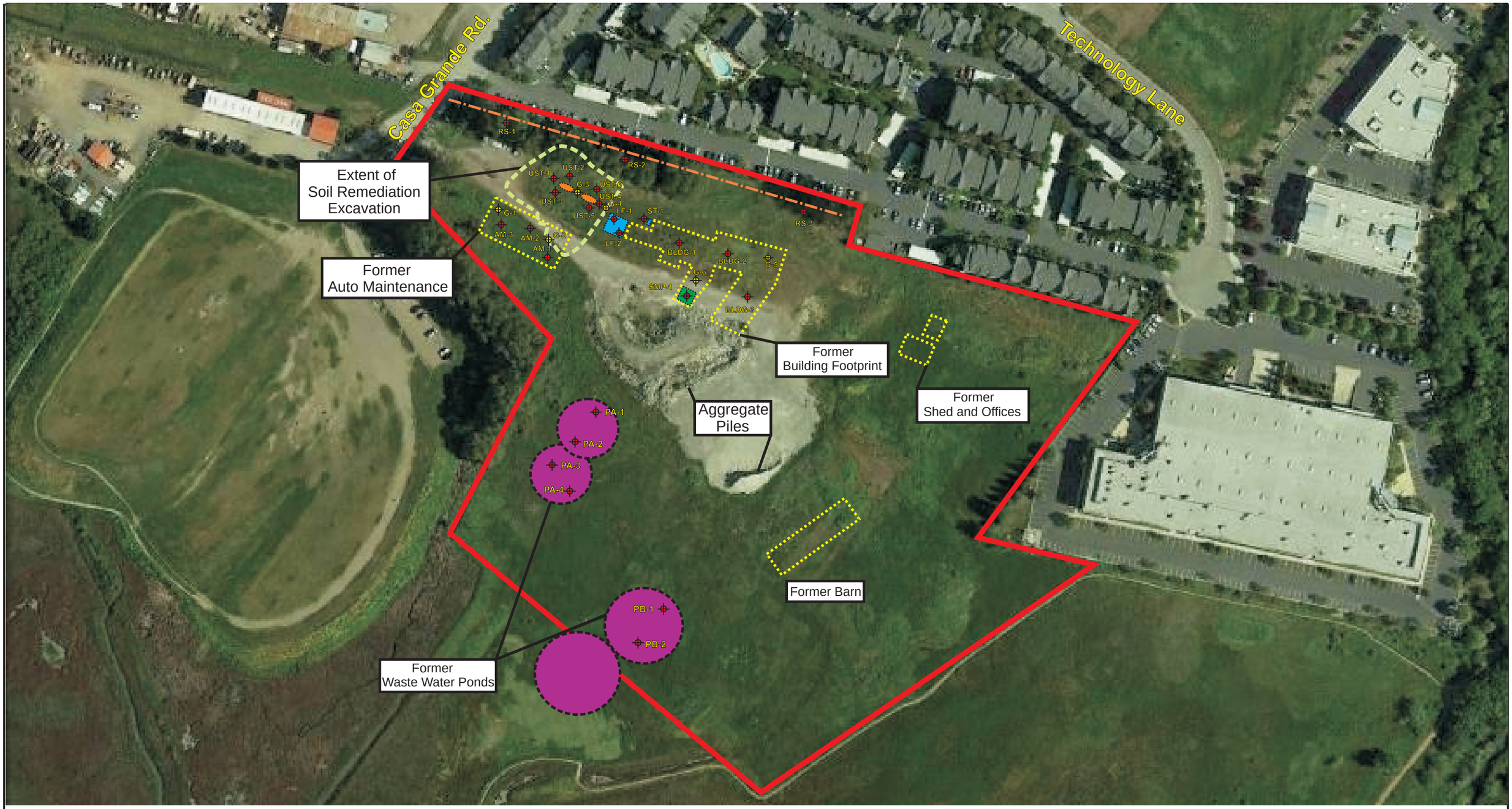
Approximate Property Boundary

Source: USGS Topographic Map, *Petaluma River California* (1980)

**FIGURE 1**

Project Number: 327703

AEI Consultants




## LEGEND

- Approximate Property Boundary
- Former Railroad Spur
- Former Structures
- Former Sump
- Former USTs
- Former Septic System Leach Field
- Former Septic Tanks Area
- Former Wastewater Ponds
- AEI Soil Boring Locations
- AEI Soil Gas Well Locations
- Approximate Extent of 2002 Remedial Excavation
  Source: Site Plan-Darling International, Inc. (Figure 2)
  MFG, Inc. Project No. 030070, 11/08/2006

N

0 65’ 130’

APPROXIMATE SCALE:
1” = 130’

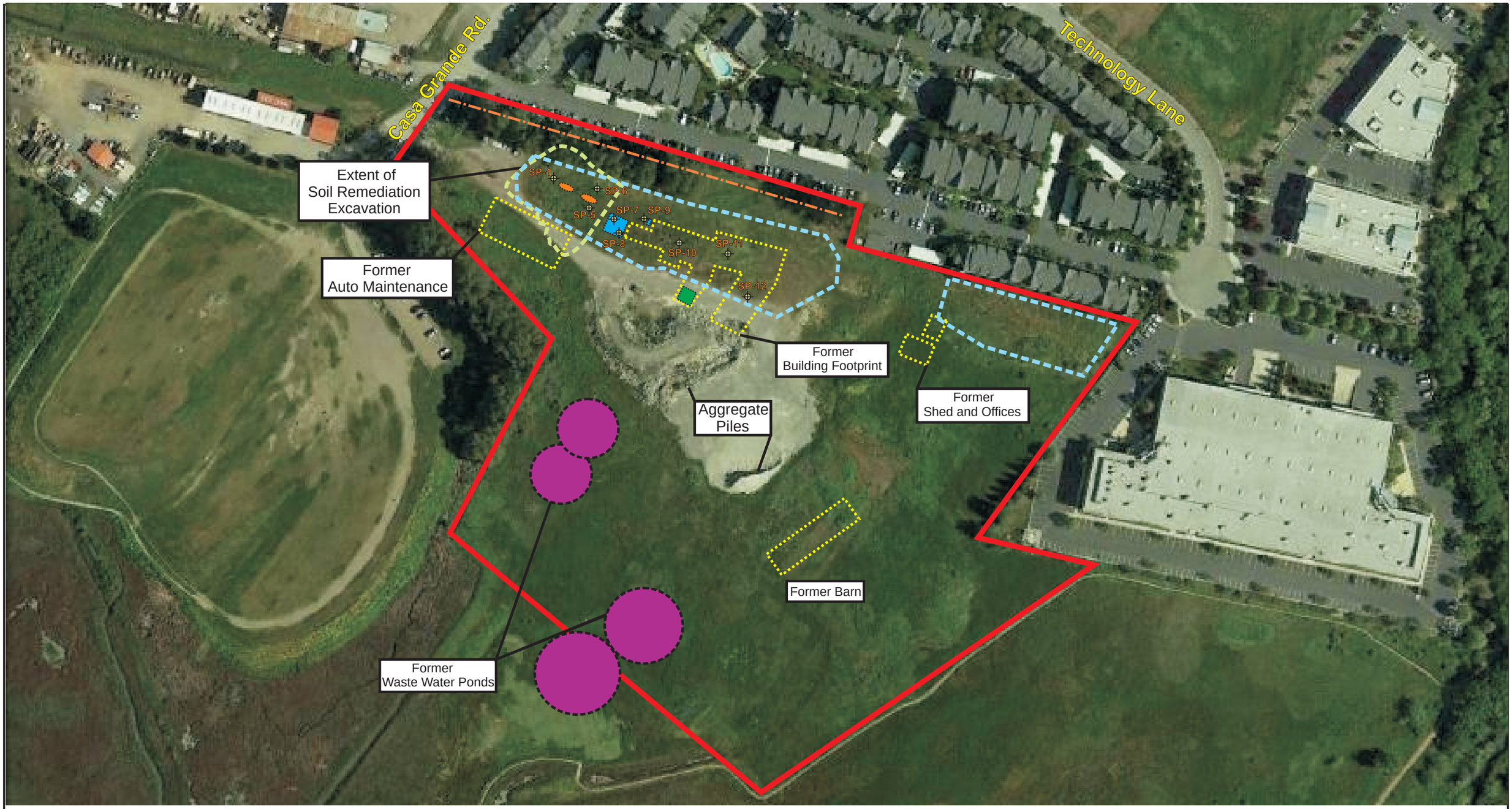
# AEI CONSULTANTS

2500 CAMINO DIABLO, WALNUT CREEK, CALIFORNIA

BORING LOCATIONS

2592 Lakeville Highway
Petaluma, California

**FIGURE 2**
Project No. 327703




## LEGEND

- Approximate Property Boundary
- Former Railroad Spur
- Former Structures
- Approximate Boundaries of Stockpiles
- Former Sump
- Former USTs
- Former Septic System Leach Field
- Former Septic Tanks Area
- Former Wastewater Ponds
- AEI Stockpile Soil Sampling Locations
- Approximate Extent of 2002 Remedial Excavation
  Source: Site Plan-Darling International, Inc. (Figure 2)
  MFG, Inc. Project No. 030070, 11/08/2006

N

0 65’ 130’

APPROXIMATE SCALE:
1” = 130’

**AEI CONSULTANTS**
2500 CAMINO DIABLO, WALNUT CREEK, CALIFORNIA

STOCKPILE LOCATIONS

2592 Lakeville Highway
Petaluma, California

**FIGURE 3**
Project No. 327703

# TABLES

**Table 1. Soil Sample Data Summary (Organic Constituents)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | TPH Multi-range by EPA Method 8015M & MBTEX by EPA Method 8260 | | | | | | | | | | OC Pesticides (mg/kg) | PCBs (mg/kg) | SVOCs (mg/kg) | Cl Herbicides (mg/kg) | PAHs/PNAs (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | TPH-g (mg/kg) | TPH-d (mg/kg) | TPH-mo (mg/kg) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Xylenes (mg/kg) | MTBE (mg/kg) | Naphthalene (mg/kg) | Remaining VOCs* (mg/kg) | | | | | |
| **Former Railroad Spur** | | | | | | | | | | | | | | | | | |
| RS-1 | 6/23/2014 | 2.5 | <1.0 | 5.0 | 23 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| RS-2 | 6/23/2014 | 2.5 | <1.0 | 3.6 | 9.9 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| RS-3 | 6/23/2014 | 2.5 | <1.0 | 25 | 46 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| **Sump** | | | | | | | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | 7.5 | <1.0 | 1.1 | 6.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Waste Disposal Ponds** | | | | | | | | | | | | | | | | | |
| PA-1 | 6/17/2014 | 2.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-2 | 6/17/2014 | 2.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-3 | 6/19/2014 | 2.5 | <1.0 | 89 | **660** | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-4 | 6/19/2014 | 2.5 | <1.0 | <1.0 | 6.1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PB-1 | 6/19/2014 | 2.5 | <1.0 | 7.5 | 39 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PB-2 | 6/19/2014 | 2.5 | <1.0 | 1.6 | 7.4 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Septic Tank and Leach Field** | | | | | | | | | | | | | | | | | |
| ST-1 | 6/19/2014 | 7.5 | 17 | 9.5 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| LF-1 | 6/19/2014 | 3.5 | 3.8 | 3.9 | 15 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| LF-2 | 6/19/2014 | 3.5 | 22 | 11 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Former Auto Maintenance Area** | | | | | | | | | | | | | | | | | |
| AM-1 | 6/17/2014 | 7.5 | **610** | **140** | 7.6 | <0.33 | <0.33 | 2.7 | 1.3 | <0.33 | **1.6** | <MRL | NA | NA | NA | NA | NA |
| AM-2 | 6/17/2014 | 5.5 | 5.6 | 6.3 | 5.4 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| AM-3 | 6/17/2014 | 2.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Former Underground Storage Tank (UST) Area** | | | | | | | | | | | | | | | | | |
| UST-1 | 6/17/2014 | 3.5 | **1,100** | **210** | 17 | <2.0 | 2.1 | **5.8** | **27** | <2.0 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-1 | 6/17/2014 | 11.5 | <1.0 | <1.0 | 5.8 | <0.005 | <0.005 | 0.0081 | 0.026 | <0.005 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-2 | 6/17/2014 | 3.5 | 78 | 40 | **130** | <0.033 | <0.033 | 0.32 | 0.45 | <0.033 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-2 | 6/17/2014 | 11.5 | <1.0 | <1.0 | 9.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-3 | 6/17/2014 | 3.5 | 89 | 11 | 7.2 | **0.26** | <0.05 | 0.63 | 0.7 | <0.05 | NA | NA | NA | NA | NA | NA | NA |
| UST-3 | 6/17/2014 | 7.5 | 35 | 6.8 | <5.0 | **0.085** | <0.033 | 0.15 | 0.079 | <0.033 | NA | NA | NA | NA | NA | NA | NA |
| UST-4 | 6/17/2014 | 3.5 | **430** | 47 | 9.2 | **1.0** | <0.33 | 1.7 | **7.7** | <0.33 | NA | NA | NA | NA | NA | NA | NA |
| UST-4 | 6/17/2014 | 7.5 | **140** | 44 | 8.4 | **0.46** | <0.1 | 0.92 | **3.8** | <0.1 | NA | NA | NA | NA | NA | NA | NA |
| UST-5 | 6/17/2014 | 3.5 | **340** | **150** | 16 | <0.1 | <0.1 | 1.9 | 2.3 | <0.1 | NA | NA | NA | NA | NA | NA | NA |
| UST-5 | 6/17/2014 | 7.5 | **280** | 17 | 6.5 | **0.55** | <0.2 | 0.38 | 0.99 | <0.2 | NA | NA | NA | NA | NA | NA | NA |
| UST-6 | 6/17/2014 | 1.5 | **130** | 14 | 11 | <0.2 | <0.02 | 0.04 | 0.14 | <0.02 | NA | NA | NA | NA | NA | NA | NA |
| UST-6 | 6/17/2014 | 9.5 | 21 | 2.4 | <5.0 | <0.005 | <0.005 | <0.005 | 0.007 | <0.005 | NA | NA | NA | NA | NA | NA | NA |
| **Former Facility Building Footprint** | | | | | | | | | | | | | | | | | |
| BLDG-1 | 6/19/2014 | 3.5 | <1.0 | 2.0 | 8.7 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BLDG-2 | 6/19/2014 | 3.5 | <1.0 | <1.0 | <5.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BLDG-3 | 6/19/2014 | 3.5 | <1.0 | 1.7 | 6.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Comparison Values:** | | | | | | | | | | | | | | | | | |
| ESL Table A-1 (DW) | | | 100 | 100 | 100 | 0.044 | 2.9 | 3.3 | 2.3 | 0.023 | 1.2 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table B-1 (Non-DW) | | | 100 | 100 | 100 | 0.74 | 9.3 | 4.7 | 11 | 8.4 | 3.1 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table C-1 (DW) | | | 500 | 110 | 500 | 0.044 | 2.9 | 3.3 | 2.3 | 0.023 | 1.2 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table D-1 (Non-DW) | | | 500 | 110 | 500 | 0.74 | 9.3 | 4.7 | 11 | 8.4 | 3.1 | varies | varies | 0.22 | varies | varies | varies |

**Notes:**

mg/kg milligrams per kilogram
<MRL = less than the method reporting limit or no ESL
NA = sample for not analyzed for indicated constituent(s)
bgs = below ground surface
DW Drinking Water Comparison Values
Non-DW Non-Drinking Water Comparison Values
**Bold =** Result exceeds Drinking Water Comparison Values
**Bold =** Result exceeds Drinking and Non-Drinking Water Comparison Values

TPH-g = Total Petroleum Hydrocarbons as Gasoline
TPH-d = Total Petroleum Hydrocarbons as Diesel
TPH-mo = Total Petroleum Hydrocarbons as Motor Oil
SVOCs = Semi-Volatile Organic Compounds
PAHs/PNAs = Polyaromatic Hydrocarbons and Polynuclear Aromatic Hydrocarbons
* = Detections for n-Butyl benzene, Isopropyl benzene, n-propyl benzene, 1,2,4-TMB, 1,3,5-TMB are not listed because no ESLs are established for these compounds

MTBE = Methyl tert-Butyl Ether
OC Pesticides = Organo-chlorine Pesticides
PCBs = Polychlorinated Biphenyls
Cl Herbicides = Chlorinated Herbicides

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)
ESL Table C-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table D-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 2. Soil Sample Data Summary (CAM 17 Metals)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | Antimony (mg/kg) | Arsenic (mg/kg) | Barium (mg/kg) | Beryllium (mg/kg) | Cadmium (mg/kg) | Total Chromium (mg/kg) | Cobalt (mg/kg) | Copper (mg/kg) | Lead (mg/kg) | Mercury (mg/kg) | Molybdenum (mg/kg) | Nickel (mg/kg) | Silver (mg/kg) | Vanadium (mg/kg) | Zinc (mg/kg) | Remaining Metals* (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Former Railroad Spur** | | | | | | | | | | | | | | | | | | |
| RS-1 | 6/23/2014 | 2.5 | <0.5 | **3.8** | 110 | <0.5 | 0.39 | 33 | 8.9 | 17 | 26 | 0.084 | <0.5 | 37 | <0.5 | 37 | 200 | <MRL |
| RS-2 | 6/23/2014 | 2.5 | <0.5 | **6.8** | 110 | <0.5 | <0.5 | 30 | 8.5 | 15 | 19 | 0.097 | <0.5 | 25 | <0.5 | 40 | 110 | <MRL |
| RS-3 | 6/23/2014 | 2.5 | 0.52 | **3.9** | 92 | 0.51 | 0.46 | 69 | 14 | 23 | 18 | 0.065 | <0.5 | 45 | <0.5 | 60 | 210 | <MRL |
| **Sump** | | | | | | | | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | 7.5 | 0.83 | **10** | 220 | 1.1 | <0.25 | 77 | 17 | 34 | 11 | 0.3 | <0.5 | <0.5 | <0.5 | 74 | 82 | <MRL |
| **Waste Disposal Ponds** | | | | | | | | | | | | | | | | | | |
| PA-1 | 6/18/2014 | 2.5 | <0.5 | **7.9** | 110 | 0.71 | <0.25 | 74 | 16 | 26 | 9.0 | 0.11 | 0.6 | 86 | <0.5 | 70 | 59 | <MRL |
| PA-2 | 6/18/2014 | 2.5 | <0.5 | **2.7** | 230 | 0.7 | <0.25 | 61 | 6.9 | 22 | 5.5 | 0.23 | <0.5 | 47 | <0.5 | 55 | 37 | <MRL |
| PA-3 | 6/18/2014 | 2.5 | **22** | **15** | 330 | <0.5 | 6.8 | 65 | 15 | **280** | **930** | 1.8 | 2.9 | 69 | 1.1 | 43 | **2,000** | <MRL |
| PA-4 | 6/18/2014 | 2.5 | 0.56 | **4.3** | 130 | 1.0 | 0.47 | 75 | 21 | 40 | 14 | 0.38 | 2.4 | 79 | <0.5 | 77 | 160 | <MRL |
| PB-1 | 6/18/2014 | 2.5 | 0.52 | **6.6** | 250 | 1.0 | <0.25 | 68 | 21 | 47 | 30 | 0.23 | <0.5 | 65 | <0.5 | 68 | 130 | <MRL |
| PB-2 | 6/18/2014 | 2.5 | <0.5 | **5.6** | 240 | 0.72 | <0.25 | 39 | 13 | 18 | 7.2 | 0.26 | <0.5 | 46 | <0.5 | 46 | 46 | <MRL |
| **Septic Tank and Leach Field** | | | | | | | | | | | | | | | | | | |
| ST-1 | 6/19/2014 | 19.5 | <0.5 | **4.7** | 170 | 1.1 | <0.25 | 65 | 17 | 30 | 9.3 | 0.41 | <0.5 | 53 | <0.5 | 65 | 71 | <MRL |
| LF-1 | 6/19/2014 | 15.5 | <0.5 | **8.7** | 260 | 0.88 | <0.25 | 46 | 19 | 17 | 12 | 0.061 | <0.5 | 40 | <0.5 | 67 | 35 | <MRL |
| LF-2 | 6/19/2014 | 15.5 | <0.5 | **4.3** | 150 | 0.69 | <0.25 | 59 | 9.8 | 25 | 8.8 | 0.12 | <0.5 | 49 | <0.5 | 56 | 49 | <MRL |
| **Former Facility Building Footprint** | | | | | | | | | | | | | | | | | | |
| BLDG-1 | 6/19/2014 | 3.5 | 1.3 | **4.9** | 190 | 0.6 | 0.3 | 52 | 14 | 42 | **220** | 0.29 | <0.5 | 48 | <0.5 | 69 | 140 | <MRL |
| BLDG-2 | 6/19/2014 | 3.5 | 0.98 | **4.7** | 150 | 0.96 | <0.25 | 58 | 13 | 26 | 7.6 | 0.2 | <0.5 | 64 | <0.5 | 56 | 57 | <MRL |
| BLDG-3 | 6/19/2014 | 3.5 | 0.52 | **6.4** | 150 | 0.94 | <0.25 | 59 | 15 | 30 | 8.8 | 0.39 | <0.5 | 63 | <0.5 | 65 | 61 | <MRL |
| **Comparison Values:** | | | | | | | | | | | | | | | | | | |
| TTLC(mg/kg) | | | 500 | 500 | 10,000 | 75 | 100 | 2,500 | 8,000 | 2,500 | 1,000 | 20 | 3,500 | 2,000 | 500 | 2,400 | 5,000 | varies |
| STLC(mg/L) | | | 15.0 | 5.0 | 100 | 0.75 | 1.0 | 5.0 | 80 | 25 | 5.0 | 0.2 | 350 | 20 | 5.0 | 24 | 250 | varies |
| TCLP(mg/L) | | | - | 5.0 | 100 | - | 1.0 | 5.0 | - | - | 5.0 | 0.2 | - | - | 5.0 | - | - | varies |
| ESL Table A-1 (DW) | | | 20 | 0.39 | 750 | 4.0 | 12 | 1,000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 20 | 200 | 600 | varies |
| ESL Table B-1 (Non-DW) | | | 20 | 0.39 | 750 | 4.0 | 12 | 1,000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 20 | 200 | 600 | varies |
| ESL Table C-1 (DW) | | | 31 | 0.39 | 2,500 | 160 | 78 | 2,500 | 23 | 2,500 | 80 | 6.7 | 390 | 1,500 | 390 | 390 | 2,500 | varies |
| ESL Table D-1 (Non-DW) | | | 31 | 0.39 | 2,500 | 160 | 78 | 2,500 | 23 | 2,500 | 80 | 6.7 | 390 | 1,500 | 390 | 390 | 2,500 | varies |

**Notes:**

mg/kg = milligrams per kilogram
<MRL = less than the method reporting limit
ESL = Environmental Screening Level
bgs = below ground surface
DW Drinking Water Comparison Values
Non-DW Non-Drinking Water Comparison Values
**Bold =** Result exceeds Drinking Water Comparison Values
**Bold =** Result exceeds Drinking and Non-Drinking Water Comparison Values

* = Remaining metals (not detected) include selenium and thallium
- No established comparison value

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)
ESL Table C-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table D-1: Deep Soil Screening Levels (> 3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 3. Stockpiled Soil Data Summary (Organic Constituents)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | TPH-g mg/kg | TPH-d mg/kg | TPH-mo mg/kg | OC Pesticides: Chlordane (Technical) mg/kg | a-Chlordane mg/kg | g-Chlordane mg/kg | p,p-DDD mg/kg | p,p-DDE mg/kg | p,p-DDT mg/kg | Dieldrin mg/kg | Remaining OC Pesticides mg/kg | PCBs mg/kg | OP Pesticides mg/kg | Cl Herbicides mg/kg | SVOCs: Phenol mg/kg | SVOCs: Other SVOCs mg/kg | Asbestos mg/kg | VOCs mg/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP-1 | 6/18/2014 | 3.5 | <1.0 | 1.6 | 8.5 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | **1.6** | <MRL | ND | <MRL |
| SP-1 | 6/18/2014 | 5.5 | <1.0 | <1.0 | <5.0 | <0.025 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <MRL | <0.05 | <0.1 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-1 | 6/18/2014 | 9.5 | <1.0 | 6.3 | 34 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <5.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-5 | 6/18/2014 | 2.5 | <1.0 | 4.0 | 34 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-5 | 6/18/2014 | 5.5 | <1.0 | 3.4 | 22 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <1.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-5 | 6/18/2014 | 8.5 | <1.0 | 10 | 94 | <0.2 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | <0.25 | <5.0 | <MRL | <2.0 | <MRL | ND | <MRL |
| SP-6 | 6/18/2014 | 2.5 | <1.0 | 54 | **300** | <0.5 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <MRL | <1.0 | <5.0 | <MRL | <4.0 | <MRL | ND | <MRL |
| SP-6 | 6/18/2014 | 5.5 | <1.0 | 2.4 | 7.9 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <1.0 | <MRL | **0.79** | <MRL | ND | <MRL |
| SP-6 | 6/18/2014 | 8.5 | <1.0 | 25 | **130** | <0.5 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <MRL | <1.0 | <5.0 | <MRL | <4.0 | <MRL | ND | <MRL |
| SP-7 | 6/19/2014 | 2.5 | <1.0 | 7.2 | 73 | <0.12 | 0.0092 | 0.0061 | 0.035 | 0.14 | 0.053 | <0.001 | <MRL | <0.25 | <2.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-8 | 6/19/2014 | 2.5 | <1.0 | 5.6 | 94 | <0.12 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | <0.25 | <5.0 | <MRL | **3.1** | <MRL | ND | <MRL |
| SP-8 | 6/19/2014 | 5.5 | <1.0 | 1.2 | 9.1 | <0.25 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <MRL | <0.05 | <1.0 | <MRL | **1.2** | <MRL | ND | <MRL |
| SP-8 | 6/19/2014 | 8.5 | <1.0 | 7.2 | 100 | <0.12 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 | <MRL | <0.25 | <10 | <MRL | <2.0 | <MRL | ND | <MRL |
| SP-9 | 6/19/2014 | 2.5 | <1.0 | 1.3 | 15 | 0.056 | 0.0073 | 0.0069 | <0.001 | <0.001 | <0.001 | <0.001 | <MRL | <0.05 | <2.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-9 | 6/19/2014 | 5.5 | <1.0 | 2.5 | 33 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-9 | 6/19/2014 | 8.5 | <1.0 | 77 | **440** | <0.25 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <MRL | <0.5 | <10 | <MRL | <4.0 | <MRL | ND | <MRL |
| SP-9 | 6/19/2014 | 11.5 | 2.6 | 1.3 | 6.1 | <0.025 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <MRL | <0.05 | <0.1 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-10 | 6/19/2014 | 3.5 | <1.0 | 7.7 | 28 | 0.14 | 0.021 | 0.016 | 0.0027 | 0.0079 | 0.0055 | **0.0042** | <MRL | <0.1 | <1.0 | <MRL | **0.94** | <MRL | ND | <MRL |
| SP-10 | 6/19/2014 | 7.5 | 3.3 | 80 | 96 | <0.05 | <0.002 | 0.0021 | 0.039 | 0.0078 | 0.019 | <0.002 | <MRL | <0.1 | <1.0 | <MRL | <2.0 | <MRL | ND | <MRL |
| SP-10 | 6/19/2014 | 11.5 | <1.0 | 8.7 | 19 | <0.025 | <0.001 | <0.001 | 0.0022 | 0.0018 | <0.001 | <0.001 | <MRL | <0.05 | <2.0 | <MRL | **0.34** | <MRL | ND | <MRL |
| SP-11 | 6/19/2014 | 2.5 | <1.0 | 2.2 | 34 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | <0.5 | <MRL | ND | <MRL |
| SP-11 | 6/19/2014 | 5.5 | <1.0 | 19 | **140** | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <5.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-11 | 6/19/2014 | 8.5 | <1.0 | 2.1 | 25 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-11 | 6/19/2014 | 11.5 | <1.0 | 16 | 29 | <0.025 | <0.001 | <0.001 | 0.0014 | 0.001 | <0.001 | <0.001 | <MRL | <0.05 | <1.0 | <MRL | <2.0 | <MRL | ND | <MRL |
| SP-12 | 6/19/2014 | 3.5 | <1.0 | 15 | 100 | <0.5 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <MRL | <1.0 | <2.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-12 | 6/19/2014 | 7.5 | <1.0 | 16 | **290** | <0.25 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <MRL | <0.5 | <5.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-12 | 6/19/2014 | 11.5 | 14 | **280** | **120** | <0.025 | <0.001 | <0.001 | 0.0014 | 0.001 | <0.001 | <0.001 | <MRL | <0.05 | <0.1 | <MRL | <2.0 | <MRL | ND | <MRL |
| **Comparison Values:** | | | | | | | | | | | | | | | | | | | | |
| ESL Table A-1 (DW) | | | 100 | 100 | 100 | 0.44 | - | - | 2.4 | 1.7 | 1.7 | 0.0023 | varies | 0.22 | varies | varies | 0.076 | varies | - | varies |
| ESL Table B-1 (Non-DW) | | | 100 | 100 | 100 | 0.44 | - | - | 2.4 | 1.7 | 1.7 | 0.0023 | varies | 0.22 | varies | varies | 3.9 | varies | - | varies |
| ESL Table C-1 (DW) | | | 500 | 110 | 500 | 0.44 | - | - | 2.4 | 1.7 | 1.7 | 0.0023 | varies | 0.22 | varies | varies | 0.076 | varies | - | varies |
| ESL Table D-1 (Non-DW) | | | 500 | 110 | 500 | 0.44 | - | - | 2.4 | 1.7 | 1.7 | 0.0023 | varies | 0.22 | varies | varies | 3.9 | varies | - | varies |

Notes:

mg/kg = milligrams per kilogram
<MRL = less than the method reporting limit
NA = not analyzed
ND = None Detected (Asbestos analyzed by CARB Method 435)
ESL = Environmental Screening Level
bgs = below ground surface
DW= Drinking Water Comparison Values
Non-DW= Non-Drinking Water Comparison Values
**Bold** = Result exceeds Drinking Water comparison values
**Bold** = Result exceeds Drinking and Non-Drinking Water comparison values

OC Pesticides = Organo-chlorine Pesticides
OP Pesticides = Organo-phosphate Pesticides
PCBs = Polychlorinated Biphenyl
Herbicides = Chlorinated Herbicides
VOCs = Semi-volatile organic compounds
SVOCs = Volatile organic compounds
- No established comparison value

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a not a current or potential drinking water resource)
ESL Table C-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table D-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 4. Stockpiled Soil Data Summary (CAM 17 Metals)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | Antimony mg/kg | Arsenic mg/kg | Barium mg/kg | Beryllium mg/kg | Cadmium mg/kg | Total Chromium mg/kg | Cobalt mg/kg | Copper mg/kg | Lead mg/kg | Mercury mg/kg | Molybdenum mg/kg | Nickel mg/kg | Silver mg/kg | Vanadium mg/kg | Zinc mg/kg | Remaining Metals* (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP-1 | 6/18/2014 | 3.5 | <0.50 | **1.7** | 33 | 0.57 | <0.25 | 17 | 6.0 | 11 | 3.1 | 0.14 | <0.50 | 17 | <0.50 | 27 | 32 | <MRL |
| SP-1 | 6/18/2014 | 5.5 | <0.50 | **2.6** | 83 | <0.50 | <0.25 | 40 | 13 | 16 | 3.8 | 0.12 | <0.50 | 32 | <0.50 | 56 | 32 | <MRL |
| SP-1 | 6/18/2014 | 9.5 | <0.50 | **4.2** | 120 | <0.50 | <0.25 | 46 | 15 | 33 | 23 | 0.075 | <0.50 | 38 | <0.50 | 49 | 71 | <MRL |
| SP-5 | 6/18/2014 | 2.5 | 0.77 | **4.9** | 140 | 0.85 | <0.25 | 80 | 18 | 28 | 6.7 | 0.13 | 1.2 | 76 | <0.50 | 85 | 55 | <MRL |
| SP-5 | 6/18/2014 | 5.5 | <0.50 | **8.8** | 600 | 0.88 | <0.25 | 50 | 36 | 22 | 8.0 | 0.18 | 0.86 | 50 | <0.50 | 85 | 44 | <MRL |
| SP-5 | 6/18/2014 | 8.5 | <0.50 | **5.7** | 160 | 0.55 | <0.25 | 60 | 16 | 30 | 36 | 0.086 | 0.54 | 46 | <0.50 | 73 | 80 | <MRL |
| SP-6 | 6/18/2014 | 2.5 | <0.50 | **4.3** | 130 | 0.57 | <0.25 | 48 | 16 | 22 | 9.0 | 0.096 | <0.50 | 50 | <0.50 | 62 | 52 | <MRL |
| SP-6 | 6/18/2014 | 5.5 | <0.50 | **3.4** | 130 | 0.69 | <0.25 | 44 | 16 | 19 | 6.7 | 0.2 | <0.50 | 41 | <0.50 | 64 | 38 | <MRL |
| SP-6 | 6/18/2014 | 8.5 | 1.0 | **7.4** | 180 | 0.52 | 0.31 | 46 | 14 | 36 | **82** | 0.13 | 0.68 | 41 | <0.50 | 55 | 160 | <MRL |
| SP-7 | 6/19/2014 | 2.5 | <0.50 | **2.8** | 110 | 0.65 | <0.25 | 110 | 19 | 36 | 9.7 | 0.074 | <0.50 | 52 | <0.50 | 100 | 52 | <MRL |
| SP-8 | 6/19/2014 | 2.5 | <0.50 | **6.3** | 160 | <0.50 | <0.25 | 31 | 14 | 32 | 12 | 0.17 | 0.51 | 49 | <0.50 | 37 | 77 | <MRL |
| SP-8 | 6/19/2014 | 5.5 | <0.50 | **3.1** | 96 | 0.56 | <0.25 | 34 | 12 | 24 | 3.5 | 0.056 | <0.50 | 38 | <0.50 | 56 | 38 | <MRL |
| SP-8 | 6/19/2014 | 8.5 | <0.50 | **8.1** | 170 | 0.59 | 0.41 | 48 | 12 | 25 | 13 | 0.25 | 0.79 | 56 | <0.50 | 45 | 60 | <MRL |
| SP-9 | 6/19/2014 | 2.5 | <0.50 | **3.8** | 100 | 0.65 | <0.25 | 78 | 17 | 26 | 6.4 | 0.058 | <0.50 | 83 | <0.50 | 84 | 51 | <MRL |
| SP-9 | 6/19/2014 | 5.5 | 0.81 | **7.3** | 160 | 0.52 | <0.25 | 140 | 18 | 30 | 12 | 0.56 | 0.63 | 120 | <0.50 | 63 | 61 | <MRL |
| SP-9 | 6/19/2014 | 8.5 | <0.50 | **0.82** | 43 | <0.50 | <0.25 | 62 | 14 | 44 | 0.69 | <0.05 | <0.50 | 36 | <0.50 | 42 | 24 | <MRL |
| SP-9 | 6/19/2014 | 11.5 | <0.50 | **5.1** | 160 | 0.6 | <0.25 | 36 | 9.5 | 13 | 13 | <0.05 | <0.50 | 25 | <0.50 | 40 | 40 | <MRL |
| SP-10 | 6/19/2014 | 3.5 | 0.59 | **11** | 140 | 0.55 | <0.25 | 240 | 23 | 35 | 10 | 0.11 | 0.53 | **340** | <0.50 | 78 | 89 | <MRL |
| SP-10 | 6/19/2014 | 7.5 | <0.50 | **3.8** | 110 | 0.66 | <0.25 | 53 | 22 | 21 | 12 | 0.11 | <0.50 | 56 | <0.50 | 52 | 64 | <MRL |
| SP-10 | 6/19/2014 | 11.5 | <0.50 | **4.5** | 120 | <0.50 | <0.25 | 54 | 13 | 23 | 13 | 0.15 | <0.50 | 48 | <0.50 | 60 | 58 | <MRL |
| SP-11 | 6/19/2014 | 2.5 | <0.50 | **4.5** | 160 | 0.63 | <0.25 | 48 | 15 | 24 | 6.8 | 0.31 | <0.50 | 59 | <0.50 | 70 | 45 | <MRL |
| SP-11 | 6/19/2014 | 5.5 | 0.76 | **4.3** | 200 | 0.65 | <0.25 | 92 | 17 | 31 | 43 | 0.38 | 0.56 | 73 | <0.50 | 83 | 110 | <MRL |
| SP-11 | 6/19/2014 | 8.5 | <0.50 | **4.9** | 300 | 0.82 | <0.25 | 59 | 16 | 23 | 10 | 0.86 | 1.3 | 59 | <0.50 | 52 | 51 | <MRL |
| SP-11 | 6/19/2014 | 11.5 | <0.50 | **4.1** | 160 | 0.56 | <0.25 | 71 | 21 | 26 | 16 | 0.17 | <0.50 | 65 | <0.50 | 81 | 150 | <MRL |
| SP-12 | 6/19/2014 | 3.5 | <0.50 | **3.8** | 140 | 0.61 | <0.25 | 35 | 11 | 19 | 14 | 0.28 | 0.61 | 32 | <0.50 | 53 | 65 | <MRL |
| SP-12 | 6/19/2014 | 7.5' | <0.50 | **5.4** | 170 | 0.57 | <0.25 | 77 | 13 | 25 | 12 | 0.11 | 0.81 | 59 | <0.50 | 69 | 54 | <MRL |
| SP-12 | 6/19/2014 | 11.5' | <0.50 | **4.0** | 130 | 0.63 | <0.25 | 55 | 11 | 19 | 6.6 | 0.23 | <0.50 | 47 | <0.50 | 48 | 39 | <MRL |
| Comparison Values: | | | | | | | | | | | | | | | | | | |
| TTCL(mg/kg) | | | 500 | 500 | 10,000 | 75 | 100 | 2,500 | 8,000 | 2,500 | 1,000 | 20 | 3,500 | 2,000 | 500 | 2,400 | 5,000 | varies |
| STLC(mg/L) | | | 15.0 | 5.0 | 100 | 0.75 | 1.0 | 5.0 | 80 | 25 | 5.0 | 0.2 | 350 | 20 | 5.0 | 24 | 250 | varies |
| TCLP(mg/L) | | | - | 5.0 | 100 | - | 1.0 | 5.0 | - | - | 5.0 | 0.2 | - | - | 5.0 | - | - | varies |
| ESL Table A-1 (DW) | | | 20 | 0.39 | 750 | 4.0 | 12 | 1,000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 20 | 200 | 600 | varies |
| ESL Table B-1 (Non-DW) | | | 20 | 0.39 | 750 | 4.0 | 12 | 1,000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 20 | 200 | 600 | varies |

**Notes:**

mg/kg = milligrams per kilogram
<MRL = less than the method reporting limit
bgs = below ground surface
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
TCLP = Toxic Leaching Characteristic Procedure
ESL = Environmental Screening Level
DW Drinking Water Comparison Values
Non-DW Non-Drinking Water Comparison Values

* = Remaining metals (not detected) include selenium and thallium
**Bold=** Result exceeds Drinking Water comparison values
**Bold=** Result exceeds Drinking and Non-Drinking comparison values
- No established comparison value

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 5. Groundwater Data Summary (Organic Constituents)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | TPH-g (µg/L) | TPH-d (µg/L) | TPH-mo (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (µg/L) | MTBE (µg/L) | Naphthalene (µg/L) | Remaining VOCs* (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sump** | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | <50 | 60 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Waste Disposal Ponds** | | | | | | | | | | | |
| PA-3 | 6/17/2014 | <50 | <50 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| PB-1 | 6/17/2014 | <50 | <50 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Septic Tank and Leach Field** | | | | | | | | | | | |
| ST-1 | 6/19/2014 | **29,000** | **3,300** | <250 | **5,900** | **270** | **710** | **1,900** | <100 | **190** | <MRL |
| LF-1 | 6/19/2014 | **6,800** | **3,000** | **280** | **22** | 2.6 | **46** | 7.1 | <2.5 | **15** | <MRL |
| LF-2 | 6/19/2014 | **11,000** | **5,500** | **430** | **130** | **200** | **350** | **1,500** | <10 | **100** | <MRL |
| **Former Auto Maintenance Area** | | | | | | | | | | | |
| AM-1 | 6/17/2014 | **5,600** | **1,800** | **430** | **260** | 16 | **270** | **53** | <0.5 | **100** | <MRL |
| AM-2 | 6/17/2014 | **490** | **160** | <250 | 0.75 | <0.5 | 6.9 | <0.5 | <0.5 | 3.7 | <MRL |
| AM-3 | 6/17/2014 | <50 | 93 | **450** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Former Underground Storage Tank (UST) Area** | | | | | | | | | | | |
| UST-1 | 6/17/2014 | **35,000** | **12,000** | **250** | **2,100** | **440** | **1,200** | **3,900** | <50 | NA | NA |
| UST-2 | 6/17/2014 | **1,700** | **690** | <250 | **18** | <1.2 | **34** | **70** | <1.2 | NA | NA |
| UST-3 | 6/17/2014 | **1,300** | **310** | <250 | **74** | 3.9 | **53** | **97** | <2.5 | NA | NA |
| UST-4 | 6/17/2014 | **7,400** | **1,800** | <250 | **320** | **55** | **270** | **1,000** | <10 | NA | NA |
| UST-5 | 6/17/2014 | **2,900** | **700** | <250 | **120** | 4.2 | **75** | **160** | <2.5 | NA | NA |
| UST-6 | 6/17/2014 | **8,600** | **1,000** | <250 | **2,100** | **78** | **290** | **870** | <50 | NA | NA |
| **Former Facility Building Footprint** | | | | | | | | | | | |
| BLDG-1 | 6/19/2014 | <50 | **150** | **620** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| BLDG-2 | 6/19/2014 | **220** | 73 | <250 | **27** | 2.5 | 9.2 | **23** | <0.5 | 2.4 | <MRL |
| BLDG-3 | 6/19/2014 | **320** | 98 | <250 | **39** | 3.0 | 9.7 | 17 | <0.5 | 2.9 | <MRL |
| **Comparison Values:** | | | | | | | | | | | |
| ESL Table F-1a (DW) | | 100 | 100 | 100 | 1.0 | 40 | 30 | 20 | 5.0 | 6.1 | varies |
| ESL Table F-1b (Non-DW) | | 500 | 640 | 640 | 27 | 130 | 43 | 100 | 1,800 | 24 | varies |

**Notes:**

µg/L = micrograms per liter
<MRL = less than the method reporting limit or no ESL
bgs = below ground surface
NA = sample not analyzed for indicated constituent
TPH-g = Total Petroleum Hydrocarbons as Gasoline
TPH-d = Total Petroleum Hydrocarbons as Diesel
TPH-mo = Total Petroleum Hydrocarbons as Motor Oil
MTBE = Methyl tert-Butyl Ether
* = Detections for t-Butyl alcohol, n-Butyl benzene, sec-Butyl benzene, diisopropyl ether, isopropyl benzene, 4-isopropyl toluene, n-Propyl benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and 2-Butanone were not reported because there is no established ESL for these compounds
DW= Drinking Water Comparison Values
Non-DW= Non-Drinking Water Comparison Values
**Bold** = Result exceeds Drinking Water comparison values
**Bold** = Result exceeds Drinking and Non-Drinking Water comparison values

**Comparison Values:**

ESL Table F-1a: Groundwater Screening Levels (groundwater is a current or potential drinking water resource)
ESL Table F-1b: Groundwater Screening Levels (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 6. Groundwater Data Summary (CAM 17 Metals)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Antimony (µg/L) | Arsenic (µg/L) | Barium (µg/L) | Cadmium (µg/L) | Cobalt (µg/L) | Copper (µg/L) | Mercury (µg/L) | Molybdenum (µg/L) | Nickel (µg/L) | Vanadium (µg/L) | Zinc (µg/L) | Remaining Metals* (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sump** | | | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | <5.0 | 8.7 | 240 | <2.5 | <5.0 | <5.0 | <0.25 | <5.0 | **420** | **39** | <50 | <MRL |
| **Waste Disposal Ponds** | | | | | | | | | | | | | |
| PA-3 | 6/17/2014 | <5.0 | **39** | 89 | <2.5 | **53** | **15** | <0.25 | 42 | **140** | 13 | **110** | <MRL |
| PB-1 | 6/17/2014 | <5.0 | **24** | 600 | **3.2** | **56** | **10** | <0.25 | 10 | **110** | **23** | **110** | <MRL |
| **Septic Tank and Leach Field** | | | | | | | | | | | | | |
| ST-1 | 6/19/2014 | <5.0 | **16** | **1,100** | <2.5 | **36** | <5.0 | <0.25 | 22 | **76** | 5.3 | <50 | <MRL |
| LF-1 | 6/19/2014 | <5.0 | **12** | **1,300** | <2.5 | **37** | **5.4** | **0.6** | **87** | **270** | 11 | <50 | <MRL |
| LF-2 | 6/19/2014 | <5.0 | <5.0 | 310 | <2.5 | <5.0 | <5.0 | <0.25 | 47 | **45** | 5.4 | <50 | <MRL |
| **Comparison Values:** | | | | | | | | | | | | | |
| ESL Table F-1a (DW) | | 6.0 | 10 | 1,000 | 0.25 | 3.0 | 3.1 | 0.025 | 78 | 8.2 | 19 | 81 | varies |
| ESL Table F-1b (Non-DW) | | 30 | 36 | 1,000 | 0.25 | 3.0 | 3.1 | 0.025 | 240 | 8.2 | 19 | 81 | varies |

**Notes:**

µg/L = micrograms per liter
<MRL = less than the method reporting limit
bgs = below ground surface
* = Remaining metals include silver, beryllium, chromium, lead, mercury, selenium, silver, and thallium. These constituents were not detected above the laboratory reporting limits
ESL = Environmental Screening Level
DW= Drinking Water Comparison Values
Non-DW= Non-Drinking Water Comparison Values
**Bold =** Result exceeds Drinking Water comparison values
**Bold =** Result exceeds Drinking and Non-Drinking Water comparison values

**Comparison Values:**

ESL Table F-1a: Groundwater Screening Levels (groundwater is a current or potential drinking water resource)
ESL Table F-1b: Groundwater Screening Levels (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 7. Soil Gas Sample Data Summary**
**2592 Lakeville Highway, Petaluma, California**

| | | | Sample Locations | | | | | | Comparison Value |
|---|---|---|---|---|---|---|---|---|---|
| | | | Auto Maintenance Area | | UST Area | | Building Footprint | | |
| Analytical Parameter | Date | Units | G-1 | G-2 | G-3 | G-4 | G-5 | G-6 | ESL Table E-2 |
| 1,2,4-Trimethylbenzene | 06/19/14 | µg/m$^3$ | 6.8 | 7.4 | 14,000 | <5.9 | 19 | <6.6 | NA |
| 1,3,5-Trimethylbenzene | 06/19/14 | µg/m$^3$ | <6.1 | <5.9 | 6,100 | <5.9 | 6.2 | <6.6 | NA |
| Methyl ethyl ketone | 06/19/14 | µg/m$^3$ | 14 | 26 | <7600 | 50 | 130 | 52 | 2,600,000 |
| 4-Ethyltoluene | 06/19/14 | µg/m$^3$ | <6.1 | <5.9 | 18,000 | <5.9 | 20 | <6.6 | NA |
| 4-Methyl-2-pentanone | 06/19/14 | µg/m$^3$ | <5.1 | <5.0 | <2600 | 6.3 | <4.3 | 34 | 1,600,000 |
| Acetone | 06/19/14 | µg/m$^3$ | 39 | 900 | <6100 | 300 | 660 | 160 | 16,000,000 |
| Benzene | 06/19/14 | µg/m$^3$ | 4.9 | 3.9 | **750,000** | 39 | 7.4 | <4.3 | 42 |
| Cumene | 06/19/14 | µg/m$^3$ | <6.1 | <5.9 | 3,800 | <5.9 | <5.1 | <6.6 | NA |
| Cyclohexane | 06/19/14 | µg/m$^3$ | 14 | 22 | 880,000 | 220 | 210 | 20 | NA |
| Ethanol | 06/19/14 | µg/m$^3$ | 13 | 12 | <4900 | <9.0 | 76 | 100 | NA |
| Ethyl Benzene | 06/19/14 | µg/m$^3$ | <5.4 | <5.2 | **83,000** | 14 | 17 | <5.8 | 490 |
| Heptane | 06/19/14 | µg/m$^3$ | <5.1 | <5.0 | 420,000 | 93 | 4.8 | <5.5 | NA |
| Hexane | 06/19/14 | µg/m$^3$ | <4.4 | <4.3 | 1,900,000 | 260 | 11 | 4.9 | NA |
| Xylenes | 06/19/14 | µg/m$^3$ | 10 | 10 | **217,000** | 13 | 84 | <5.8 | 52,000 |
| Naphthalene | 06/19/14 | µg/m$^3$ | <26 | <25 | <14000 | <25 | <22 | <28 | 36 |
| Propylbenzene | 06/19/14 | µg/m$^3$ | <6.1 | <5.9 | 5,400 | <5.9 | 6 | <6.6 | NA |
| Tetrachloroethene | 06/19/14 | µg/m$^3$ | <8.4 | <8.2 | **6,100** | <8.1 | <7.0 | <9.1 | 210 |
| Tetrahydrofuran | 06/19/14 | µg/m$^3$ | 4.7 | 6.4 | <1900 | 5.9 | 210 | 12 | NA |
| Toluene | 06/19/14 | µg/m$^3$ | 14 | 40 | 130,000 | 17 | 46 | 5.8 | 160,000 |
| TPH-g | 06/19/14 | µg/m$^3$ | 600 | 1600 | **43,000,000** | 6000 | 2100 | 900 | 300,000 |

**Notes:**

µg/m$^3$ = micrograms per cubic meter
NA = No established comparison value for indicated constituent
TPH-g = Total Petroleum Hydrocarbons as Gasoline
ESL = Environmental Screening Level
**Bold =** Result exceeds applicable Comparison Value

**Comparison Values:**

ESL Table E-2: Soil Gas Screening Levels for Evaluation of Vapor Intrusion Concerns (Lowest Residential Exposure)

From Derivation and Application of ESLs, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

# APPENDIX A

# PERMITS

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

DEPT. OF HEALTH SVCS
JUN 02 2014
ENVIRONMENTAL HEALTH DIVISION

**For Office Use Only**
Amount paid 2603
Receipt number 817B
Payment date 6.6.14 Rev. code 1345
Site ID# FA0003178
Permit # SR0012022

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment / LOP Lead

i41C

Well type: ☐Monitoring well ☐Recovery extraction well ■Boring ☐Injection well ☐Destruct ☐Environmental assessment
☐Soil gas survey ■Direct push ☐Air sparging/venting ☐Remediation well ☐Other _____

Well depth _____ Boring depth 3-12 feet bgs

# On-site well/boring 31 ID # TBD (See Work Plan) # Off-site well/boring _____ ID # _____

Submit legal right-of-entry/off-site well address/encroachment permit

On-site Address 2592 Lakeville Highway AP# _____

Facility Name Vacant Land (Former Royal Tallow and Soap Company)

On-site Owner Baywood, LLC Phone (707) 578-5344

Street 414 Aviation Boulevard City Santa Rosa State CA Zip 95403

Responsible Party Baywood, LLC Phone (707) 578-5344

Street 414 Aviation Boulevard City Santa Rosa State CA Zip 95403

Consultant AEI Consultants Diego Gonzalez 925 746-6040 Phone (925) 746-6000

Street 2500 Camino Diablo City Walnut Creek State CA Zip 94597

License #/Type _____

Drilling Contractor Environmental Control Associates, Inc. (ECA) Phone (831)

Street 3011 Twin Palms Drive City Aptos State CA Zip _____

C-57 License # 695970

Type of work: ■Initial investigation _____ # Wells ☐Subsequent investigation _____ # Wells ☐Destruct _____ # Wells

Groundwater investigation due to: ☐Underground tank ☐Surface impoundment ■Environmental assessment
☐Surface disposal practice—specify involved industry _____
☐Other _____

Perforated intervals _____ Chemical constituents _____

Disposal method for soil cuttings 55-gallon Drums Disposal method for development water _____

Drilling method Direct Push Method of drill equip. rinsate containment Sealed 5-gallon buckets

If destroying a well, abandonment method Backfill with neat cement grout

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leachfield? ☐Yes ◉No
50 feet of any sanitary sewer line? ☐Yes ◉No
25 feet of any private sanitary sewer line? ☐Yes ◉No

ENTERED EP

084195*#
001348D
ENVDRILL 2603.00
084102D
DONATION 4.00
TTLAMT 2607.00
CHECKS 2607.00
CHANGE 0.00
817B #2 9:52

In addition, all monitoring wells must include ***identification system*** affixed to interior surface:
1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals 06/06/14

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

**For Office Use Only**

Address 2592 Lakeville Hwy

Site ID# FA0003175

Permit # S12001202c

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Health Services and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by this Department within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

Tom Taylor Date 5-29-14

Signature of Well Driller—***no proxies***

Insurance Carrier State Fund Expiration Date 5-8-2015

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

Borings shall abandoned by tremie Grouting

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

ENTERED EP

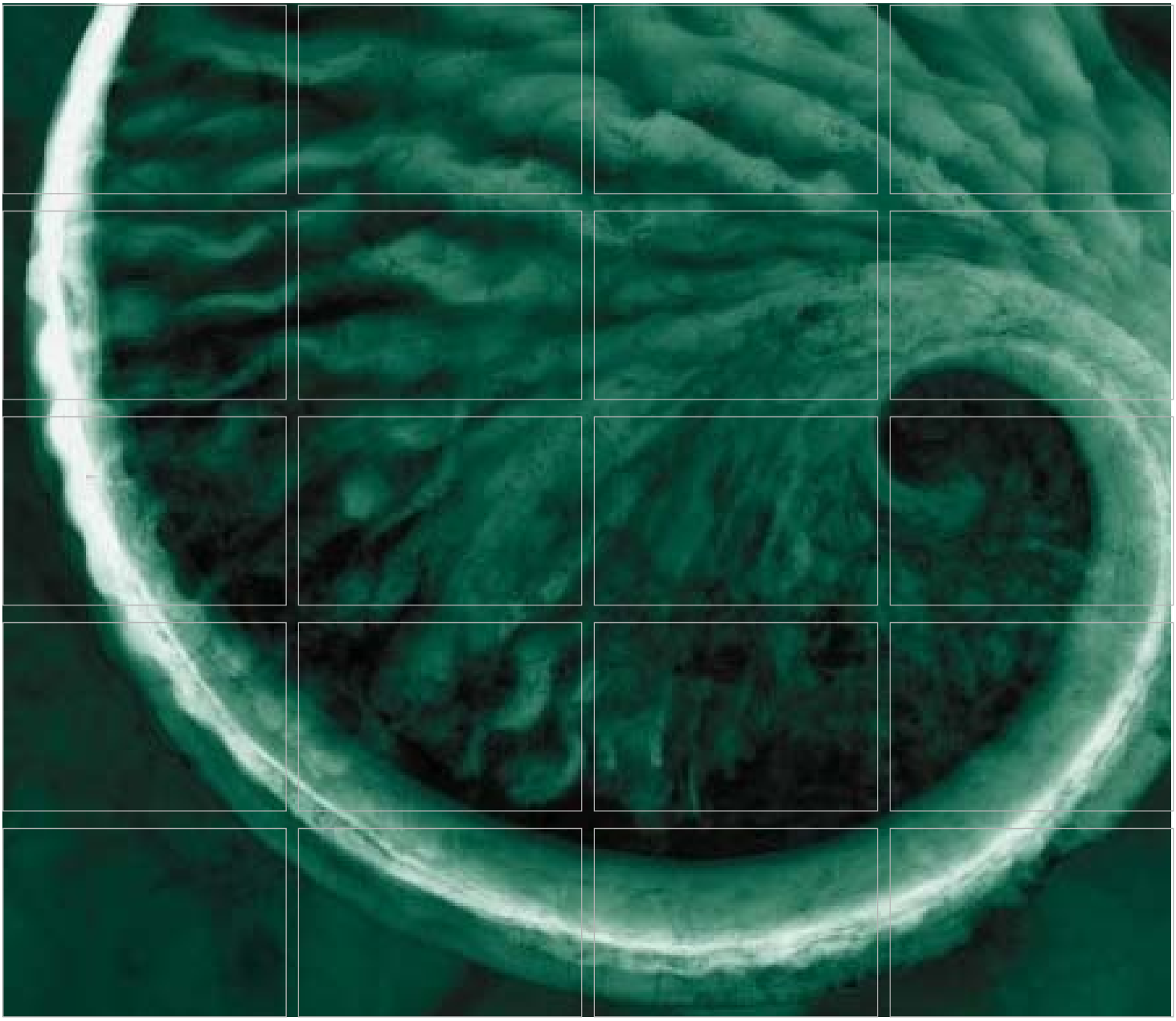
Permit approved by Mikyle Keats Date 6/9/14

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ____/____/____

RWQCB / LOP approval _____ Date ____/____/____

drilling permit.doc (Revised June 2012)

Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party



# Revised Soil Vapor Investigation Summary Report

**Prepared for:**
Darling Ingredients Inc.

**2592 Lakeville Highway**
**Petaluma, California**
**EHS Site #00001359,**
**SFBRWQCB #49-0142**

May 2017

www.erm.com

ERM

*The business of sustainability*

Darling Ingredients Inc.

# Revised Soil Vapor Investigation Summary Report

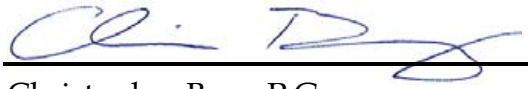
2592 Lakeville Highway
Petaluma, California
EHS Site #00001359,
SFBRWQCB #49-0142

May 2017

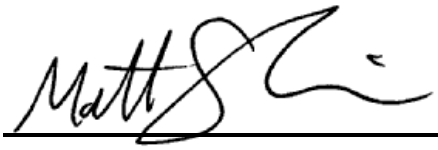
Project No. 0334845



Cecile Fleckten
*Principal-in-Charge*



Christopher Berg, P.G.
*Project Manager*



Matthew A. Scheeline, P.G.
*Certifying Geologist*

**Environmental Resources Management**
1277 Treat Blvd, Suite 500
Walnut Creek, California 94596
T: 925-946-0455
F: 925-946-9968

*TABLE OF CONTENTS*


*LIST OF FIGURES* *iii*

*LIST OF TABLES* *iv*

*LIST OF ACRONYMS* *v*

*1.0 INTRODUCTION* *1*

*1.1 SITE DESCRIPTION* *1*
*1.1.1 Background* *1*
*1.1.2 Recent Activities* *2*

*1.2 SOIL VAPOR INVESTIGATION OBJECTIVE* *3*

*1.3 DOCUMENT ORGANIZATION* *3*

*2.0 SUMMARY OF FIELD ACTIVITIES* *5*

*2.1 PRE-INVESTIGATION ACTIVITIES* *5*

*2.2 SOIL VAPOR PROBE INSTALLATION* *5*
*2.2.1 Soil Vapor Probe Field Screening* *7*

*2.3 SOIL SAMPLE COLLECTION AND ANALYSIS* *7*

*2.4 SOIL VAPOR SAMPLE COLLECTION AND ANALYSIS* *8*

*2.5 INVESTIGATION-DERIVED WASTE* *9*

*3.0 INVESTIGATION RESULTS* *10*

*3.1 SOIL VAPOR RESULTS* *10*

*3.2 SOIL RESULTS* *12*

*3.3 DATA VALIDATION* *14*

*4.0 CONCLUSION* *15*

*5.0 REFERENCES* *16*

*APPENDIX A – PERMITS*

*APPENDIX B – SOIL VAPOR PROBE CONSTRUCTION LOGS*

*APPENDIX C – FIELD SCREENING DATA*

*APPENDIX D – SOIL LABORATORY ANALYTICAL REPORTS*

*APPENDIX E – SOIL VAPOR LABORATORY ANALYTICAL REPORTS*

*APPENDIX F – DATA VALIDATION REPORTS*

*LIST OF FIGURES*

*(Figures immediately follow the text)*

*Figure 1* *Site Location*

*Figure 2* *Soil Vapor Sample Results*

*Figure 3* *Soil Sample Results Map*

*LIST OF TABLES*

*(Tables immediately follow the Figures)*

*Table 1* *Summary of Soil Vapor Probe Construction Details*

*Table 2* *Soil Vapor Analytical Results*

*Table 3* *Soil Analytical Results*

*LIST OF ACRONYMS*

| | |
|---|---|
| AEI | AEI Consultants |
| bngs | Below native ground surface |
| BTEX | Benzene, toluene, ethylbenzene, and xylenes |
| County | County of Sonoma, Department of Health Services |
| Darling | Darling Ingredients Inc. |
| DTSC | Department of Toxic Substances Control |
| ERM | ERM-West, Inc. |
| LTCP | Low-Threat Closure Policy |
| PID | Photoionization detector |
| RWQCB | San Francisco Bay Regional Water Quality Control Board |
| TPH-G | Total petroleum hydrocarbons in the gasoline range |
| USCS | Unified Soil Classification System |
| USEPA | United States Environmental Protection Agency |
| UST | Underground storage tank |

## *1.0 INTRODUCTION*

On behalf of Darling Ingredients Inc. (Darling), ERM-West, Inc. (ERM) has prepared this *Soil Vapor Investigation Summary Report* for the former Royal Tallow property located at 2592 Lakeview Highway in Petaluma, California (Figure 1).

The soil vapor investigation activities were performed between 28 November and 22 December 2016, and were completed in accordance with the following documents/communications approved by Sonoma County Department of Health Services (County):

- *Site Investigation Workplan* (ERM 2016b);
- County of Sonoma, Department of Health Services (County) Work Plan Approval Correspondence (County 2016); and
- *Proposed Addendum to 12 August Workplan* Email Correspondence (ERM 2016c).

This document describes the methods used to install temporary soil vapor probes, collect and analyze soil samples, and collect and analyze soil vapor samples; and summarizes the results of soil and soil vapor probe sampling.

## *1.1 SITE DESCRIPTION*

The property is located at 2592 Lakeview Highway in Petaluma, California. The property is currently bounded by a dog park to the west, apartments to the north, and a warehouse to the east. The southern portion of the property is surrounded by undeveloped land, and abuts the Petaluma River.

### *1.1.1 Background*

The former facility was operated by the Royal Tallow Company between approximately 1941 and 1986. As part of its operations, Royal Tallow operated two fuel underground storage tanks (USTs) containing regular unleaded gasoline. The Sonoma County Leaking Underground Storage Tank Local Oversight Program opened Case EHS Site #00001359 (SFBRWQCB #49-0142) for the tanks in 1989. Between 1989 and 2004, Royal Tallow removed the tanks, investigated soil and groundwater

conditions around the tank area, and excavated accessible contaminated soil.

Approximately 2,400 cubic yards of hydrocarbon contaminated soil was excavated from the former UST location in phases between November 2000 and June 2001 (MFG, Inc. 2002). The approximate lateral limits of the excavation are shown on Figure 2 and the depth of excavation was approximately 6 feet bgs. The excavated soil was treated on site via bioremediation by MFG, Inc. using X-19, a microbiological humic polymer product. Once confirmation sampling showed that the bioremediated soil contained hydrocarbon concentrations below the target remediation levels,[1] the treated soil was returned to the excavation area as backfill. The backfill was graded and compacted. The final ground surface approximated the surrounding and original site grade.

All work was conducted under County and SFBRWQCB oversight and was documented in the *Soil Remediation Report* (MFG, Inc. 2002). The County, with SFBRWQCB approval, closed the UST case on 30 July 2004, after reviewing the Soil Remediation Report and all underlying data, including confirmation sampling. The County determined that the cleanup action met the cleanup goals to a sufficiently protective degree based upon the then-current commercial/industrial use, and in the Case Closure Summary acknowledged that (1) residual petroleum hydrocarbon contamination remained at the site in excess of applicable cleanup levels and (2) corrective action could be required if the land use changed, and future site development should address the presence of residual soil contamination, proper handling, and disposal. These remedial actions are described in further detail in the *Soil Remediation Report* (MFG 2002). As the cleanup goals and planned land use were intended for industrial/commercial purposes the potential presence of soil vapor did not play a role in defining the County's cleanup goals and closure requirements at the time.

### *1.1.2 Recent Activities*

In 2008, Darling sold the property to Baywood LLC (Baywood). Baywood demolished all remaining structures and reportedly undertook, for a period of time, various operations such as concrete crushing, grinding, materials reclamation, stockpiling of reclaimed and crushed materials

[1] Target soil remediation levels were 1 milligram per kilogram (mg/kg) for TPH-G and 0.0075 mg/kg for any BTEX compound.

(e.g., concrete, asphalt), the import and stockpiling of fill material, and fueling and maintenance of industrial equipment. Several soil stockpiles generated from these operations are present at the site, totaling approximately 25,000 cubic yards. The former location of the USTs is overlain by the stockpiled material. The site remains vacant and undeveloped, and, according to a letter from Baywood to the County dated April 26, 2016, "there is no current plan to redevelop the Property."

In September 2015, the County received a *Phase II Subsurface Investigation* Report (Phase II Report) from AEI Consultants (AEI), dated 2 September 2014. The report contained analytical results exceeding screening levels in the area of the former USTs.

On 9 December 2015, Darling received notice from the County that they had reopened the previously closed case. The case was reopened based on the publication of data in the AEI Phase II Report (AEI 2014) conducted on behalf of DeNova Homes, Inc., a prospective purchaser of the property. The AEI Phase II Report indicated that soil vapor concentrations within the former UST remediation area exceeded acceptable residential risk levels.

## *1.2 SOIL VAPOR INVESTIGATION OBJECTIVE*

The data collected as part of the 2016 soil vapor investigation will be used to confirm whether conditions at the former UST area of the site meet current, acceptable risk thresholds for total petroleum hydrocarbons in the gasoline range (TPH-G); and benzene, toluene, ethylbenzene, and xylenes (BTEX). The data will also be used to propose the next steps for the site.

## *1.3 DOCUMENT ORGANIZATION*

Following this introductory section, this document is organized into the following sections:

- Section 2 provides a summary of field activities, including pre-investigation activities, soil vapor probe installation, and sampling activities conducted as part of the soil vapor investigation;
- Section 3 summarizes the results of the soil vapor investigation;
- Section 4 presents conclusions and recommendations to complete certification of the site; and

- Section 5 presents a list of references used in the preparation of this report.

Figures and tables follow the text. Appendices to this report include:

- Appendix A – Permits;
- Appendix B – Soil Vapor Probe Construction Logs;
- Appendix C – Field Screening Data;
- Appendix D – Soil Laboratory Analytical Reports;
- Appendix E – Soil Vapor Laboratory Analytical Reports; and
- Appendix F – Data Validation Reports.

## *2.0 SUMMARY OF FIELD ACTIVITIES*

This section summarizes the investigation activities performed. Field activities were performed between 28 November and 22 December 2016. Field activities were performed under the direction of a State of California Professional Geologist in general accordance with the *Final Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (Vapor Intrusion Guidance; Department of Toxic Substances Control [DTSC] 2011) and the current *Advisory – Active Soil Gas Investigations* (Advisory; DTSC, et al. 2015).

## *2.1 PRE-INVESTIGATION ACTIVITIES*

Consistent with the County-approved *Site Investigation Workplan* (ERM, 2016b), and prior to the initiation of the soil vapor probe installation efforts, a number of pre-investigation activities were conducted, as follows:

- ERM secured drilling permits from the County (Appendix A).
- ERM prepared a site-specific HASP for this project.
- All proposed drilling locations were marked prior to performing any subsurface activities and Underground Services Alert North, a notification service for marking underground utilities on public rights of way, was notified prior to initiating the proposed work. In addition, ERM contracted with Ground Penetrating Radar Systems, Inc., to locate and mark underground utilities (where present) near all proposed drilling locations.

## *2.2 SOIL VAPOR PROBE INSTALLATION*

Ten temporary soil vapor probes (W-01 through W-10) were installed using direct-push dual-tube drilling technology by a C-57-licensed (California Code of Regulations Title 16, Division 8, Article 3) drilling contractor, TWS Environmental, LLC.

Due to the presence of soil stockpiles overlying the proposed drilling locations, as described in Section 1.1.2, soil vapor probes were advanced through the soil stockpiles utilizing the direct-push dual-tube drilling technology. This approach allowed for collection of continuous soil cores through a cased borehole, allowing for the identification of the contact

between the base of the soil stockpiles and native ground surface. The preceding sections reference this contact when discussing depth intervals related to probe construction and/or sample collection.

Descriptions of subsurface materials from recovered soil cuttings were described by a field geologist under the supervision of California-registered Professional Geologist and consistent with the Unified Soil Classification System (USCS). Soil type, size, and color were noted along with any evidence suggesting hydrocarbon contamination (i.e., visual staining and/or elevated photoionization detector [PID] readings). Soil samples were collected, as each boring was advanced, directly beneath native ground surface (bngs) and immediately above groundwater.

The first test boring (W-01) was advanced to the water table, to approximately 6 feet bngs, in order to determine the appropriate depth for soil vapor probe construction. Once the total depth of each boring was reached, the soil vapor probes were constructed as follows:

- The targeted depth for the soil vapor probes was 5 feet bngs. Because groundwater depth at the site ranges from approximately 3 to 6 feet bngs, to the extent possible, probes were advanced to a total depth of approximately 5 feet bngs.
- Each probe was constructed of 0.25-inch outside-diameter (OD) by 0.125-inch inner-diameter (ID) semi-rigid Teflon® tubing attached to a 3-inch-long, stainless-steel vapor probe with anchor point.
- A 1-foot-thick annular filter pack was installed around the soil vapor probe. The filter pack consisted of clean, washed, well-graded, silica sand, and extended approximately 0.5 feet below and 0.5 feet above the midpoint of the 3-inch–long, stainless-steel vapor probe.
- A 6-inch layer of dry granular bentonite was added to the annular space directly above the filter pack.
- The remainder of the annular space consisted of hydrated bentonite to ground surface. The probes were constructed above the water table and associated capillary fringe. In some cases, the depth bngs, which accounts for and excludes the overlying stockpiled material, was as little as 2 to 3 feet bngs (see Appendix B).

Figure 2 shows the temporary soil vapor probe locations. Soil boring and vapor probe construction logs are presented in Appendix B.

### *2.2.1 Soil Vapor Probe Field Screening*

Each soil vapor probe was screened for the presence of volatile organic compounds using a parts-per-billion range PID and for oxygen, carbon dioxide, and methane using a landfill gas analyzer. Due to the low flow conditions of the temporary soil vapor probes, readings were taken both after probe installation and soil vapor sampling had been completed. The post-probe installation readings were taken after the temporary soil vapor probes were allowed to equilibrate and three purge volumes were removed. Readings were taken immediately following the completion of soil vapor sampling. Field screening data are provided in Appendix C.

## *2.3 SOIL SAMPLE COLLECTION AND ANALYSIS*

Per the instruction of the County, as documented in the County of Sonoma, Department of Health Services Work Plan Approval Correspondence (County 2016), soil samples were collected via Terra Core™ at depth intervals directly beneath native ground surface and immediately above groundwater at each soil vapor probe location.

Subsurface materials from recovered soil cuttings were described by a field geologist under the supervision of a California-registered Professional Geologist and consistent with the USCS. Soil type, size, and color were noted along with any evidence suggesting hydrocarbon contamination (i.e., visual staining and/or elevated PID readings).

Soil samples were delivered to TestAmerica, Inc., in Pleasanton, California, and placed "on hold" until soil vapor analytical results were available for review. Prior to selecting soil samples for analysis, corresponding field observations (i.e., visual staining and/or elevated PID readings) and soil gas sample analytical results were reviewed. Soil samples were selected for analysis if the following criteria were met:

- Corresponding soil gas sample analytical results exceeded respective screening levels; and
- Field observations noted at the soil sample collection depth recorded elevated PID readings and/or visual staining.

Soil samples were analyzed for volatile organic compounds and TPH-G using United States Environmental Protection Agency (USEPA) Method 8260B. Soil sampling results are presented in Table 3 and corresponding laboratory analytical reports are provided in Appendix D.

## *2.4 SOIL VAPOR SAMPLE COLLECTION AND ANALYSIS*

Soil vapor sampling was conducted as outlined in the *Site Investigation Workplan* (ERM 2016b) and the *Proposed Addendum to 12 August Workplan* Email Correspondence (ERM 2016c); vapor sampling was not conducted during or up to 5 days after a significant rain or storm event, consistent with the *DTSC Advisory – Active Soil Gas Investigations* (Advisory; DTSC et al. 2015).

Prior to purging and sampling at each location, a shut-in test was performed to ensure ambient air was not introduced through leaks in the sampling train. If there was any observable loss of vacuum, the fittings were adjusted, as needed, until the vacuum did not change noticeably.

Once the shut-in test was completed and leaks were not present in the sampling train, the soil vapor probe was purged of stagnant air. In an effort to avoid over-purging, for the shallow soil vapor probes installed at approximately 5 feet bngs, a purge volume test was not conducted. Instead, a default of three purge volumes was removed prior to sampling.

Immediately preceding sample collection, helium shroud leak testing was conducted. A helium tracer gas was used to test for leaks around the probe at the ground surface and in the sampling system at all locations. The shroud was filled with helium until the concentration was at least 20 percent by volume, or 200,000 parts per million by volume.

Following purging and leak testing, soil vapor samples were attempted to be collected into 1-liter, stainless-steel Summa™ canisters at flow rates of approximately 100 to 200 milliliters per minute.

During collection of initial soil vapor samples, ERM staff encountered small amounts of moisture within the vapor probe tubing. To accommodate these conditions, ERM purged each probe of moisture and adapted the sample collection approach to incorporate guidance-based (Advisory; DTSC et al. 2015) low-flow techniques (<100 milliliters per minute), thereby eliminating moisture drawn into the sampling apparatus and preventing abandonment of the temporary soil vapor probes.

The samples were delivered to Eurofins-Air Toxics, Inc., in Folsom, California, for analysis of BTEX using USEPA Method TO-15, TPH-G using USEPA Method TO-3 Modified, and helium using Modified ASTM International D-1946.

Soil vapor sampling results are presented in Table 2 and soil vapor laboratory analytical reports are provided in Appendix E.

## *2.5 INVESTIGATION-DERIVED WASTE*

Prior to soil vapor probe installation, all drilling equipment, downhole drilling tools, and sampling devices were decontaminated consistent with the *Site Investigation Workplan* (ERM 2016b). Decontamination rinsate and groundwater generated from investigation activities is temporarily stored on site in one 55-gallon steel drum. Soil cuttings generated during investigation activities are temporarily stored on site in one 55-gallon steel drum. The water and soil will be profiled consistent with DTSC requirements and will be disposed at a licensed disposal facility.

## *3.0 INVESTIGATION RESULTS*

Section 3.0 summarizes the results of soil vapor investigation performed between 28 November and 22 December 2016.

## *3.1 SOIL VAPOR RESULTS*

Soil vapor sample analytical results are presented in Table 2, along with applicable screening concentrations. As outlined in the *Site Investigation Workplan* (ERM 2016b), the screening concentrations used for this analysis are environmental screening levels based on the *Low-Threat Underground Storage Tank Case Closure Policy (LTCP).* (State Water Quality Control Board, August 2012) which was requested by the County on 18 April 2017.

Nine soil vapor sample locations contained benzene and ethylbenzene concentrations which exceeded the LTCP soil vapor screening criteria. Locations of constituents exceeding the LTCP residential soil gas screening levels are noted on Figure 2. In general, the results are as follows:

- Benzene
    - Detected in nine of 10 locations at concentrations greater than the LTCP residential screening level without a bioattenuation zone of 85 micrograms per cubic meter ($\mu g/m^3$);
    - Detected in nine of 10 locations at concentrations greater than the LTCP commercial screening level without a bioattenuation zone of 280 $\mu g/m^3$;
    - Detected in three of 10 locations at concentrations greater than the LTCP residential screening level with bioattenuation of 85,000 $\mu g/m^3$; and
    - The maximum detected benzene concentration was 190,000 $\mu g/m^3$ (W-03 and W-10).

- Ethylbenzene
    - Detected in five of 10 samples at concentrations greater than the LTCP residential screening level without a bioattenuation zone of 1,100 $\mu g/m^3$;

    - Detected in four of 10 samples at concentrations greater than the LTCP commercial screening level without a bioattenuation zone of 3,600 µg/m$^3$; and
    - The maximum detected ethylbenzene concentration was 20,000 µg/m$^3$ (W-03).
- Toluene
    - No screening level for toluene identified in the LTCP; and
    - Detected in seven of 10 sample locations with a maximum detected concentration of 8,200 µg/m$^3$ (W-05).
- Xylenes
    - No screening level for xylenes identified in the LTCP; and
    - Detected in six of 10 sample locations with a maximum detected m,p-xylenes concentration of 44,000 µg/m$^3$ (W-05) and a maximum o-xylenes concentration of 17,000 µg/m$^3$ (W-05).
- TPH-G
    - No screening level for TPH-G identified in the LTCP; and
    - Detected in all 10 sample locations with a maximum detected concentration of 16,000,000 µg/m$^3$ (W-03).

Oxygen was detected in all samples collected with a minimum concentration of 10 percent and a maximum concentration of 20.9 percent (Appendix C). Petroleum hydrocarbons are readily biodegraded and attenuated in the presence of oxygen (USEPA 2015). These oxygen concentrations indicate conditions facilitating biodegradation (State Water Resources Control Board 2012; USEPA 2015). However, due to the presence of competent shallow clays at the site natural attenuating conditions are likely limited in nature.

Ambient air sample concentrations reported were all nondetect for BTEX and TPH-G. Ambient air sample analytical results are included in Table 2.

The following nine sample locations included benzene and ethylbenzene concentrations exceeding the LTCP residential and/or commercial screening levels without a bioattenuation zone: W-01, W-03, W-04, W-05, W-06, W-07, W-08, W-09, and W-10. Out of these nine sample locations, the following three locations included benzene concentrations exceeding the LTCP residential screening level with a bioattenuation zone: W-03, W-05, and W-10. No samples included concentrations exceeding the LTCP

commercial screening level with a bioattenuation zone. These exceedances were within the shallow sample depth location (3 to 7 feet bngs). In general, these soil gas results reflect lower concentrations and/or are within the same order of magnitude as the soil gas results reported in the AEI Phase II Report (AEI 2014).

## *3.2 SOIL RESULTS*

Soil sample analytical results are presented in Table 3, along with applicable screening concentrations. The screening concentrations used for this analysis are environmental screening levels based on the *Low-Threat Underground Storage Tank Case Closure Policy* (Regional Water Quality Control Board, August 2012).

- As described in Section 2.3, soil samples were collected at depth intervals directly beneath native ground surface and immediately above groundwater at each soil vapor probe location. Of the twenty soil samples collected, ten samples were selected for analysis based on the following criteria:Corresponding soil gas sample analytical results exceeded respective screening levels; and
- Field observations noted at the soil sample collection depth recorded elevated PID readings and/or visual staining.

Due to the soil sample selection screening process, all soil samples were frozen until preparation for analysis and were therefore analyzed outside of method prescribed holding times for all analysis. Because all of the samples remained frozen until preparation for analysis, all results are considered estimated and have been qualified accordingly. Additional detail regarding data qualifiers is provided in Section 3.3.

Six soil sample locations contained benzene concentrations which exceeded the LTCP soil screening criteria. . Locations of constituents exceeding the LTCP residential soil screening levels are noted on Figure 3. In general, the results are as follows:

- Benzene
    - Detected in six of 10 locations at concentrations greater than the LTCP residential direct contact soil criteria of 1.9 milligrams per kilogram (mg/kg);
    - Detected in 5 of 10 locations at concentrations greater than the LTCP residential volatilization to outdoor air soil criteria of 2.8 mg/kg; and

    - The maximum detected benzene concentration was 8 mg/kg (W-10) at 5.5 feet bngs.
- Ethylbenzene
    - Detected in eight of 10 samples; however none of the samples were at concentrations greater than the LTCP residential direct contact soil criteria; and
    - The maximum detected ethylbenzene concentration was 20 mg/kg (W-03) at 8 feet bngs.
- Naphthalene
    - Detected in six of 10 samples; however none of the samples were at concentrations greater than the LTCP residential direct contact soil criteria; and
    - The maximum detected naphthalene concentrations was 7.9 mg/kg (W-04) at 7 feet bngs.
- Toluene
    - No screening level for toluene identified in the LTCP; however, toluene was detected in two of 10 samples; and
    - The maximum detected toluene concentration was 2.1 mg/kg (W-08) at 5 feet bngs.
- Xylenes
    - No screening level for xylenes identified in the LTCP; however, xylenes were detected in seven of 10 samples; and
    - The maximum detected xylenes concentration was 66 mg/kg (W-03) at 8 feet bngs.
- TPH-G
    - No screening level for TPH-G identified in the LTCP; however TPH-G was detected in eight of 10; and
    - The maximum detected TPH-G concentration was 1,200 mg/kg (W-03) at 8 feet bngs.

The following six sample locations included benzene concentrations exceeding the LTCP residential direct contact soil criteria: W-03-8, W-05-4.5, W-06-4.5, W-08-5, W-09-4, and W-10-5.5. Out of these six sample locations, the following five locations included benzene concentrations exceeding the LTCP residential volatilization to outdoor air soil criteria: W-03-8, W-05-4.5, W-08-5, W-09-4, and W-10-5.5. All of these exceedances

occur beneath native ground surface and immediately above groundwater at each soil vapor probe location (4.5 to 8 feet bngs).

The corresponding soil laboratory analytical reports are included in Appendix D.

## *3.3 DATA VALIDATION*

The quality of the data was assessed and any necessary qualifiers were applied following the USEPA *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review,* September 2016.

The field quality assurance/quality control soil vapor samples included one field duplicate soil vapor sample collected simultaneously with its corresponding primary soil vapor sample using a T-splitter. In addition, one 8-hour, time-integrated, ambient air sample was collected along with equipment blanks to evaluate background contribution from ambient air, the sampling train and the sampling tubing.

The laboratory also analyzed surrogate spike samples, method blank samples, laboratory control samples, and laboratory control sample duplicates, and performed continuous calibration verification to provide internal quality control for both soil vapor and soil analysis.

All of the data can be used for decision-making purposes. The results of the quality assurance/quality control review for this data set are presented in Appendix F.

## *4.0 CONCLUSION*

The soil vapor investigation was completed between 28 November and 22 December 2016. Soil and soil vapor samples were successfully collected from all 10 temporary soil vapor probe locations.

The goal of this investigation was to obtain soil vapor data to confirm whether conditions at the former UST area of the site meet acceptable risk thresholds for BTEX and TPH-G. Nine soil vapor sample locations contained benzene and ethylbenzene concentrations which exceeded the LTCP soil vapor screening criteria. Additionally, TPH-G was detected in the 10 sample locations; however the LTCP does not evaluate TPH-G as a constituent of concern. Under these conditions, observed chemical concentrations at the site do not meet unrestricted residential or commercial acceptable risk thresholds.

Evaluation of remedial approaches that may be considered to address the observed conditions at the site is recommended as the next step toward site re-closure.

Darling will upload relevant information to GeoTracker upon County approval of this *Soil Vapor Investigation Summary Report*.

## *5.0 REFERENCES*


AEI Consultants. 2014. *Phase II Subsurface Investigation, 2592 Lakeville Highway, Petaluma, California.* 2 September.

County of Sonoma, Department of Health Services. 2016. *Site Evaluation Work Plan Submittal (Revised) at 2592 Lakeville Highway, Petaluma, CA, EHS Site #00001359; SFBRWQCB #49-0142.* Email to Darling International. Inc. 16 August.

Department of Toxic Substances Control (DTSC). 2011. *Final Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air.* October.

DTSC, Los Angeles Regional Water Quality Control Board, and San Francisco Regional Water Quality Control Board. 2015. *Advisory – Active Soil Gas Investigations*

ERM-West, Inc. (ERM). 2016a. *Site Evaluation and Work Plan, 2592 Lakeville Highway, Petaluma, California, EHS Site #00001359, SFBRWQCB #49-0142.* April.

ERM. 2016b. *Site Investigation Workplan. 2592 Lakeville Highway, Petaluma, California, EHS Site #00001359, SFBRWQCB #49-0142.*August.

ERM. 2016c. *Proposed Addendum to 12 August Workplan.* Email to County of Sonoma Department of Health Services. 14 November.

MFG, Inc. 2002. *Soil Remediation Report, Former Royal Tallow and Soap Facility, 2592 Lakeville, Highway, Petaluma, California*. Prepared for Darling International, Inc., MFG Project No. 030070.1. October 31.

Regional Water Quality Control Board, San Francisco Bay Region. 2012. *Low-Threat Underground Storage Tank Case Closure Policy* 17 August.

State Water Resources Control Board (SWRCB). 2012. *Leaking Underground Fuel Tank Guidance Manual*. September.

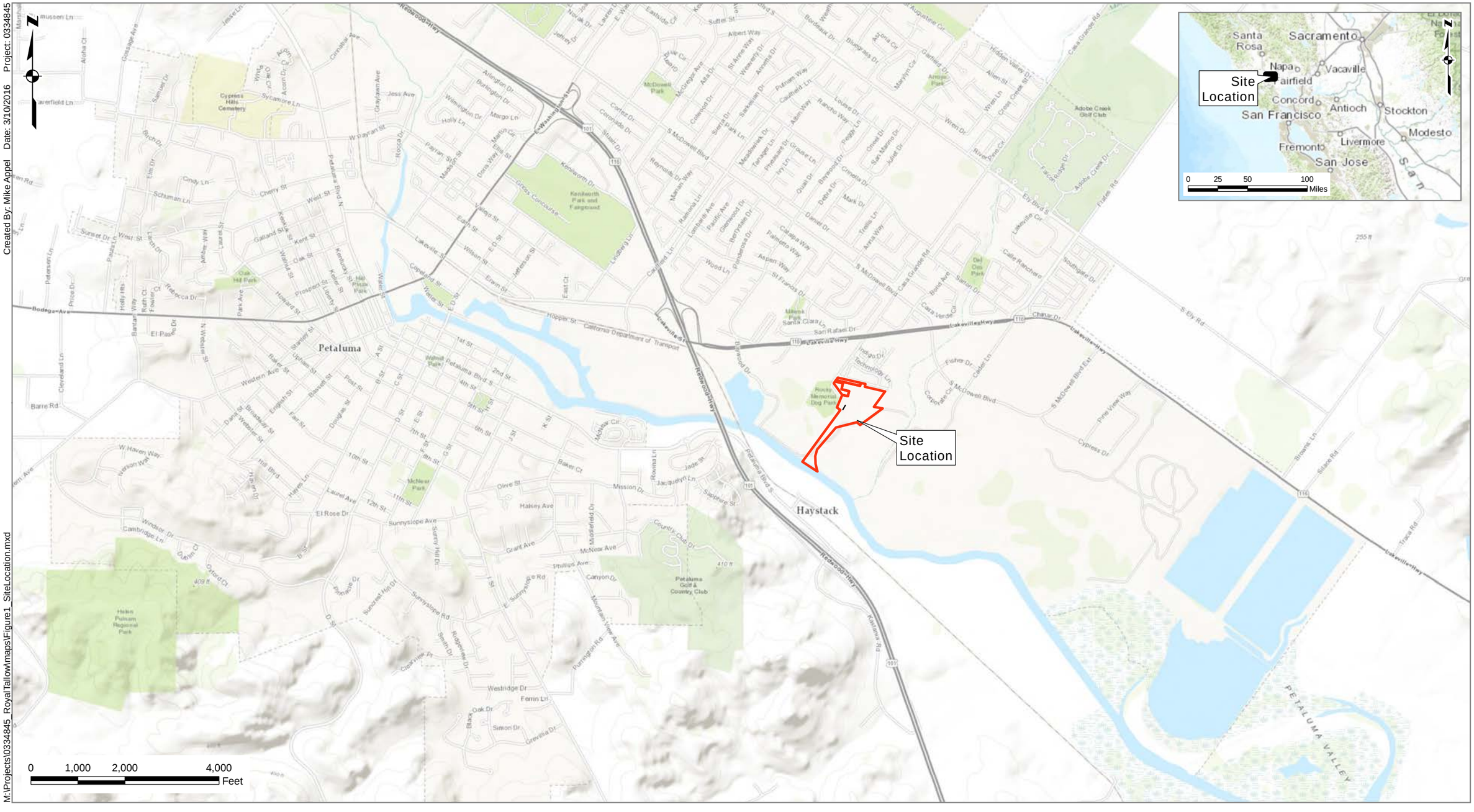
USEPA. 2015. *Technical Guide For Addressing Petroleum Vapor Intrusion At Leaking Underground Storage Tank Sites.* June.

USEPA. 2016. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review.* September.

*Figures*

Created By: Mike Appel Date: 3/10/2016 Project: 0334845

M:\Projects\0334845_RoyalTallow\maps\Figure1_SiteLocation.mxd




**Legend**

Subject Property

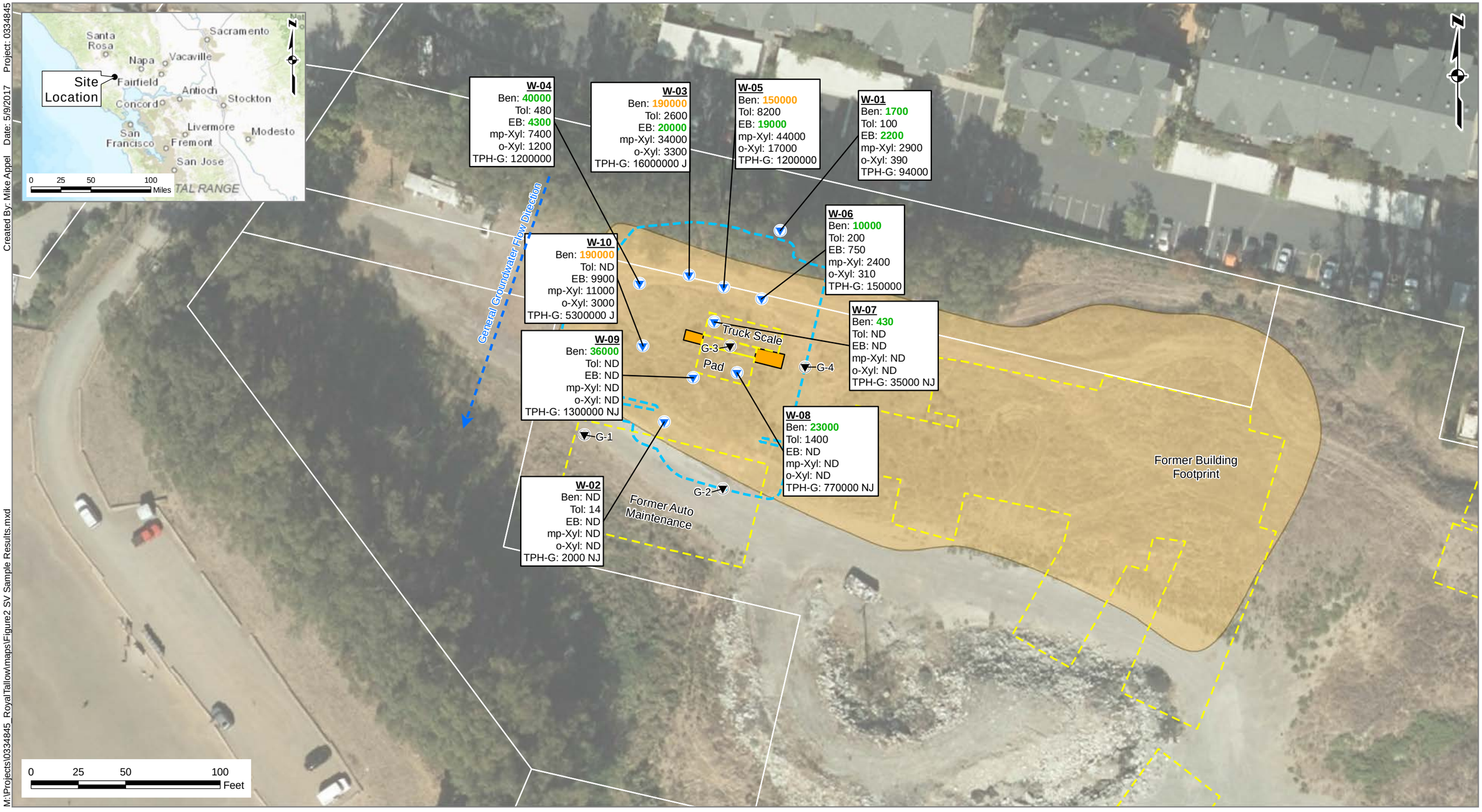
**Figure 1**
*Site Location*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

Source: ESRI World Topography Webservice NAD 1983 StatePlane California II FIPS 0402 Feet

Created By: Mike Appel Date: 5/9/2017 Project: 0334845

M:\Projects\0334845_RoyalTallow\maps\Figure2 SV Sample Results.mxd




## Legend

- Soil Vapor Sample Location (2016)
- AEI Soil Vapor Sample Location (2014) Proximate to the Former USTs
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation
- Parcel Boundaries

Notes:
All historical locations approximate. Taken from historical locations figures.
**Orange** concentrations exceed LTCP Soil Gas Criteria (Residential) w/ Bioattenuation.
**Green** concentrations exceed the LTCP Soil Gas Criteria (Residential) w/o Bioattenuation.
ND = Analyte Not Detected.
If the noted concentration exceeds the LTCP Soil Gas Criteria w/ Bioattenuation Value (Orange) then it also exceeds the LTCP Soil Gas Criteria w/o Bioattenuation (Green).
All results in micrograms per liter (µg/m3).

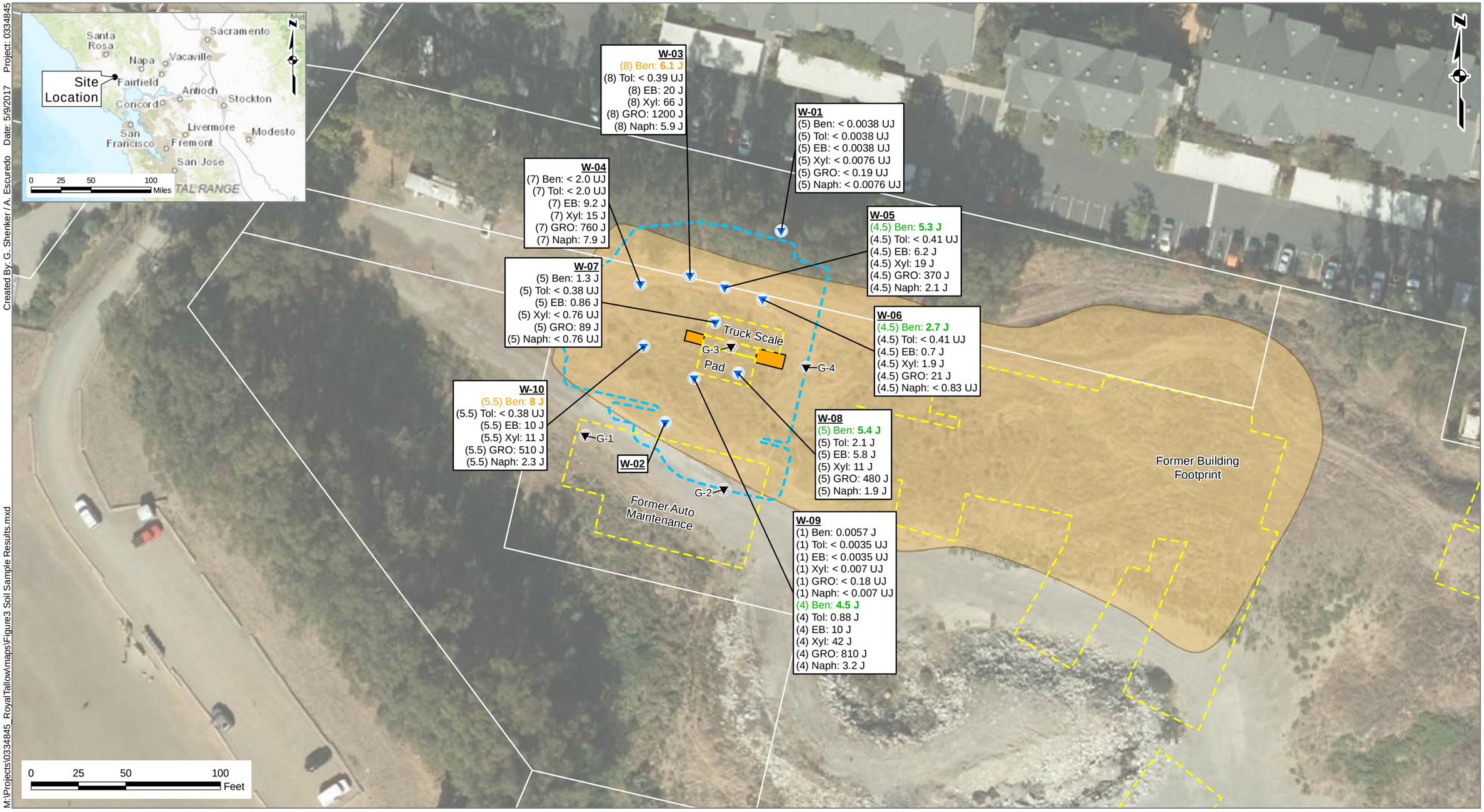
Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

**Figure 2**
*Soil Vapor Sample Results*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com
ERM

Created By: G. Shenker / A. Escuredo Date: 5/9/2017 Project: 0334845

M:\Projects\0334845_RoyalTallow\maps\Figure3 Soil Sample Results.mxd




## Legend

- Soil Sample Location (2016)
- AEI Soil Vapor Sample Location (2014) Proximate to the Former USTs
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All historical locations approximate. Taken from historical locations figures.
**Green** concentrations exceed LTCP Direct Contact Soil Criteria (Residential).
**Orange** concentrations exceed LTCP Volatilization to Outdoor Air Criteria (Residential).
All results in micrograms per kilogram (mg/kg).

(Depth in ft bngs) Analyte: W-01 (Location ID) / (5) Ben: < 0.0038 (Concentration)

**Figure 3**
*Soil Sample Results*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

*Tables*

*Table 1*
*Summary of Soil Vapor Probe Construction Details*
*Darling Ingredients*
*Petaluma, California*

| Well Name | Date Installed/ Modified | Casing Diameter (in.) | Total Casing Depth (feet bgs) | Vapor Probe Depth (feet bngs) | Screen Depth (feet bngs) |
|---|---|---|---|---|---|
| W-01 | 11/28/2016 | 2.25 | 6.0 | 2.25 | 1.75 to 2.75 |
| W-02 | 11/28/2016 | 2.25 | 12.0 | 6.0 | 5.5 to 6.5 |
| W-03 | 11/28/2016 | 2.25 | 28.0 | 6.0 | 5.5 to 6.5 |
| W-04 | 11/28/2016 | 2.25 | 20.0 | 6.5 | 6 to 7 |
| W-05 | 11/29/2016 | 2.25 | 24.0 | 4.5 | 4 to 5 |
| W-06 | 11/29/2016 | 2.25 | 20.0 | 4.5 | 4 to 5 |
| W-07 | 11/29/2016 | 2.25 | 20.0 | 5.0 | 4.5 to 5.5 |
| W-08 | 11/29/2016 | 2.25 | 20.0 | 5.0 | 4.5 to 5.5 |
| W-09 | 11/30/2016 | 2.25 | 20.0 | 3.5 | 3 to 4 |
| W-10 | 11/30/2016 | 2.25 | 20.0 | 4.0 | 3.5 to 4.5 |

**Key:**
bgs = Below ground surface
bngs = Below native ground surface
in. = Inches
msl = Above mean sea level

*Table 2*
*Soil Vapor Analytical Results*
*Soil Vapor Investigation*
*Darling Ingredients*
*Petaluma, California*

| Sample ID | Date | Feet Below Native Ground Surface (ft-bngs)[b] | Benzene (µg/m$^3$) | Toluene (µg/m$^3$) | Ethylbenzene (µg/m$^3$) | m,p- Xylene (µg/m$^3$) | o-Xylene (µg/m$^3$) | TPH-G (µg/m$^3$) | Helium (%) |
|---|---|---|---|---|---|---|---|---|---|
| | | | USEPA TO-15 | | | | | Modified USEPA TO-3 GC/FID | Modified ASTM International D-1946 |
| **LTCP Soil Gas Criteria (Residential) w/o Bioattenuation[a] - ug/m$^3$** | | | **85** | **NS** | **1,100** | **NS** | **NS** | **NS** | **NS** |
| **LTCP Soil Gas Criteria (Commercial) w/o Bioattenuation[a] - ug/m$^3$** | | | **280** | **NS** | **3,600** | **NS** | **NS** | **NS** | **NS** |
| **LTCP Soil Gas Criteria (Residential) w/ Bioattentuation[a] - ug/m$^3$** | | | **85,000** | **NS** | **1,100,000** | **NS** | **NS** | **NS** | **NS** |
| **LTCP Soil Gas Criteria (Commercial) w Bioattenuation[a] - ug/m$^3$** | | | **280,000** | **NS** | **3,600,000** | **NS** | **NS** | **NS** | **NS** |
| W-01-12012016-GS | 12/12/2016 | 2.25 | **1,700** | 100 | 2,200 | 2,900 | 390 | 94,000 | 0.44 |
| W-02-12222016-GS | 12/22/2016 | 6.0 | < 11 | 14 | < 14 | < 14 | < 14 | 2,000 NJ | < 0.34 |
| W-03-12052016-GS | 12/5/2016 | 6.0 | **190,000** | 2,600 | **20,000** | 34,000 | 3,300 | 16,000,000 J | 0.18 |
| W-04-12062016-GS | 12/6/2016 | 6.5 | **40,000** | 480 | **4,300** | 7,400 | 1,200 | 1,200,000 J | < 0.22 |
| W-05-12052016-GS | 12/5/2016 | 4.5 | **150,000** | 8,200 | **19,000** | 44,000 | 17,000 | 1,200,000 J | < 0.12 |
| W-06-12052016-GS | 12/5/2016 | 4.5 | **10,000** | 200 | 750 | 2,400 | 310 | 150,000 | < 0.13 |
| W-06D-12052016-GS | 12/5/2016 | 4.5 | **13,000** | 250 | 860 | 2,600 | 370 | 180,000 | < 0.13 |
| W-07-12212016-GS | 12/21/2016 | 5.0 | **430** | < 170 | < 200 | < 200 | < 200 | 35,000 NJ | < 0.23 |
| W-08-12212016-GS | 12/21/2016 | 5.0 | **23,000** | 1,400 | < 1,100 | < 1,100 | < 1,100 | 770,000 NJ | 0.42 |
| W-09-12212016-GS | 12/21/2016 | 3.5 | **36,000** | < 1,600 | < 1,900 | < 1,900 | < 1,900 | 1,300,000 NJ | < 0.22 |
| W-10-12062016-GS | 12/6/2016 | 4.5 | **190,000** | < 930 | **9,900** | 11,000 | 3,000 | 5,300,000 J | 0.30 |
| ST-01-12062016-GS | 12/6/2016 | -- | < 3.8 | < 4.4 | < 5.1 | < 5.1 | < 5.1 | NA | < 0.12 |
| TB-01-12062016-GS | 12/6/2016 | -- | < 3.9 | < 4.6 | < 5.3 | < 5.3 | < 5.3 | < 500 | < 0.12 |
| AA-01-12062016-GS | 12/6/2016 | -- | < 2.5 | < 2.9 | < 3.4 | < 3.4 | < 3.4 | < 320 | < 0.078 |

**Notes:**
< = Not detected above laboratory reporting limit.
All analytes are measured in micrograms per cubic meter.
[a]California Regional Water Quality Control Board. 2012. "Low-Threat Underground Storage Tank Case Closure Policy." 17 August 2012. Appendix 4.
[b]ft-bngs is necessary because several soil vapor probes were drilled through stockpiles and their additional height is not representative of where the soil vapor probes were placed in the ground.

| | |
|---|---|
| | = Detection above LTCP Soil Gas Criteria (Residential) w/o Bioattenuation |
| **Bold Text** | = Detection above LTCP Soil Gas Criteria (Commercial) w/o Bioattenuation |
| | = Detection above LTCP Soil Gas Criteria (Residential) w/ Bioattenuation |
| **Bold Red Text** | = Detection above LTCP Soil Gas Criteria (Commercial) w/ Bioattenuation |

**Qualifiers:**
J = Estimated value. These results for TPH were instead calculated based on a single point calibration performed on 7 December 2016.
NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern.

**Abbreviations:**
µg/m$^3$ = Micrograms per cubic meter
DTSC = Department of Toxic Substances Control
LTCP = Low-Threat Closure Policy
NA = Not analyzed
NS = No standard
RWQCB = Regional Water Quality Control Board
TPH-G = Total petroleum hydrocarbons as gasoline
USEPA = United States Environmental Protection Agency

*Table 3*
*Soil Analytical Results*
*Soil Vapor Investigation*
*Darling Ingredients*
*Petaluma, California*

| Sample ID | Date | Feet Below Native Ground Surface (ft-bngs)[b] | PID Reading | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | Napthalene (mg/kg) | GRO (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | USEPA 8260B | | | | | USEPA 8260B |
| **LTCP - Direct Contact Soil Criteria (0 to 5 feet bgs)[a] - mg/kg** | | | | **1.9** | **NS** | **21** | **NS** | **9.7** | **NS** |
| **LTCP - Volatilization to Outdoor Air Soil Criteria (5 to 10 feet bgs)[a] - mg/kg** | | | | **2.8** | **NS** | **32** | **NS** | **9.7** | **NS** |
| W-01 | 11/28/2016 | 1.0 | 84 ppb | NA | NA | NA | NA | NA | NA |
| W-01 | 11/28/2016 | 5.0 | 621 ppb | < 0.0038 UJ | < 0.0038 UJ | < 0.0038 UJ | < 0.0076 UJ | < 0.0076 | < 0.19 UJ |
| W-02 | 11/28/2016 | 1.0 | 28 ppb | NA | NA | NA | NA | NA | NA |
| W-02 | 11/28/2016 | 7.0 | 192 ppm | NA | NA | NA | NA | NA | NA |
| W-03 | 11/28/2016 | 0.0 | 51 ppb | NA | NA | NA | NA | NA | NA |
| W-03 | 11/28/2016 | 8.0 | 297 ppm | 6.1 J | < 0.39 UJ | 20 J | 66 J | 5.9 | 1,200 J |
| W-04 | 11/28/2016 | 1.0 | 4687 ppb | NA | NA | NA | NA | NA | NA |
| W-04 | 11/28/2016 | 7.0 | 401 ppm | < 2.0 UJ | < 2.0 UJ | 9.2 J | 15 J | 7.9 | 760 J |
| W-05 | 11/29/2016 | 0.5 | 1412 ppb | NA | NA | NA | NA | NA | NA |
| W-05 | 11/29/2016 | 4.5 | 423 ppm | 5.3 J | < 0.41 UJ | 6.2 J | 19 J | 2.1 | 370 J |
| W-06 | 11/29/2016 | 0.5 | 787 ppb | NA | NA | NA | NA | NA | NA |
| W-06 | 11/29/2016 | 4.5 | 107 ppm | 2.7 J | < 0.41 UJ | 0.7 J | 1.9 J | < 0.83 | 21 J |
| W-07 | 11/29/2016 | 0.0 | 498 ppb | NA | NA | NA | NA | NA | NA |
| W-07 | 11/29/2016 | 5.0 | 180 ppm | 1.3 J | < 0.38 UJ | 0.86 J | < 0.76 UJ | < 0.76 | 89 J |
| W-08 | 11/29/2016 | 0.0 | 202 ppb | NA | NA | NA | NA | NA | NA |
| W-08 | 11/29/2016 | 5.0 | 427 ppm | 5.4 J | 2.1 J | 5.8 J | 11 J | 1.9 | 480 J |
| W-09 | 11/30/2016 | 1.0 | 13 ppm | 0.0057 J | < 0.0035 UJ | < 0.0035 UJ | < 0.007 UJ | < 0.007 | < 0.18 UJ |
| W-09 | 11/30/2016 | 4.0 | 409 ppm | 4.5 J | 0.88 J | 10 J | 42 J | 3.2 | 810 J |
| W-10 | 11/30/2016 | 0.5 | 2479 ppb | NA | NA | NA | NA | NA | NA |
| W-10 | 11/30/2016 | 5.5 | 79.5 ppm | 8 J | < 0.38 UJ | 10 J | 11 J | 2.3 | 510 J |

**Notes:**
< = Not detected above laboratory reporting limit.
All analytes are measured in milligrams per kilogram.
[a]California Regional Water Quality Control Board. 2012. "Low-Threat Underground Storage Tank Case Closure Policy." 17 August 2012. Table 1.
[b]ft-bngs is necessary because several soil borings were drilled through stockpiles and their additional height is not representative of where the soil samples were collected.
= Detection above LTCP Direct Contact Soil Criteria (0 to 5 feet bgs)
= Detection above LTCP Volatilization to Outdoor Air Soil Criteria (5 to 10 feet bgs)

**Qualifiers:**
J = Detected sample result qualified as estimated.
UJ = Nondetected sample result qualified as estimated.

**Abbreviations:**
ft-bngs = Feet below native ground surface
GRO = Gasoline range organics
LTCP = Low-Threat Closure Policy
mg/kg = Milligram per kilogram
NA = Not analyzed
NS = No Standard
ppb = Parts per billion
ppm = Parts per million
RWQCB = Regional Water Quality Control Board
USEPA = United States Environmental Protection Agency

*Appendix A*
*Permits*

DEPT. OF HEALTH SVCS

NOV 17 2016

ENVIRONMENTAL HEALTH & SAFETY

gm

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment/LOP Lead

*For Office Use Only*
Amount Paid exempt
Receipt Number _____ PE 1425
Payment Date _____ Rev. Code _____
Site ID# PR0013706 / FA0003178
Permit # SR0013971

**Permit Type:**

☒ Monitoring Well ☐ Borings ☐ Destruct ☐ Environmental Assessment

**Well Type:** ☐ Remediation Well ☐ Extraction Well ☒ Soil Vapor
☐ Other _____

# On-Site Well 10 ID # W-1 through W-10 # Off-Site Well 0 ID # _____

# On-Site Boring 0 ID # _____ # Off-Site Boring 0 ID # _____

**Submit legal right-of-entry/off-site well address/encroachment permit**

Site Address 2592 Lakeville Highway Petaluma, California AP# 005-060-042-000

Facility Name Former Darling International Inc. property

Site Owner Baywood LLC. Phone _____

Street 414 Aviation Blvd. City Santa Rosa State CA Zip 95403

Responsible Party Darling Ingredients Inc. Phone _____

Street 251 O'Conner Ridge Suite 300 City Irving State TX Zip 75038

Consultant Matt Scheeline, P.G. License#/Type 8987 Phone 1-916-924-9378

Street 2525 Natomas Park Dr Suite 350 City Sacramento State CA Zip 95833

License #/Type _____ Email Matt.Scheeline@ERM.com

Drilling Contractor Cascade Drilling, L.P. Phone 916-638-1169

Street 3000 Duluth Street City West Sacramento State CA Zip 95691

C-57 License 938110

Disposal method for soil cuttings Stored in DOT drums, profiled, and disposed of accordingly

Disposal method for development water not applicable

Drilling method Determined by groundwater level. If more than 5 ft below ground surface Direct push. If less than 5 ft hand auger

Method of drill equipment rinsate containment and disposal Stored in DOT drums, profiled, and disposed of accordingly

If destroying a well, abandonment method not applicable

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leach field? ○Yes ◉No
50 feet of any sanitary sewer line? ○Yes ◉No
25 feet of any private sanitary sewer line? ○Yes ◉No

In addition, all monitoring wells must include an ***identification system*** affixed to the interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

***For Office Use Only***

Address _____

_____

Site ID# _____

Permit # _____

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Environmental Health and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by the Department of Health Services, Environmental Health and Safety Section within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

_____ Date 11/18/16

Signature of Well Driller—***no proxies (Wet Signature Required)***

Insurance Carrier Aon Risk Services Southwest, Inc. Expiration Date 11/1/2017

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

---

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by _____ Date 11/17/2016

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ___/___/___

RWQCB/LOP approval _____ Date 11/17/2016



Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party

**Environmental Resources Management**

1218 3rd Avenue
Suite 1412
Seattle, WA 98101
(425) 462-8591
(425) 455-3573 (fax)
www.erm.com

12 August 2016

Mr. J. Glenn Morelli
Sonoma County
Leaking Underground Storage Tank
Local Oversight Program
625 5th Street
Santa Rosa, CA 95404

Subject: Site Investigation Workplan
2592 Lakeville Highway, Petaluma, CA
Leaking Underground Storage Tank Site
EHS Site #00001359, SFBRWQCB #49-0142

Dear Mr. Morelli:

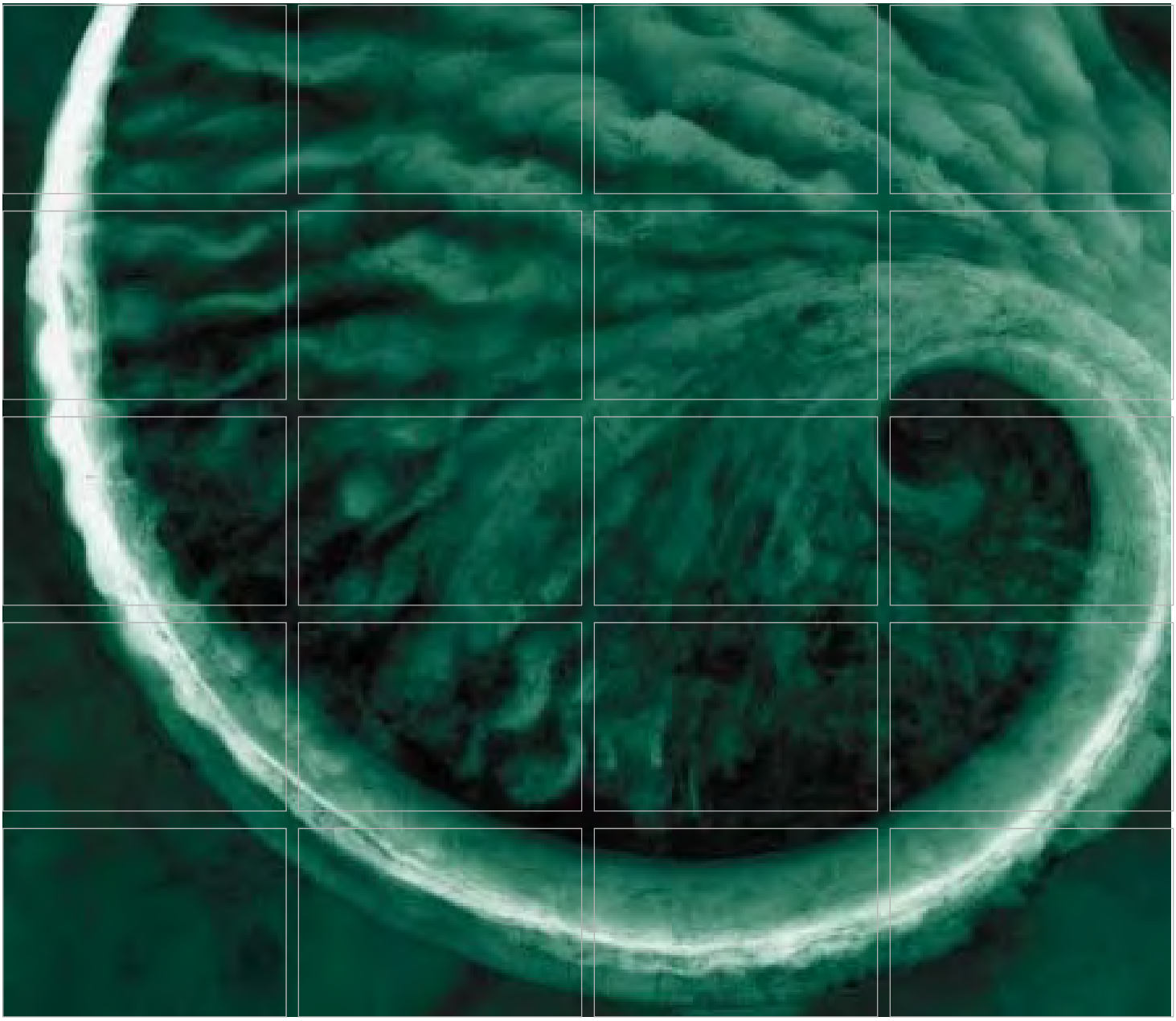
On behalf of Darling Ingredients, Inc. ERM-West, Inc. (ERM) is submitting the following Site Investigation Workplan in response to Sonoma County's (County) 10 May 2016 directive to provide an amended work plan for completing a vapor intrusion assessment at the above referenced site.

We look forward to the County's review and approval of the workplan and proceeding with collection of samples. If you have any questions regarding the workplan, please contact me at 925-946-0455 or by e-mail at ben.leslie-bole@erm.com.

Sincerely,

Ben Leslie-Bole
*Partner*
ERM

CC: Mr. Bill McMurtry, Darling Ingredients, Inc.
Mr. Barry J. Shotts, Attorney At Law



**Prepared for:**
Darling Ingredients, Inc.

# Site Investigation Workplan

**2592 Lakeville Highway**
**Petaluma, California**
**EHS Site #00001359,**
**SFBRWQCB #49-0142**

August 2016

www.erm.com

ERM

*The business of sustainability*

Darling Ingredients, Inc.

# Site Investigation Workplan

2592 Lakeville Highway
Petaluma, California

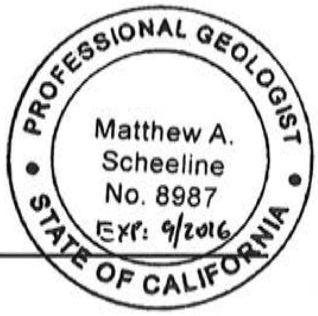
August 2016

Project No. 0334845

Benjamin Leslie-Bole, Partner
*Principal-in-Charge*

Merv Coover, P.E.
*Project Manager*

Matthew A. Scheeline, P.G.
*Certifying Geologist*




**Environmental Resources Management**
1277 Treat Blvd, Suite 500
Walnut Creek, California 94596
T: 925-946-0455
F: 925-946-9968

*TABLE OF CONTENTS*


*LIST OF FIGURES* *II*

*LIST OF APPENDICES* *II*

*LIST OF ACRONYMS* *III*

***1.0 INTRODUCTION*** ***1***

***1.1 OVERVIEW*** ***1***

***1.2 WORKPLAN OBJECTIVE*** ***2***

***2.0 SITE BACKGROUND*** ***3***

***2.1 PHYSICAL SURFACE CONDITIONS*** ***3***

***2.2 PHYSICAL SUBSURFACE CONDITIONS*** ***3***

***2.3 REMEDIATION*** ***4***

***2.4 NATURE AND EXTENT OF CONTAMINATION*** ***4***

***3.0 FIELD INVESTIGATION*** ***6***

***3.1 TECHNICAL APPROACH*** ***6***

***3.2 INVESTIGATION METHODS AND PROCEDURES*** ***7***

*3.2.1 Site Preparation* *7*

*3.2.2 Soil Boring* *7*

*3.2.3 Vapor Probe Construction and Abandonment* *8*

*3.2.4 Procedure for Soil Vapor Probe Field Screening* *9*

*3.2.5 Procedure for Soil Vapor Sampling* *9*

*3.2.6 Sample Collection* *13*

*3.2.7 Low-Flow Purge and Sample Techniques* *14*

*3.2.8 Quality Assurance/Quality Control Samples* *15*

*3.2.9 Decontamination Procedures* *15*

***4.0 REPORTING*** ***17***

***5.0 HEALTH AND SAFETY PLAN*** ***18***

***6.0 REFERENCES*** ***19***

*LIST OF FIGURES*

*(Figures immediately follow the text)*

*Figure 1* *Site Location*

*Figure 2* *Contaminant Concentrations in Soil Within the Former UST Remediation Area*

*Figure 3* *Contaminant Concentrations in Groundwater and Soil Vapor Within the Former UST Remediation Area*

*Figure 4* *Proposed Soil Vapor Sampling Locations*

*Figure 5* *Temporary Soil Vapor Probe Construction Diagram*

*LIST OF APPENDICES*

*(Appendices immediately follow the figures)*

*APPENDIX A — Geologic Cross-Sections and Groundwater Contour Maps*

*LIST OF ACRONYMS*

| | |
|---|---|
| AEI | AEI Consultants |
| bgs | below ground surface |
| BTEX | benzene, toluene, ethylbenzene, and xylenes |
| DTSC | Department of Toxic Substances Control |
| ESL | Environmental screening level |
| in Hg | inches of mercury |
| in-H2O | inches-Water |
| mg/kg | milligram per kilogram |
| mL | milliliter |
| mL/min | milliliters per minute |
| ppmv | parts per million by volume |
| PID | Photo Ionization Detector |
| SFBRWQCB | San Francisco Bay Regional Water Quality Control Board |
| TPH-G | Total Petroleum Hydrocarbons in the gasoline range |
| USEPA | United States Environmental Protection Agency |
| UST | Underground storage tank |

# *1.0 INTRODUCTION*

## *1.1 OVERVIEW*

On 9 December 2015, Darling Ingredients, Inc. (Darling) received notice from Sonoma County Department of Health Services (County) that the County had reopened a previously closed leaking underground storage tank (UST) case (EHS Site #00001359; San Francisco Bay Regional Water Quality Control Board [SFBRWQCB] #49-0142) for the former Royal Tallow property located at 2592 Lakeville Highway in Petaluma, California (site; Figure 1). The case reopening was based on the publication of data reported by AEI Consultants (AEI) on behalf of DeNova Homes, a prospective residential developer of the property (AEI 2014).

The property is currently owned by Baywood, LLC (Baywood), which purchased the property from Darling in 2008; as the current property owner, Baywood also received notice from the County that it is a responsible party for the reopened UST case. The letters directed both Darling and Baywood to prepare and submit a workplan to address soil, groundwater, and soil vapor contamination at the site. Given Darling's historical connection to the property, and pending its evaluation of site conditions reported by AEI, Darling agreed to prepare a response to the County.

Darling submitted a Site Evaluation and Work Plan to the County on 1 April 2016. The County reviewed and commented on the document in a letter to Darling dated 10 May 2016. In the letter, the County concurred, "*…that additional vapor intrusion investigation/assessment needs to take place in order to obtain information relative to the future development of the property to ensure health and safety will be protected in anticipated post closure use.*" The letter further directed Darling to modify and resubmit the 1 April 2016 workplan, which is presented herein. On 14 June 2016, Darling representatives met with the County to review the 10 May 2016 comments and to discuss the proposed approach. At the end of the meeting, a revised workplan was requested for submittal by 11 July 2016. The County, at Darling's request, extended the submittal date to 12 August 2016.

## *1.2 WORKPLAN OBJECTIVE*

The AEI investigation indicated that soil vapor concentrations within the former UST remediation area may exceed acceptable risk levels. Based on this potential and discussions with the County on 14 June 2016, the objective of this workplan is to collect additional soil vapor data to confirm whether conditions at the former UST area meet acceptable risk thresholds for total petroleum hydrocarbons in the gasoline range (TPH-G) and benzene, toluene, ethylbenzene, and xylenes (BTEX). The data will be used to propose the next steps for the site, potentially including additional remedial action or to complete certification of the site.

## 2.0 SITE BACKGROUND

This workplan has been prepared in general accordance with the *Final Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (Vapor Intrusion Guidance; Department of Toxic Substances Control [DTSC] 2011) and the current *Advisory – Active Soil Gas Investigations* (Advisory; DTSC, et al. 2015). This workplan focuses on information needed to support the technical approach, scope, and methods for the proposed soil vapor investigation.

## 2.1 PHYSICAL SURFACE CONDITIONS

In 2008, Darling sold the property to Baywood. Baywood demolished remaining structures and reportedly undertook, for a period of time, various operations such as concrete crushing, grinding, materials reclamation, stockpiling of reclaimed and crushed materials (e.g., concrete, asphalt), the import and stockpiling of fill material, and fueling and maintenance of industrial equipment. There currently exist several stockpiles of materials generated from these operations totaling approximately 25,000 cubic yards. The former location of the USTs is overlain by stockpiled material (Figure 2). Otherwise, the site remains undeveloped.

## 2.2 PHYSICAL SUBSURFACE CONDITIONS

The property has a native surface elevation of 8 to 9 feet above mean sea level and slopes gently towards the Petaluma River, located approximately 2,000 feet to the west and south. Native soils at the site are typically poorly drained silty clays representing bay deposits and stream alluvium typical of salt water marshes. The water table has historically been reported at approximately 3 to 6 feet below the native ground surface (bgs; RBDI 1996). Shallow groundwater occurs in silty clays to clayey silts. A silty to clayey sand and gravel zone is present at 10 to 15 feet bgs. This coarse-grained interval was found to be approximately 5 feet thick in borings that completely penetrated this horizon. The sandy interval is underlain by a layer of silt to silty clay. Appendix A contains a geologic cross section illustrating the features described above.

Groundwater contour maps generated for the site indicate that groundwater generally flows south (Figure 4 and Appendix A).

## 2.3 *REMEDIATION*

Approximately 2,400 cubic yards of hydrocarbon contaminated soil was excavated from the former UST location in phases between November 2000 and June 2001 (MFG, Inc. 2002). The approximate lateral limits of the excavation are shown on Figure 2 and the depth of excavation was approximately 6 feet bgs. The excavated soil was treated on site via bioremediation. Once confirmation sampling showed that the bioremediated soil contained hydrocarbon concentrations below the target remediation levels,[1] the treated soil was returned to the excavation area as backfill. The backfill was graded and compacted. The final ground surface approximated the surrounding and original site grade.

All work was conducted under County and SFBRWQCB oversight and was documented in a Soil Remediation Report (MFG, Inc. 2002). The County, with SFBRWQCB approval, closed the UST case on 30 July 2004, after reviewing the Soil Remediation Report and all underlying data, including confirmation sampling. The County determined that the cleanup action met the cleanup goals to a sufficiently protective degree based upon the then-current commercial/industrial use, and in the Case Closure Summary acknowledged that (1) residual petroleum hydrocarbon contamination remained at the site in excess of applicable cleanup levels and (2) corrective action could be required if the land use changed, and future site development should address the presence of residual soil contamination, proper handling, and disposal.

## 2.4 *NATURE AND EXTENT OF CONTAMINATION*

Figure 2 shows the locations and concentrations of TPH-G and benzene in soil samples collected from the former UST remediation area as part of the 2014 AEI site investigation. Figure 3 shows the locations and concentrations of TPH-G and benzene in groundwater and soil vapor samples collected from the former UST remediation area as part of the same investigation. One of the soil vapor samples (G-3) collected from a location between the two former USTs contained hydrocarbons at concentrations exceeding residential environmental screening levels

[1] Target soil remediation levels were 1 milligram per kilogram (mg/kg) for TPH-G and 0.0075 mg/kg for any BTEX compound.

(ESLs) for vapor intrusion.[2] All other samples reported concentrations below the ESLs. Samples G-1 and G-2 were collected in the area of the former auto maintenance building where a recent groundwater sample (location AM-1) also exceeded applicable groundwater vapor intrusion ESLs for TPH-G and benzene. Neither of these two soil vapor samples, however, contained hydrocarbons in excess of the residential ESLs.

These findings suggest that soil vapor concentrations localized near the former USTs may be unacceptable in the context of residential land use.

[2] The soil vapor sample canister used at location G-3 was returned to the lab with a majority of the original vacuum pressure remaining suggesting that there may have been sample collection problems encountered in the field. From a data validation perspective, this sample result is not considered reliable for risk calculation.

## *3.0 FIELD INVESTIGATION*

### *3.1 TECHNICAL APPROACH*

In the former UST area that Darling remediated between 2000 and 2001, and that was certified closed by the County, one soil vapor sample obtained in the AEI site investigation presented a potentially unacceptable risk to future users of the property. This sample was collected at location G-3 (Figure 3). The primary objective of the investigation proposed in this workplan is to: 1) first collect and analyze a soil vapor sample near former AEI sample location G-3 to determine whether the G-3 sample result was valid for use in calculating risk, and 2) obtain a supplemental dataset for risk calculation if the sample from location G-3 is consistent with the AEI results and confirms a conclusion of unacceptable risk.

The site investigation will involve installation and sampling of up to 10 soil vapor probes positioned within the former UST and soil remediation area. Data from the vapor probes will lead to an understanding of where site conditions may pose a risk and require additional remedial action.

The technical approach for the site investigation is as follows:

- Reconfigure the stockpiled material currently overlying the investigation area to expose the native ground surface and ensure safe working conditions for the field team. Prior to implementing field investigation activities, Darling will secure all necessary permits from the County of Sonoma Department of Health Services and the Building Division of the City of Petaluma.
- Advance a single boring to the groundwater table at the approximate location of AEI's soil vapor sample location GE-3 (Figure 4). Record the observed depth to groundwater and use as basis for establishing the approximate depth to which all soil vapor probes will be constructed. Construct a single temporary soil vapor probe in the boring.
- Collect vapor sample and analyze the sample for TPH-G (United States Environmental Protection Agency [USEPA] Method TO-3[M]) and BTEX (USEPA Method TO-15) to determine whether the results are similar to what was reported by AEI for GE-3.
- Fixed gases such as oxygen, carbon dioxide, and methane measurements will be collected using hand-held monitoring equipment at each soil vapor probe shortly after installation.

- If the vapor sample contains concentrations below the applicable residential screening levels, then there are no recent soil vapor results that indicate an unacceptable risk. From this, Darling will conclude the site investigation and collect no additional samples.
- If the confirmation sample contains concentrations that exceed the applicable residential screening levels, then up to nine additional soil vapor samples will be collected. Proposed soil vapor locations are shown on Figure 4. All additional soil vapor samples will be analyzed for TPH-G by USEPA TO-3 (M) and BTEX by USEPA Method TO-15.
- While installing vapor probes, soils will be logged consistent with the Unified Soil Classification System (USCS) under supervision of a California-registered professional geologist. Soil type, size, and color will be noted along with any evidence suggesting hydrocarbon contamination (i.e., visual staining, available free product, and/or elevated Photo Ionization Detector [PID] readings).
- Collect and analyze a minimum of one soil sample from each boring if evidence of contamination is observed by visual, olfactory, or PID.

## *3.2 INVESTIGATION METHODS AND PROCEDURES*

### *3.2.1 Site Preparation*

Darling will relocate the stockpiled material currently overlying the investigation area, as depicted on Figure 2, to a location that is suitable to the property owner. Relocating the material is necessary to create stable and safe working conditions for the field team and to expose the native ground surface. During relocation, Darling will assess the nature and contents of the overlying material. Darling will work with the City of Petaluma to determine whether a grading permit is required.

### *3.2.2 Soil Boring*

Temporary soil vapor probes will be advanced by hand auger. Descriptions of subsurface materials from recovered soil cuttings will be logged by the field personnel under the oversight of a California-registered Professional Geologist.

The first test boring will be advanced to the water table at the approximate location of AEI's soil vapor sample location GE-3 (Figure 4). The depth–to-water value observed at the first test boring will be utilized to identify the appropriate soil vapor probe construction as described in Section 3.2.3.

### *3.2.3 Vapor Probe Construction and Abandonment*

As shown on Figure 5, soil vapor probes will be constructed in individual borings as follows:

- The target depth for soil vapor probes is 5 feet bgs. Because groundwater depth at the site ranges from 3 to 6 feet bgs, to the extent possible, probes will be advanced to a total depth of 5 feet. If saturated soils are observed at depths less than 5 feet in the test boring, to the extent practical the probe tip and sandpack will be installed within the unsaturated soil horizon.
- Each probe will consist of 0.25-inch outside-diameter (OD) by 0.125-inch inside diameter (ID) semi-rigid Teflon tubing equipped with a 3-inch-long stainless-steel soil vapor implant with anchor point.
- Install a 1-foot-thick annular filter pack around the soil vapor implant. The filter pack will consist of clean, washed, well-graded, silica sand, and extend approximately 0.4 feet below and 0.4 feet above the soil vapor implant.
- Add a 6-inch layer of dry granular bentonite to the annular space located directly above the filter pack.
- Fill the remaining annular space with granular bentonite hydrated in 1-foot lifts to approximately 0.5 feet bgs.
- Pea gravel will be added to the annular space from approximately 0.5 feet to surface to facilitate draining surface water runoff during rain events.
- A stainless-steel Swagelok cap, nut, and ferrule set or a quarter-turn plug valve will be attached to the end of the Teflon tubing.

Consistent with the DTSC Advisory (DTSC, et al. 2015), at least 48 hours will be allowed for subsurface conditions to equilibrate before collecting samples. However, PID, oxygen, carbon dioxide, and methane field-screening measurements will be collected at each soil vapor probe shortly after installation. A Magnehelic differential pressure gauge will be used to monitor the purge vacuum and immediately identify low-flow or no-flow conditions. If low-flow or no-flow conditions are encountered at a soil vapor probe, the low-flow or no-flow probe will be abandoned and a new probe will be installed. Soil vapor probes will be left in place until the data collected are reviewed and evaluated by the project team (Darling and County). Upon determination that soil vapor investigation activities are completed, each proposed soil vapor probe location will be properly abandoned in accordance with County guidelines.

All soil vapor probe construction material (i.e., Teflon tube, vapor implant, and Swagelok fittings) will be removed and disposed of accordingly. A suitable sealing material (i.e., cement with 5 percent bentonite) will be emplaced through a tremie pipe or equivalent in order to backfill the borehole from total depth to ground surface such that it ensures the quality of groundwater is protected and eliminates a possible physical hazard to humans and animals.

Significant rainfall (greater than 0.5 inches within 24 hours) and storm events can potentially affect sampling conditions. Subsequently, consistent with the DTSC Advisory (DTSC, et al. 2015), vapor sampling will not be conducted during or up to 5 days after a significant rain or storm event. In addition, vapor sampling will not conducted when a frontal system is located in the area to prevent fluctuations of barometric pressure from influencing the samples.

### *3.2.4 Procedure for Soil Vapor Probe Field Screening*

Each soil vapor probe will be screened for the presence of volatile organic compounds (VOCs) using a parts-per-billion-range PID and for oxygen, carbon dioxide, and methane using a landfill gas analyzer. Field screening will be conducted at the same flow rate and vacuum used for sampling (i.e., between 100 and 200 milliliters per minute [mL/min]). An adjustable flow rate peristaltic pump will be used to purge the probes of at least three purge volumes prior to sampling. The purge volume will be the sum of the length of tubing, sand filter pack voids, and dry granular bentonite voids. After purging, soil vapor samples will be collected into two 1-liter Tedlar bags. The first Tedlar bag will be used for the PID readings and the second bag will be used for the oxygen, carbon dioxide, and methane readings.

### *3.2.5 Procedure for Soil Vapor Sampling*

Soil vapor samples will be collected in batch-certified, 1-liter SUMMA canisters consistent with the DTSC Advisory (DTSC, et al. 2015). Prior to arriving at the site for the soil vapor sampling event, the following activities will be completed:

- Inspect each canister for defects and/or physical damage. Document any observed defects or damage in the project logbook. If necessary, replace suspect canister with a new canister.
- The volume of each canister will be measured and documented in the project logbook. Canisters containing less than 25 inches of mercury (in

Hg) vacuum will be returned to the laboratory for a replacement canister.

- The receipt of all laboratory-supplied equipment (i.e., SUMMA canisters, flow controllers, particulate filters, chain-of-custody forms) will be verified.

The following information will be recorded on the sample form and/or field logbook prior to collecting soil vapor samples at each location:

- Serial numbers, or other unique identifier, of the SUMMA canister and flow controller;
- Initial vacuum on the SUMMA canister, as measured by the gauge on the flow controller, noting any discrepancies between the vacuum readings from the flow controller gauge and separate vacuum gauge;
- Sample date, outdoor temperature, and humidity; and
- Sample location and any comments, notes, or observations related to collecting the sample.

The soil vapor sampling equipment will generally be placed in this order, although the actual sampling equipment chain will be determined based on the soil vapor sampling container:

1. Below ground soil vapor inlet;
2. Tubing from below ground to aboveground surface;
3. Manifold with flow controller set to approximately 170 mL/min;
4. Sample container; and
5. Purge canister/vacuum pump.

Any changes to the sample chain will be noted on the sampling forms.

Once all tubing and sample containers are in place, a purge volume will be calculated. This includes the pore space of the annulus and the internal volume of the below ground and aboveground tubing. The purge volume will be documented on the Soil Vapor Probe Purge Calculations form. For this sampling event, a default of three purge volumes will be used prior to sample collection. The following steps outline the procedure used to calculate the purge time for three purge volumes:

1. Calculate the appropriate purge volume in milliliters (mL) per the equation presented below (Purge Test).

1 Purge Volume (mL) = (length of tubing) x ($\pi r_t^2$) x (16.38 mL/ $inch^3$) x N

Where:

Length of tubing = length of tubing above and below ground surface, in inches. The length of the tubing that is below ground can be found on each soil vapor probe completion form:

$r_t$ = the inner radius of the tubing, in inches; and

N = the number of purge volumes required.

Calculate the purge volume within the sand filter pack void space in mL using the following equation:

$$V_p = \pi \times r_p^2 \times h_p \times 16.38 \text{ mL/inch}^3 \times P_p \times N$$

Where:

$V_p$ = Volume of void space in the sand filter pack in mL;

$r_p$ = Radius of the sand filter pack in inches;

$h_p$ = Height of the filter pack in inches;

$P_p$ = Porosity of the sand filter pack (0.30); and

N = number of purge volumes required.

Calculate the purge volume within the dry bentonite void space in mL using the following equation:

$$V_b = \pi \times r_b^2 \times h_b \times 16.38 \text{ mL/ inch}^3 \times P_b \times N$$

Where:

$V_b$ = Volume of void space in the dry bentonite in mL;

$R_b$ = Radius of the sand filter pack in inches;

$H_b$ = Height if the filter pack in inches;

$P_b$ = Porosity of the granular bentonite (0.36); and

N = number of purge volumes required.

2. Calculate the purge time for the appropriate purge volume.

$$\text{Purge time (min)} = \frac{\text{purge volume (mL)}}{\text{Flow controller purge rate (mL/min)}}$$

Flow controller purge rate = 170 mL/min

3. Conduct a sample apparatus pressure test (Shut-In Leak Test).

Prior to purging and sampling, a sample apparatus pressure test will be conducted. The pressure test will confirm that there are no leaks in the sample apparatus, from the well head to the sample container; therefore, the apparatus can be used to collect a representative soil vapor sample. The pressure test procedure will be as follows:

- To perform the pressure test, all equipment will be connected as described in the sample train. The sample train will be connected to the probe, but the valve to the probe must remain closed.
- The valves to the SUMMA canister and the probe/sampling point will be closed, and the valve to the purge/vacuum pump will be opened.
- The vacuum pump will be started to evacuate air from the sample train to a minimum vacuum of 7.4 in Hg. Once a vacuum equal or greater to 7.4 in Hg has been applied, the valve to the purge/vacuum pump will be closed so that the vacuum is held and the vacuum pump is shut off.
- The initial vacuum readings on the flow controller will be recorded and the sample train will be allowed to sit for at least 5 minutes.
- The applied vacuum should hold (within 0.37 in Hg) in the line for at least 5 minutes.
- If there is any observable loss of vacuum, the fittings will be tightened and the pressure test will be repeated until the vacuum in the sample train does not noticeably dissipate.

4. Conduct a Purging and Helium Leak Detection Test.

Once the Shut-In Leak Test has been completed and indicates leaks are not present in the sampling train, the soil vapor probe will be purged of stagnant air. Three purge volumes will be removed prior to sampling. Helium shroud leak testing will be conducted during purging and sample collection.

The following steps shall be followed during purging and helium leak testing:

- Utilize the appropriate purge volume identified in Step 1.
- Confirm that the valve on the sample collection canister is still closed.
- Open the pinch valve or quarter-turn plug valve at the soil vapor probe.
- Place the helium shroud over the soil sample train.
- Fill the shroud with helium until the concentration is at least 20 percent by volume, or 200,000 parts per million by volume (ppmv).
- Remove the helium detector and allow it to re-equilibrate in the presence of ambient air.
- Connect the equilibrated analyzer to the sampling manifold. The helium detector will now be measuring the helium concentration. A helium concentration of less than 5 percent (DTSC, et al. 2015) of the shroud concentration (i.e., the helium detector reads less than 1 percent by volume, or 10,000 ppmv at a shroud concentration of 200,000 ppmv), is acceptable and means the system is considered to be leak-tight.
- Disconnect the helium detector and connect a 60 mL plastic syringe to the sampling manifold.
- Evacuate three purge volumes of air using the 60 mL plastic syringe.
- Monitor the vacuum during purging. If the formation vacuum exceeds 100 inches-Water (in-H2O), stop purging and follow low-flow purge and sample techniques as described in the DTSC Advisory (DTSC, et al. 2015).
- After the purge volume is achieved, close the pinch valve or quarter-turn plug valve at the soil vapor probe.
- The soil vapor probe is now ready to be sampled.

### *3.2.6 Sample Collection*

Soil vapor samples will be collected after the soil vapor probe is purged of three volumes. Soil vapor sample collection procedures that will be followed are:

- The two-way shut-off valve on the manifold will be confirmed to be open.

- The valve on the sample collection SUMMA canister will be opened, recording the sample start time and the vacuum reading on the flow controller, which should be between 25 and 30 in Hg.
- The vacuum being pulled on the probe, that will be measured by the vacuum gauge on the probe-side of the flow controller, will be recorded on the field form.
- While the soil vapor sample is being collected, the leak detection test will be conducted.
- The sample collection SUMMA canister will be left open until the vacuum reading is approximately -5 in Hg. Because 1-liter SUMMA canisters will be used, this should take less than 5 minutes. If the vacuum does not decrease to -5 in Hg within 20 minutes, the Project Manager will be notified.
- Probe pressure should be monitored during purging. If the formation pressure exceeds -100 inches of water (-7.4 in Hg) and flow rates below 100 mL per minute are observed, the technician will stop the purge and follow low-flow purge-and-sample techniques as described in the DTSC Advisory (DTSC, et al. 2015).
- Once the vacuum reading on the sample canister reaches approximately -5 in Hg, the final vacuum reading on the manifold will be documented, the valve on the sample canister will be closed, and the sample end time will be recorded. The canister and manifold will be disconnected, labeled, and documented on the chain-of-custody form.

Each soil vapor sample will be analyzed by a California state-certified laboratory for TPH-G (USEPA Method TO-3[M]) and BTEX (USEPA Method TO-15) on a standard turnaround time of 1 week.

### *3.2.7 Low-Flow Purge and Sample Techniques*

Low-flow conditions are defined as the inability to maintain an appreciable flow rate (100 mL/min or greater) without applying excessive vacuum (any vacuum greater than about 100 in-H2O). When soil vapor probes exhibit low flow conditions during purge and sampling techniques, the following purge and sample method can be used:

- Continue purging or sampling soil vapor probe until low-flow conditions have been confirmed (flow less than 100 mL/min and vacuum greater than 100 in-H2O);

- Close the soil vapor probe valve and allow vacuum to dissipate and the soil vapor to slowly enter the sand filter pack and tubing from surrounding soils; and
- Repeat Steps 1 and 2 until the soil vapor probe has been adequately purged and sampled.

### *3.2.8 Quality Assurance/Quality Control Samples*

In addition to the investigative soil vapor samples, additional samples will be collected as part of the overall quality assurance/quality control (QA/QC) process (i.e., equipment blanks, blind field duplicates, trip and field blanks, and ambient air samples). The analytical laboratory will also perform internal QA/QC tests to ensure data accuracy and precision. These tests include initial calibration, daily or continuing calibration, laboratory method blank, matrix spike/matrix spike duplicates (MS/MSDs), laboratory control sample/laboratory control sample duplicates (LCS/LCSDs), and surrogate recovery analyses. Surrogate recovery data and control limits will be listed in the laboratory report for reference. For USEPA Method TO-15, laboratory method blanks will be analyzed at least once during a 24-hour analytical sequence.

To ensure that project data quality needs are met and data are used to the appropriate extent, a data validation and data quality assessment will be conducted for this project.

### *3.2.9 Decontamination Procedures*

Drilling equipment decontamination (e.g., hand augers, drill rods, and other down-hole equipment) will be conducted after each soil vapor probe is installed.

Heavy equipment decontamination (e.g., drill rig), depending on the extent of the contamination and the cleaning requirements, will be conducted at each sampling site or at the equipment decontamination pit.

All sampling equipment will either be disposable (and disposed of between use at each probe) or cleaned by the laboratory prior to use. Therefore, decontamination of sampling equipment in the field is not expected.

Decontamination procedures will generally consist of:

- Washing the equipment with a cleaning agent suitable for environmental equipment, such as Alconox;

- Rinsing the equipment with water;
- A final rinse with deionized water; and
- Drying the equipment with paper towels.

Water generated during decontamination will be temporarily stored on site in Department of Transportation drums, profiled, and disposed of accordingly.

## *4.0 REPORTING*

A complete report will be prepared and submitted to the County (hard copy and electronic versions) detailing all aspects of the fieldwork and any deviations from the approved workplan. The report will provide the laboratory analytical reports and an evaluation of the analytical data relative to applicable ESLs. The report will include recommendations for the next steps toward site closure.

Darling will also upload relevant information to GeoTracker.

## *5.0 HEALTH AND SAFETY PLAN*

A health and safety plan for implementing this workplan will be prepared separately and submitted to the County for review once the workplan is approved and, as a result, all field activities and associated risks are understood.

## *6.0 REFERENCES*


AEI Consultants. 2014. *Phase II Subsurface Investigation, 2592 Lakeville Highway, Petaluma, California.* 2 September.

County of Sonoma, Department of Health Services. 2015. *Responsible Party Information for Investigation and Remediation Due to and Unauthorized Fuel Release at 2592 Lakeville Highway, Petaluma, CA, EHS Site #00001359; SFBRWQCB #49-0142.* Letter to Mr. Bill McMurtry of Darling International, Inc. 9 December.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 2004. Interim Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air.

DTSC. 2011. *Final Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air.* October.

DTSC, Los Angeles Regional Water Quality Control Board, and San Francisco Regional Water Quality Control Board. 2015. *Advisory – Active Soil Gas Investigations*

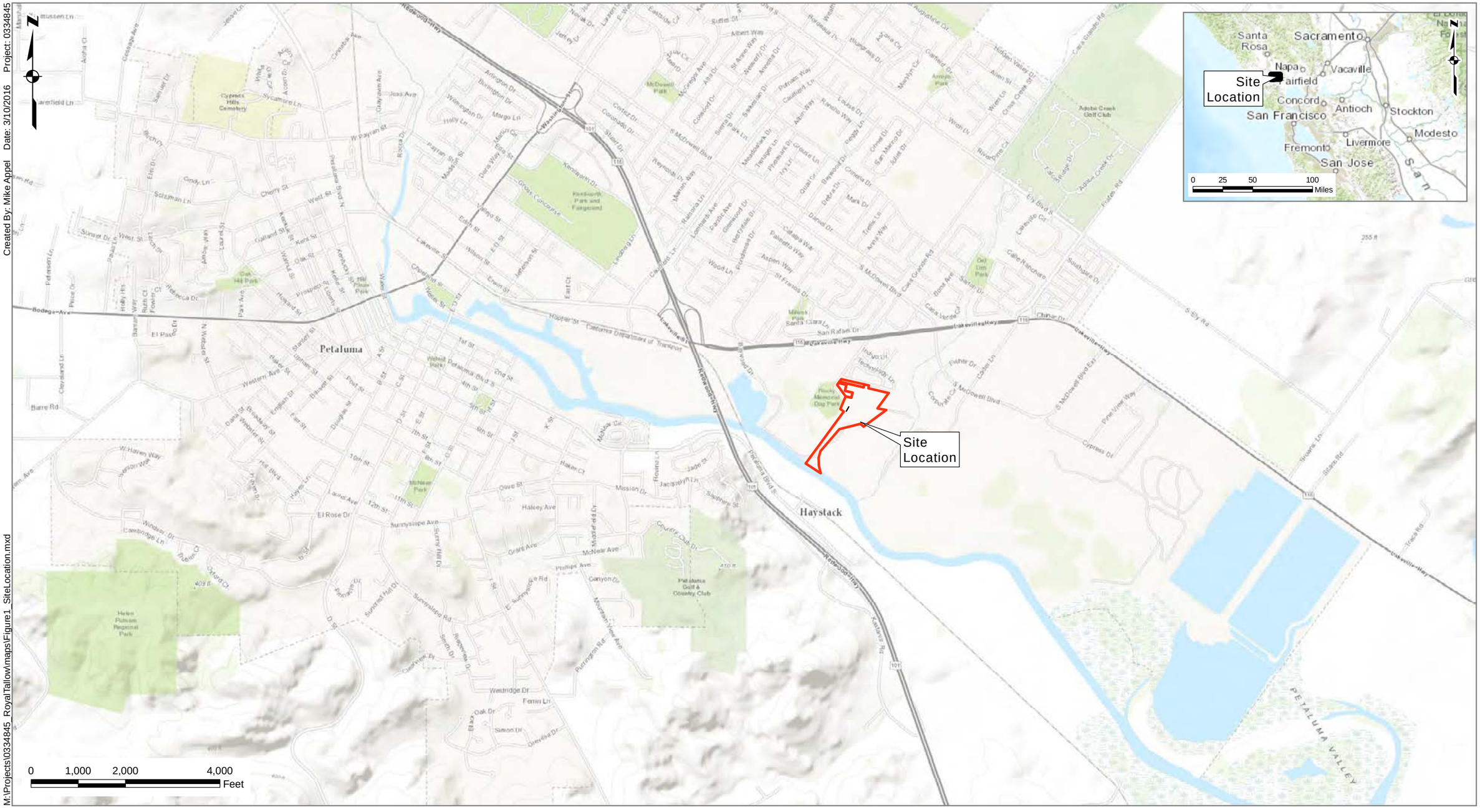
MFG, Inc. 2002. *Soil Remediation Report, Former Royal Tallow and Soap Facility, 2592 Lakeville, Highway, Petaluma, California*. Prepared for Darling International, Inc., MFG Project No. 030070.1. October 31.

Risk-Based Decisions, Inc. (RBDI). 1996. *Risk-Based Corrective Action Report for the Former Royal Tallow and Soap Company Site in Petaluma, California.* 29 January.

*Figures*

Created By: Mike Appel Date: 3/10/2016 Project: 0334845

M:\Projects\0334845_RoyalTallow\maps\Figure1_SiteLocation.mxd




**Legend**

Subject Property

**Figure 1**
*Site Location*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

Source: ESRI World Topography Webservice NAD 1983 StatePlane California II FIPS 0402 Feet

Project: 0334845
Date: 8/10/2016
Created By: Mike Appel




UST-2
*6/17/2014*
3.5 ft bgs
- TPH-G: 78
- Ben: < 0.033

11.5 ft bgs
- TPH-G: < 1
- Ben: < 0.005

UST-1
*6/17/2014*
3.5 ft bgs
- TPH-G: 1100
- Ben: < 2

11.5 ft bgs
- TPH-G: < 1
- Ben: < 0.005

UST-3
*6/17/2014*
3.5 ft bgs
- TPH-G: 89
- Ben: 0.26

7.5 ft bgs
- TPH-G: 35
- Ben: 0.085

UST-6
*6/17/2014*
1.5 ft bgs
- TPH-G: 130
- Ben: < 0.2

9.5 ft bgs
- TPH-G: 21
- Ben: < 0.005

UST-4
*6/17/2014*
3.5 ft bgs
- TPH-G: 430
- Ben: 1.0

7.5 ft bgs
- TPH-G: 140
- Ben: 0.46

UST-5
*6/17/2014*
3.5 ft bgs
- TPH-G: 340
- Ben: < 0.1

7.5 ft bgs
- TPH-G: 280
- Ben: 0.55

Truck Scale

Pad

Former Auto Maintenance

Former Building Footprint

AM-3
*6/17/2014*
2.5 ft bgs
- TPH-G: < 1
- Ben: < 0.005

AM-2
*6/17/2014*
5.5 ft bgs
- TPH-G: 5.6
- Ben: < 0.005

AM-1
*6/17/2014*
7.5 ft bgs
- TPH-G: 610
- Ben: < 0.33

0 25 50 100
Feet

M:\Projects\0334845_RoyalTallow\maps\Figure2_SoilResults rev 1.mxd

## Legend

- AEI Soil Boring Location (2014)
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation
- Parcel Boundaries

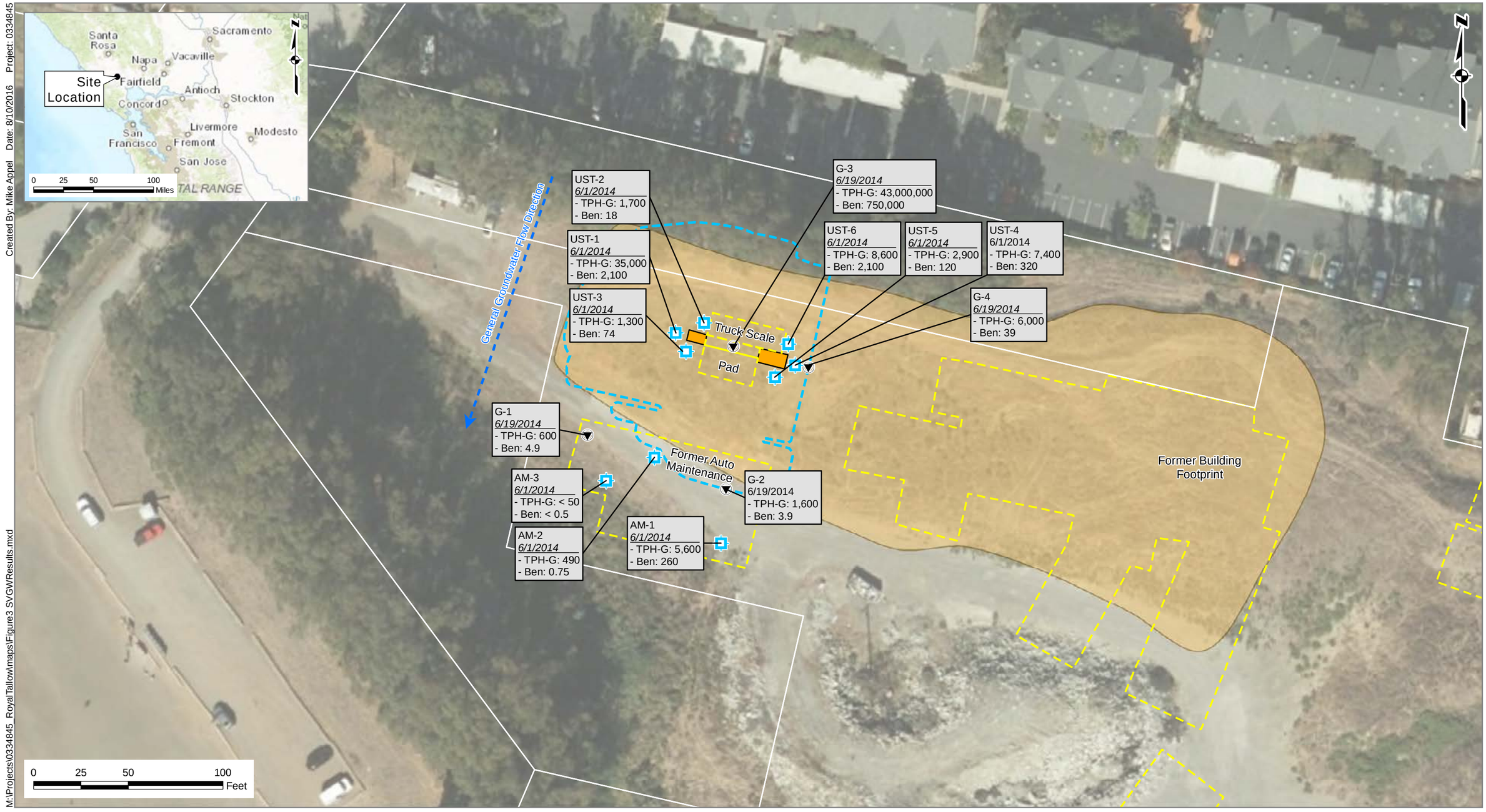
Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All locations approximate. Taken from historical locations figures.
Data call-out blocks shaded gray are from the 2014 Phase II Site Assessment
TPH-G: Total Petroleum Hydrocarbons - Gasoline Range
Ben: Benzene
ft bgs: feet below ground surface
Concentrations in milligrams per kilogram (mg/kg)
< 0.25 : Not detected at or above the listed detection limit
0.33: Green concentrations exceed the Closure Report Cleanup Level of 400 mg/kg for TPH-G or 0.18 mg/kg for Benzene.

**Figure 2**
*Contaminant Concentrations in Soil*
*Within the Former UST Remediation Area*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

Project: 0334845
Date: 8/10/2016
Created By: Mike Appel




M:\Projects\0334845_RoyalTallow\maps\Figure3 SVGWResults.mxd

## Legend

- AEI Grab Groundwater Sample (2014)
- Soil Vapor Sample Location (2014)
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation
- Parcel Boundaries

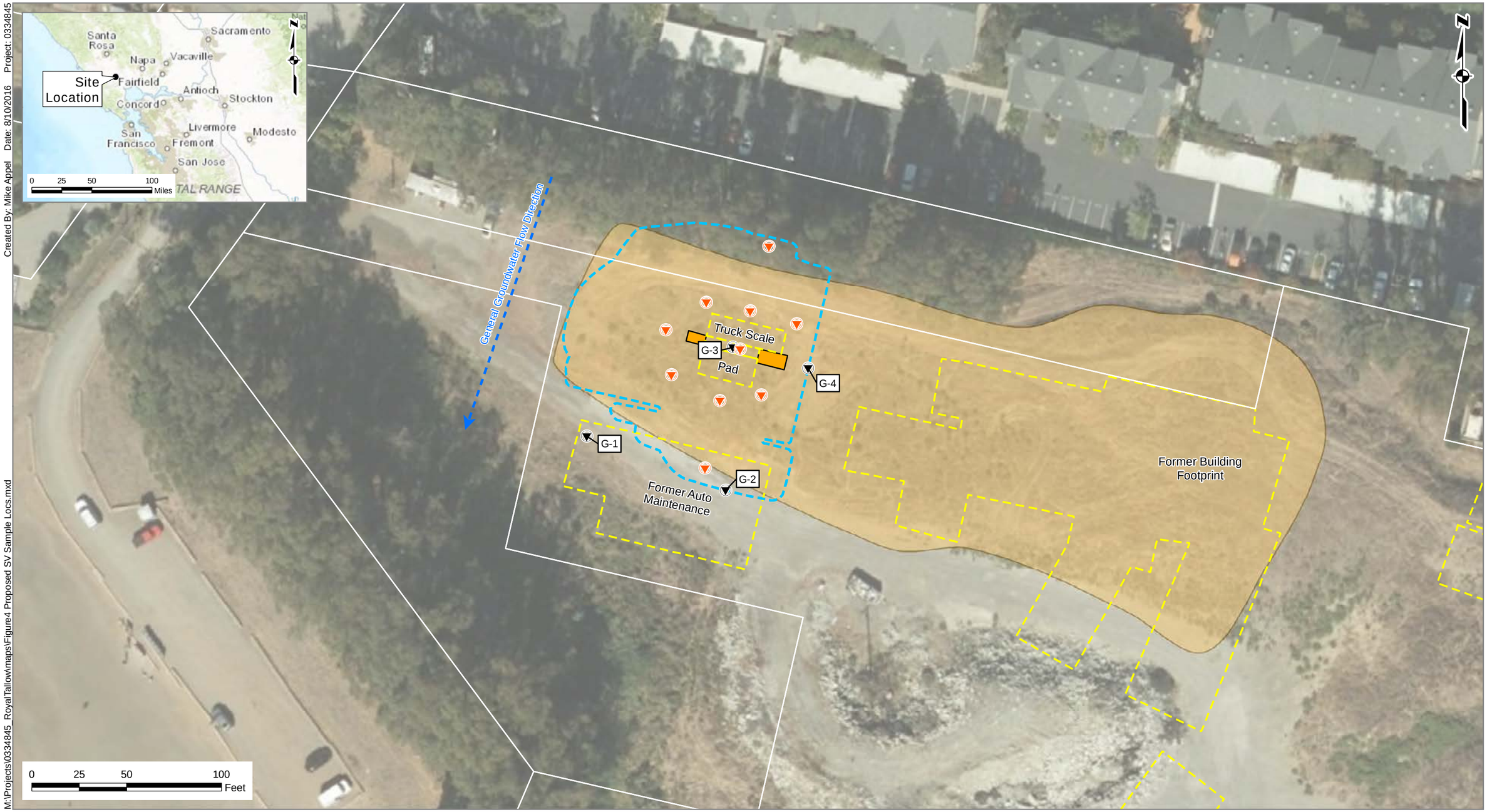
Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All locations approximate. Taken from historical locations figures.
Data presented are from the 2014 Phase II site assessment
TPH-G: Total Petroleum Hydrocarbons - Gasoline Range
Ben: Benzene
bgs: below ground surface
Groundwater concentrations in micrograms per liter (µg/L)
Soil Vapor concentrations are in micrograms per cubic meter (µg/m3)
< 0.25 : Not detected at or above the listed detection limit

**Figure 3**
*Contaminant Concentrations in Groundwater and Soil Vapor Within the Former UST Remediation Area*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

Project: 0334845
Date: 8/10/2016
Created By: Mike Appel




M:\Projects\0334845_RoyalTallow\maps\Figure4 Proposed SV Sample Locs.mxd

## Legend

- Proposed Soil Vapor Sample Location
- AEI Soil Vapor Sample Location (2014) Proximate to the Former USTs
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation
- Parcel Boundaries

Notes:
All locations approximate. Taken from historical locations figures.

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

**Figure 4**
*Proposed Soil Vapor Sample Locations*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

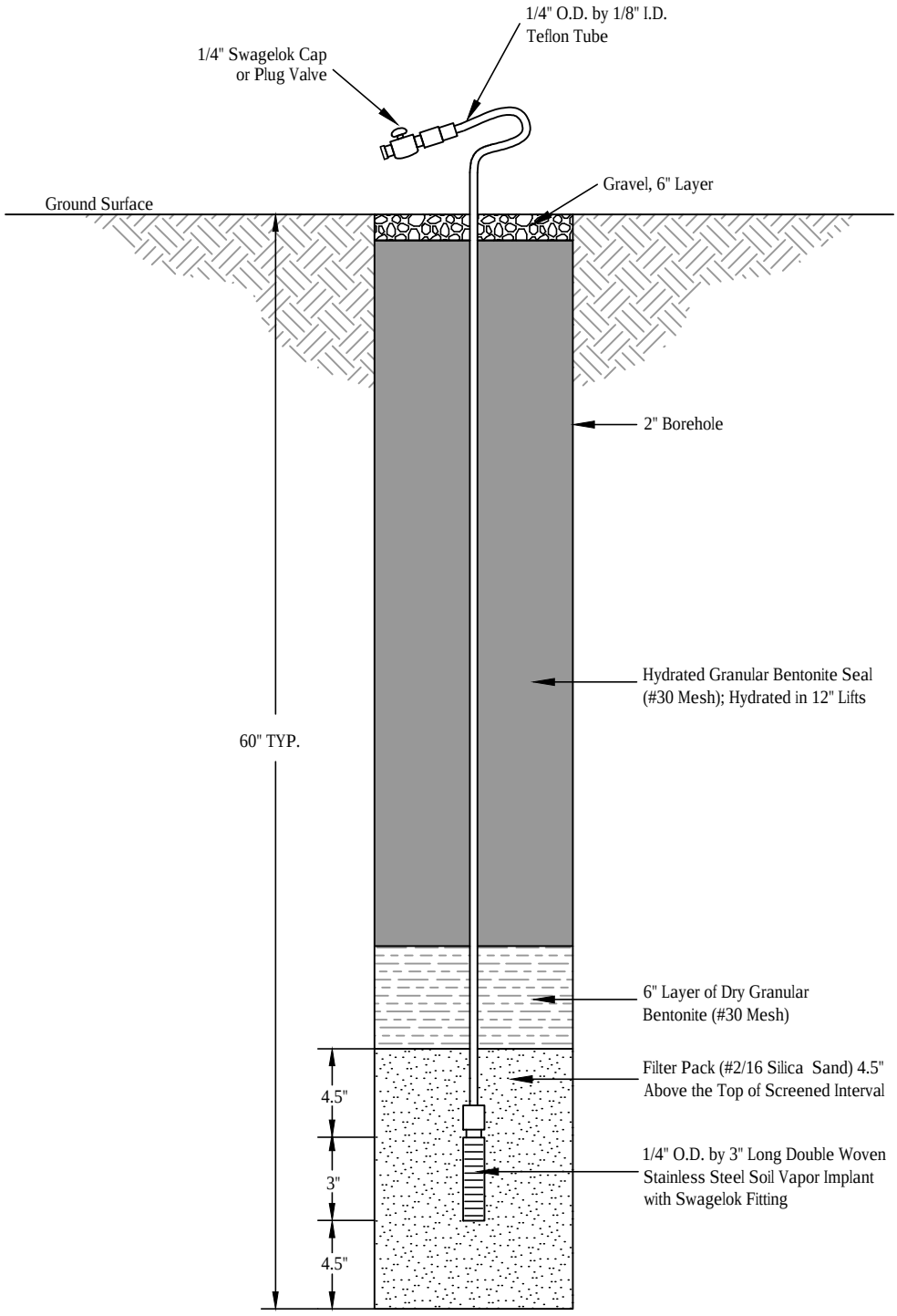



Figure 5

*Temporary Soil Vapor Probe Construction Diagram*
*2952 Lakeville Highway*
*Petaluma, California*

NOT TO SCALE

Environmental Resources Management
www.erm.com

ERM

J. Estrada 8/10/2016. 0334845.04 G:\DWGS\0334845 Lakeville Highway\04\033484504-01.dwg

# *Appendix A*
# *Geologic Cross-Sections and Groundwater Contour Maps*

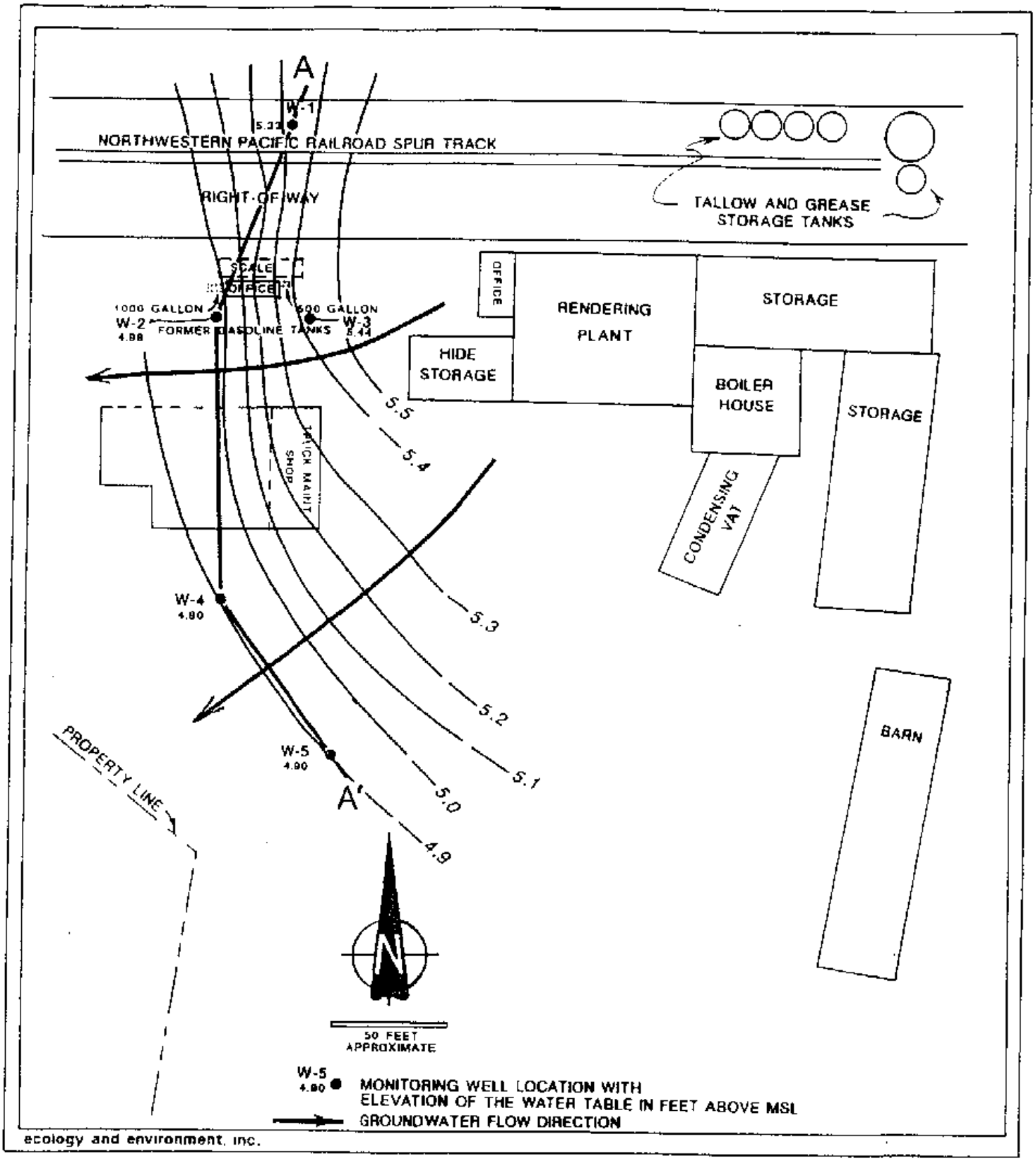



Figure 4-2 CROSS SECTION LOCATION AND WATER TABLE ELEVATION - APRIL 3, 1990 ROYAL TALLOW AND SOAP CO.

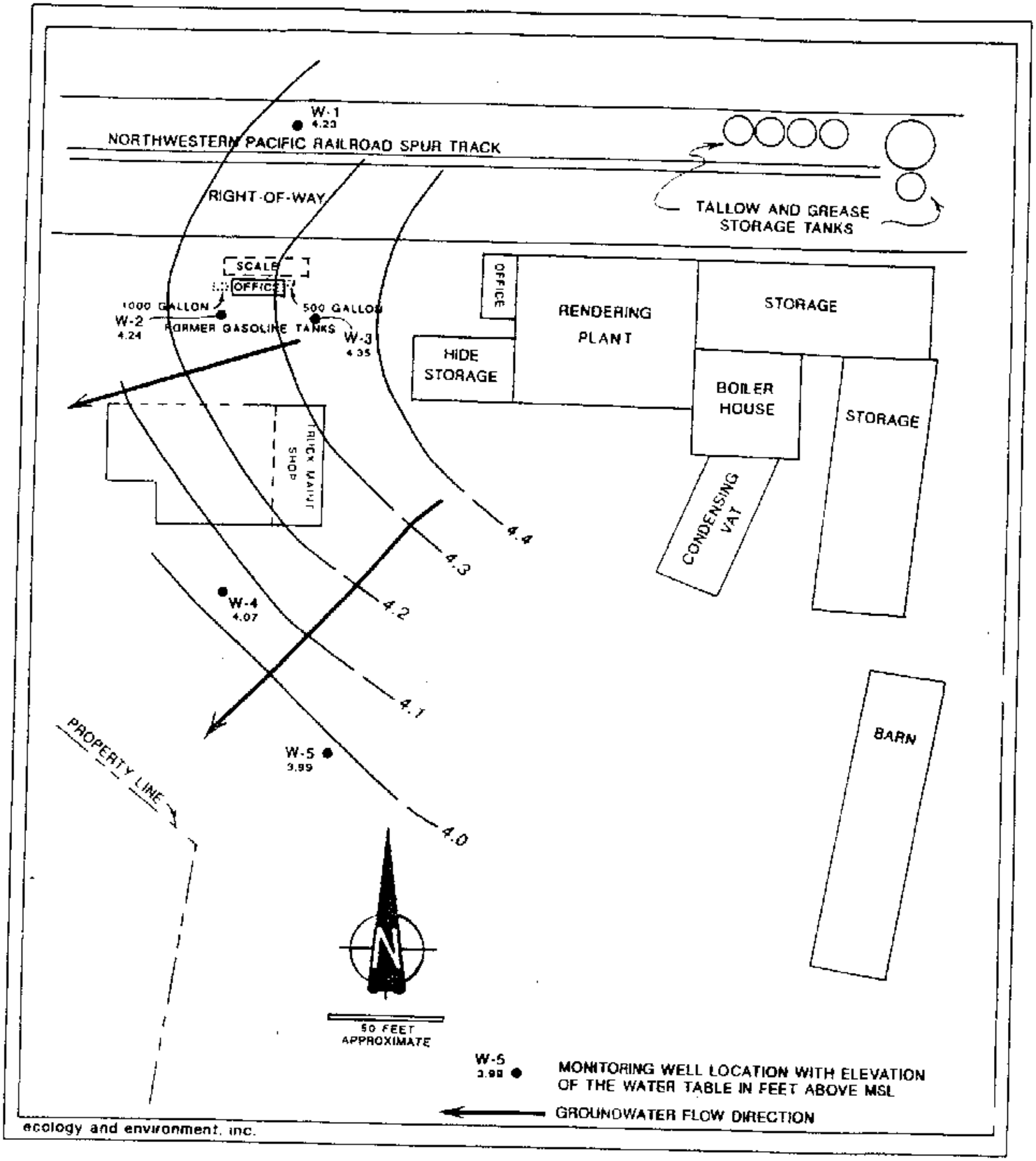



Figure 4-3 WATER TABLE ELEVATION - MAY 3, 1990
ROYAL TALLOW AND SOAP CO.

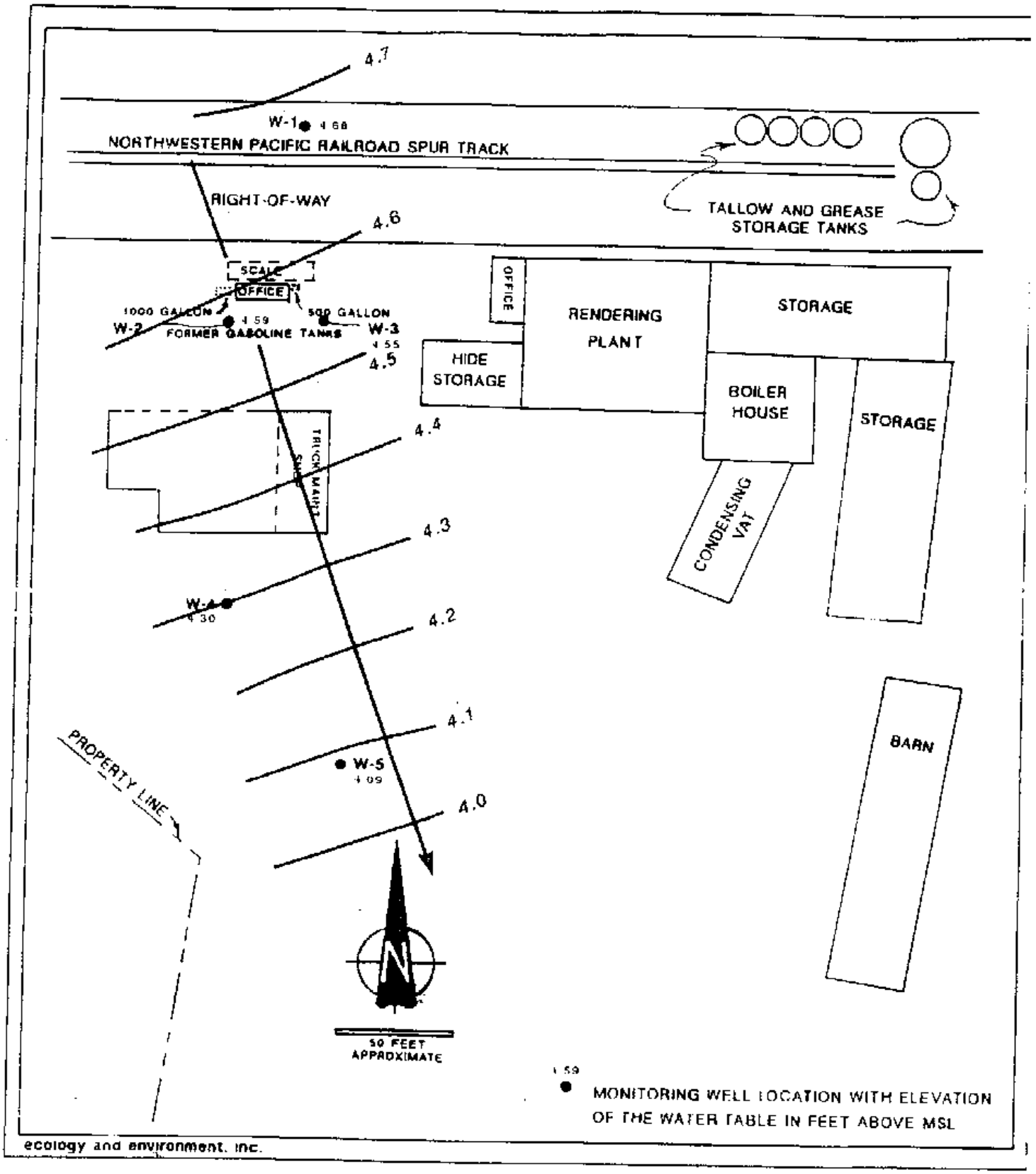



Figure 4-4 WATER TABLE ELEVATION - JUNE 1, 1990

ROYAL TALLOW AND SOAP CO.

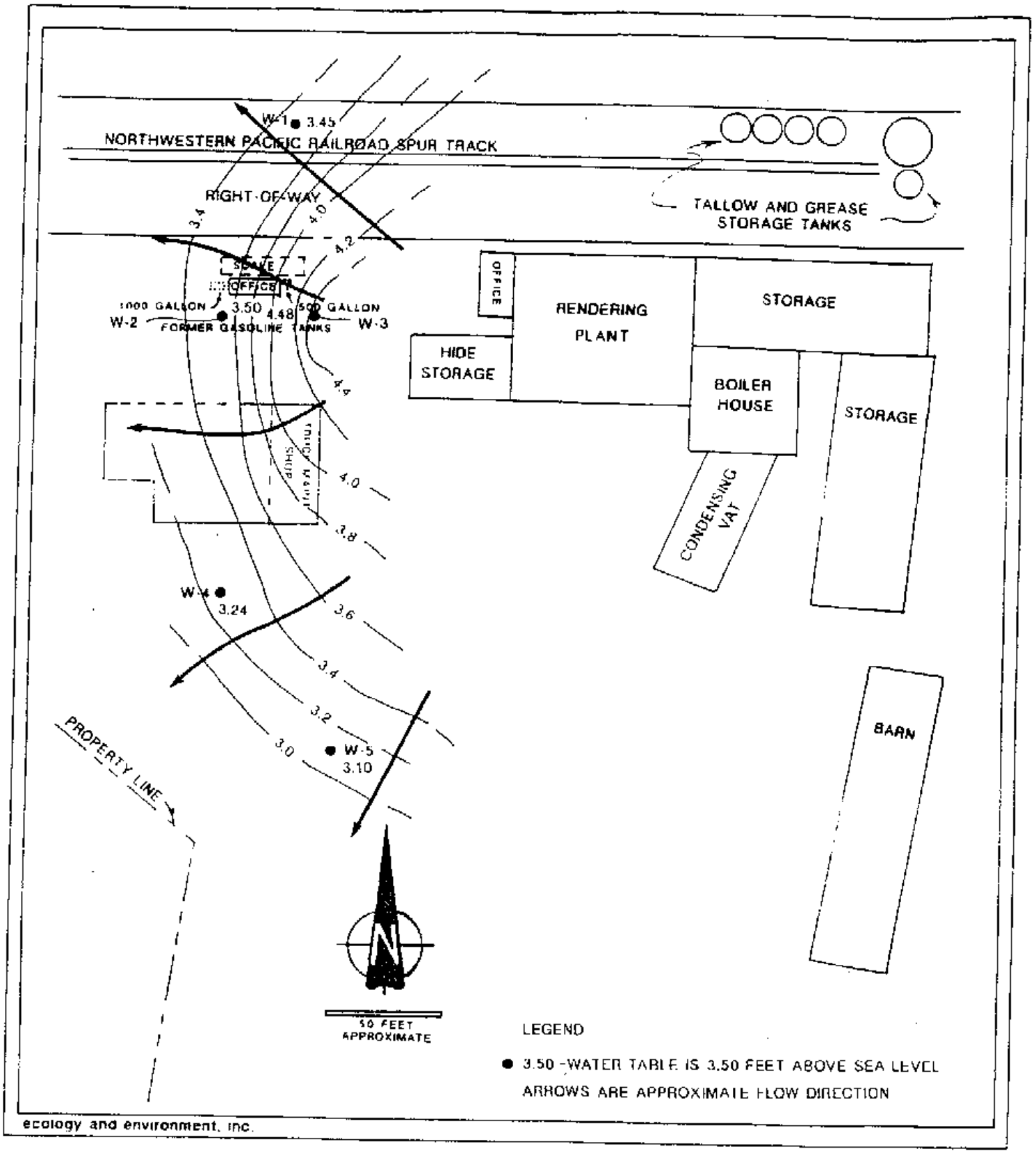



Figure 4-5: WATER TABLE ELEVATION - JULY 10, 1990
ROYAL TALLOW AND SOAP CO.

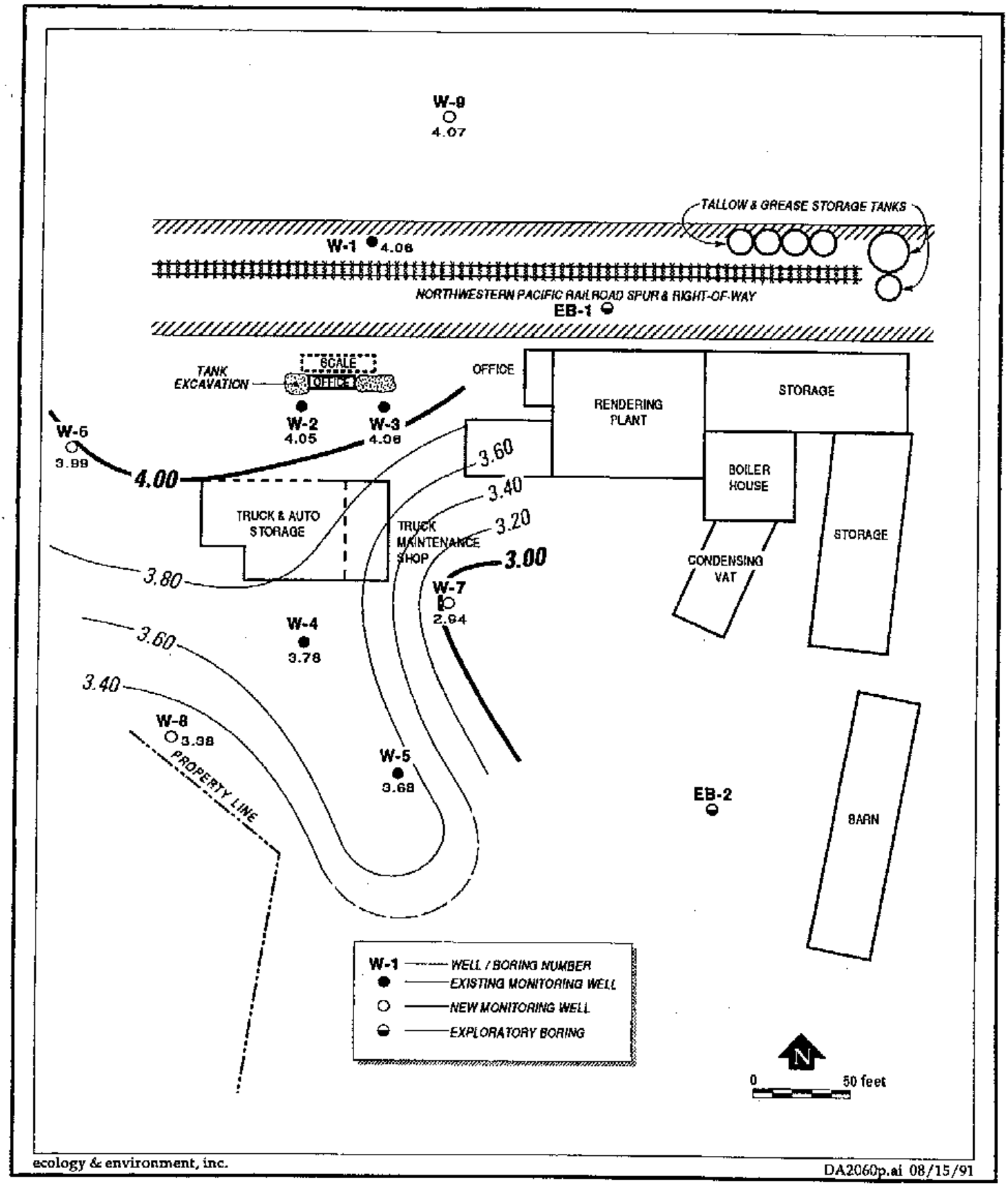



Figure 4-1

**-- WATER TABLE ELEVATIONS : June 6, 1991 --**

**ROYAL TALLOW and SOAP COMPANY**

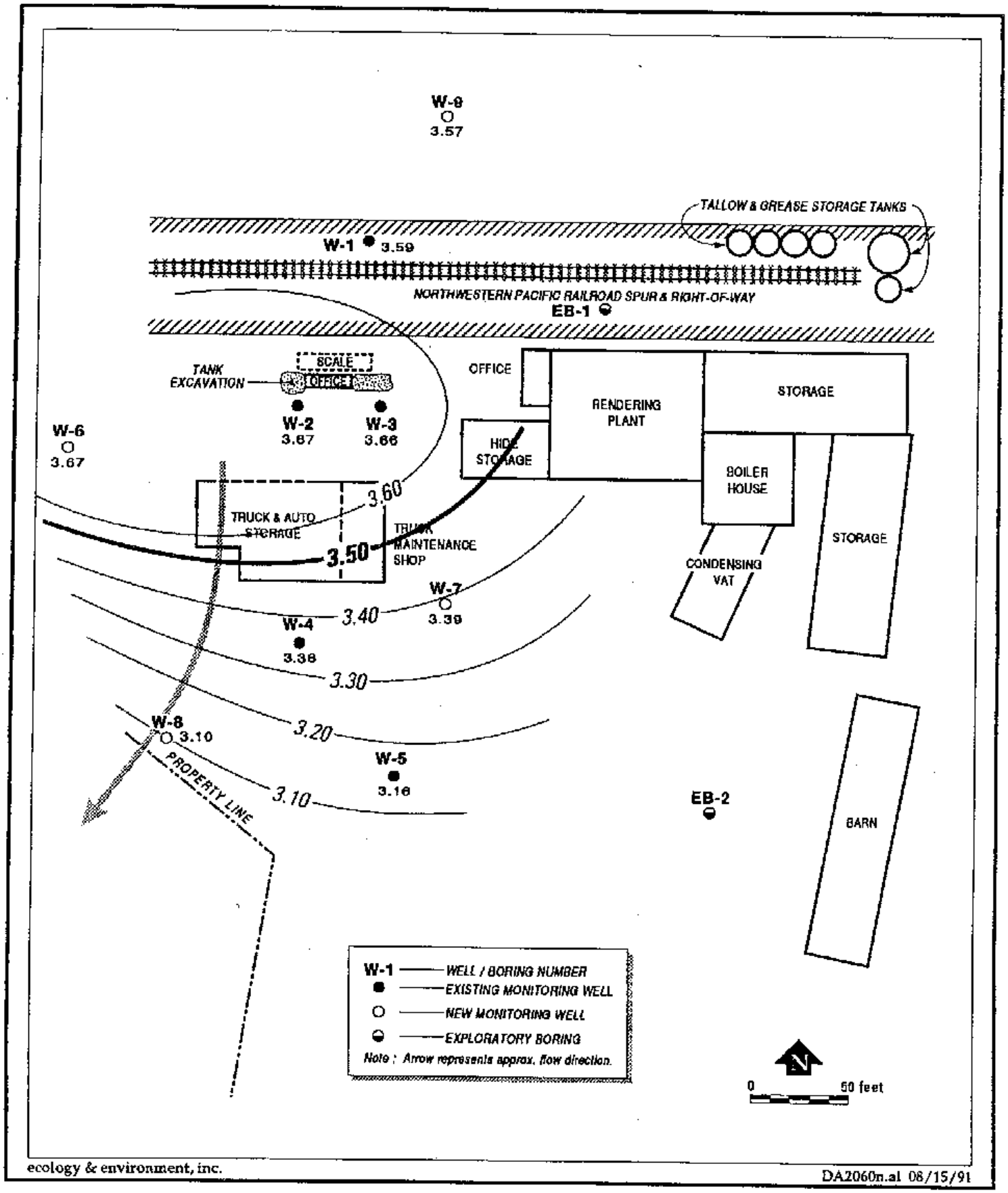
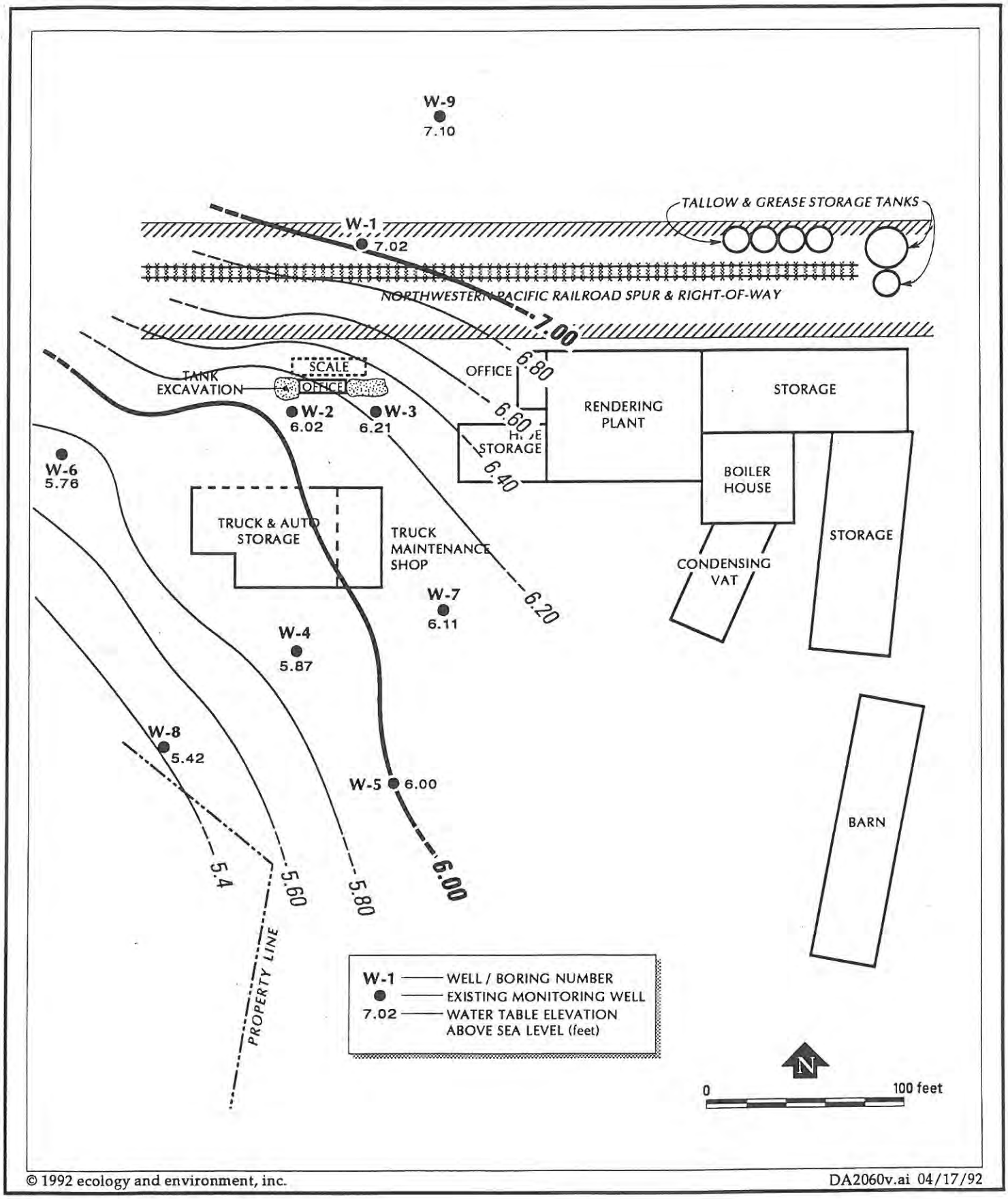



Figure 4-2

**-- WATER TABLE ELEVATIONS : July 8, 1991 --**

**ROYAL TALLOW and SOAP COMPANY**

mtc/dd/4




© 1992 ecology and environment, inc.

DA2060v.ai 04/17/92

Figure 1

**WATER TABLE ELEVATION – March 11, 1992**

**ROYAL TALLOW and SOAP COMPANY**

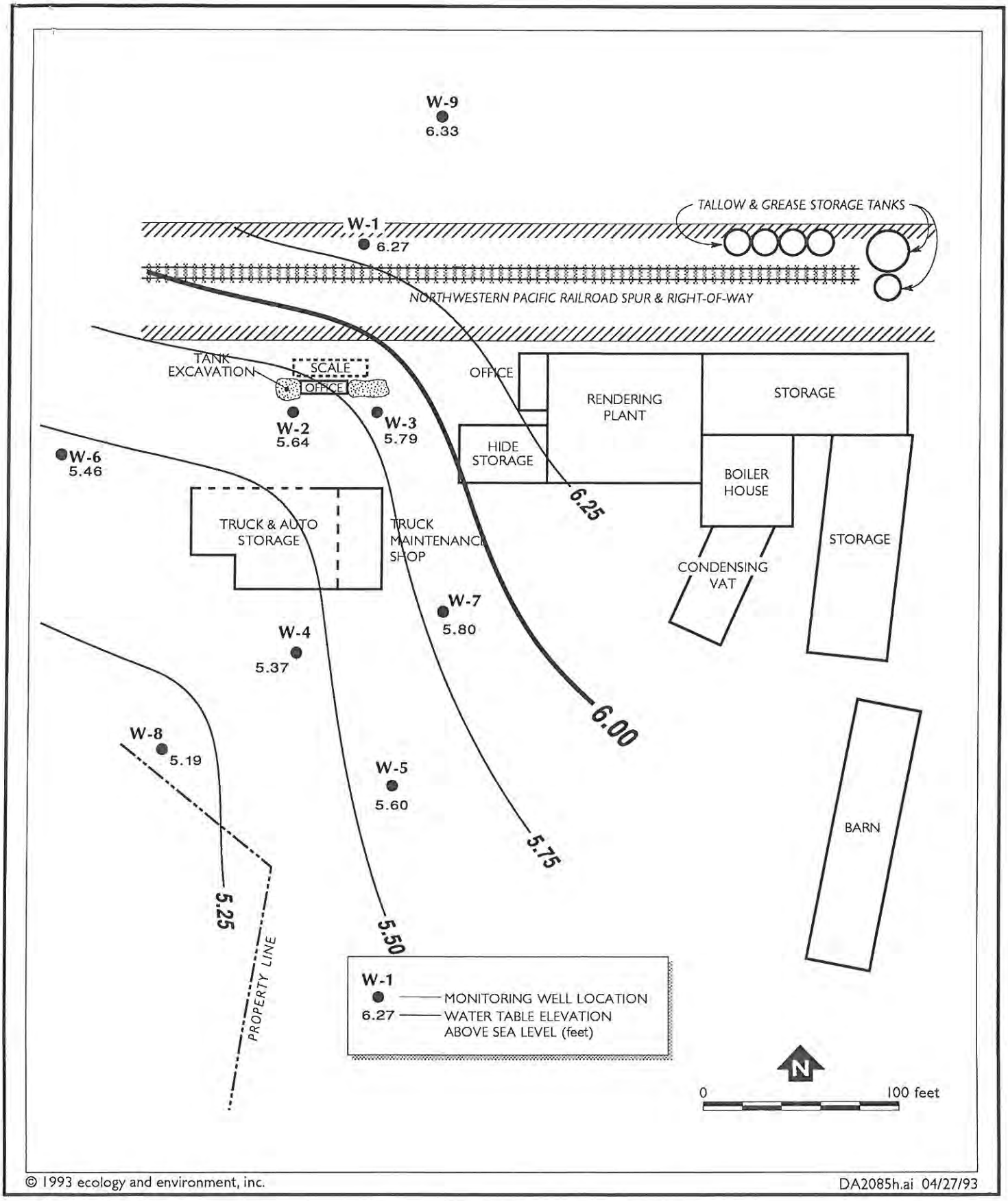
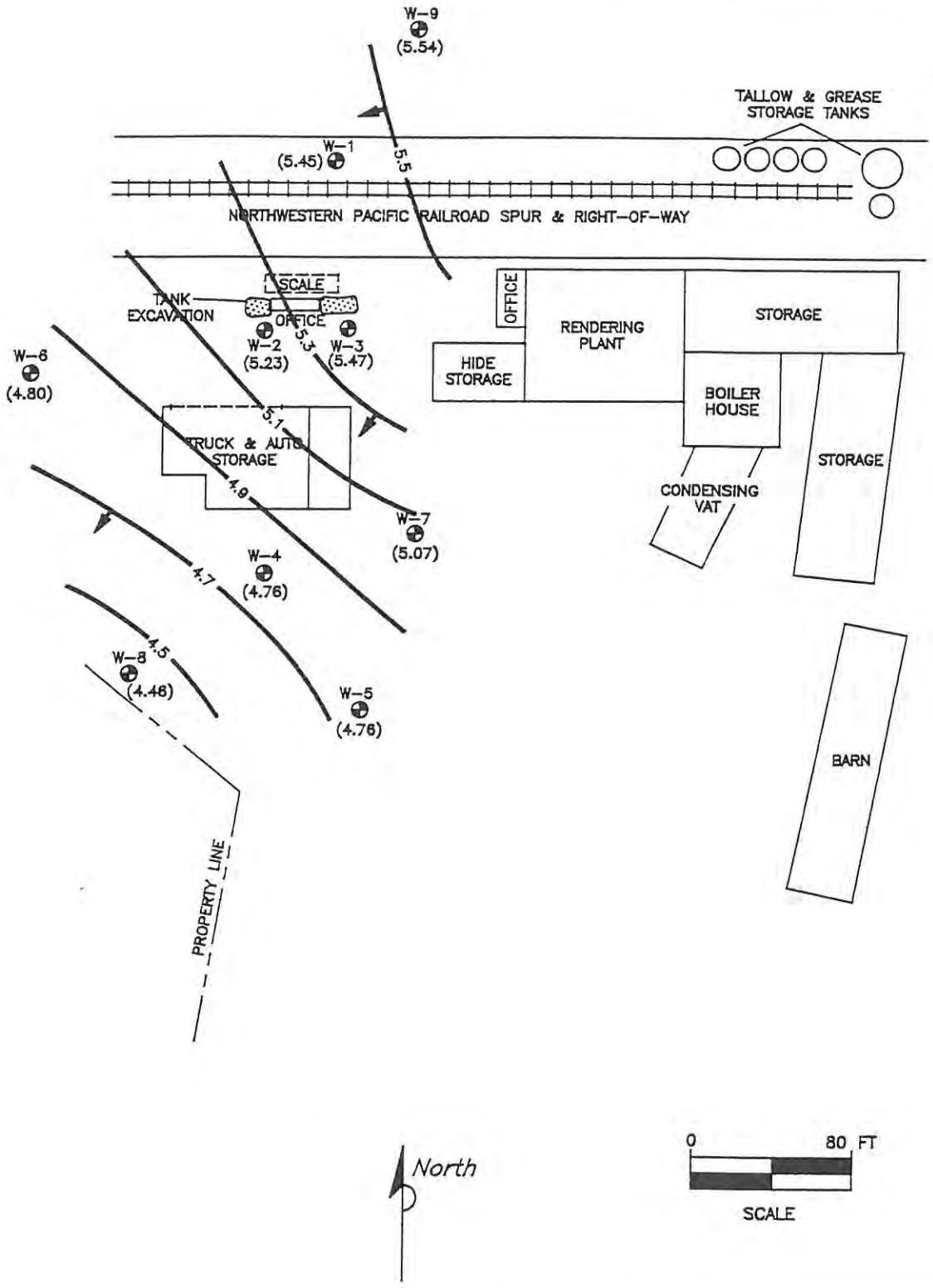



Figure 1

**WATER TABLE ELEVATION – March 16, 1993**

**Royal Tallow and Soap Company**




LEGEND:

- ⊕ W-1 — MONITORING WELL LOCATION
- (5.45) — GROUND WATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- — 5.1 — WATER TABLE CONTOUR IN FEET RELATIVE TO MEAN SEA LEVEL
- ◄ — GROUND WATER FLOW DIRECTION

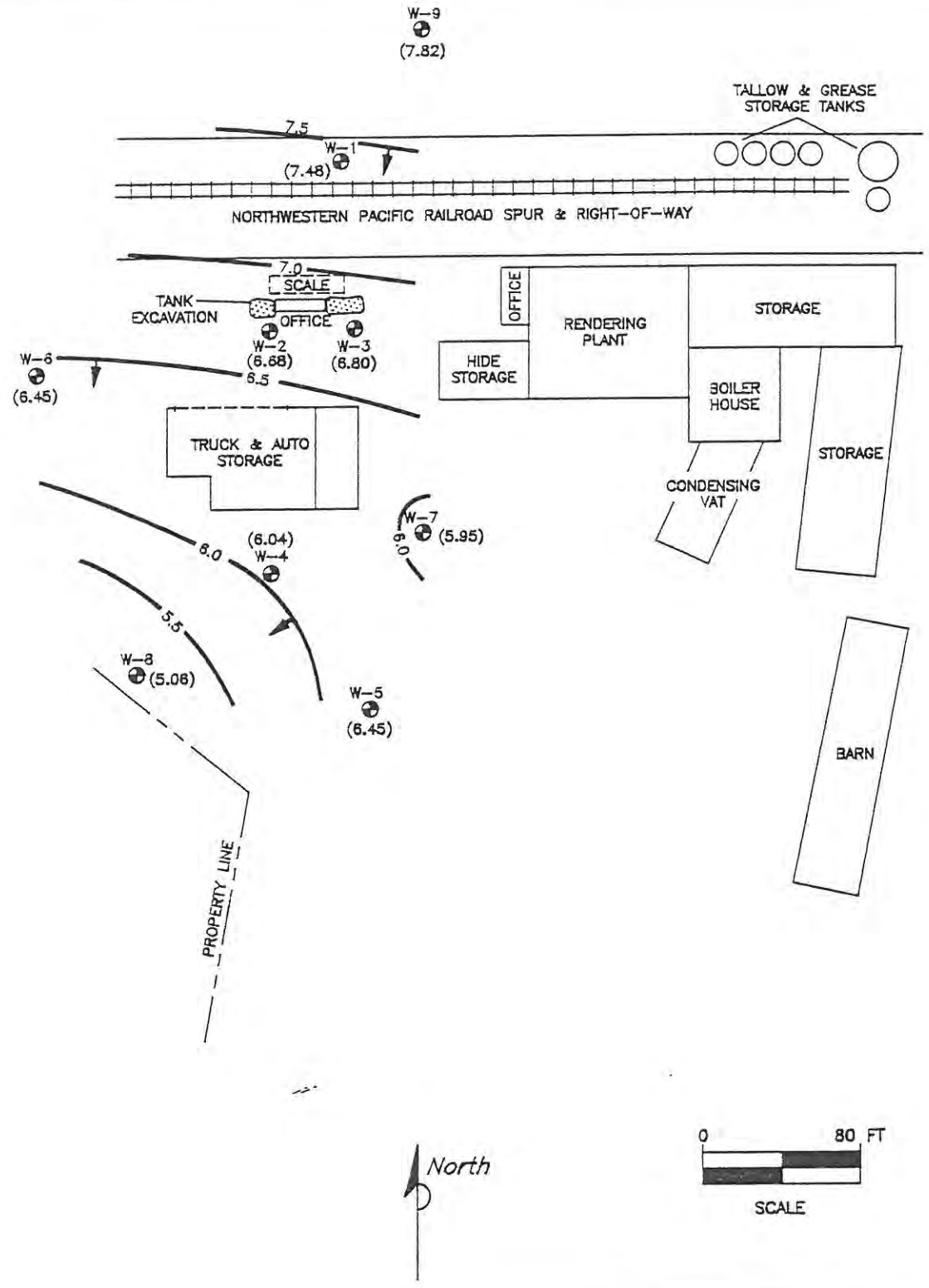
FIGURE 3

WATER TABLE CONTOUR MAP – 3/31/94

DARLING INTERNATIONAL INC.
2592 LAKEVILLE HIGHWAY
PETALUMA, CA.

| | |
|---|---|
| PROJECT NO. D093-005 | DRAWN BY I.H. 4/19/94 |
| FILE NO. 93-005-1 | PREPARED BY PVZ |
| REVISION NO. 1 | REVIEWED BY JRB 4/29/94 |

Delta Environmental Consultants, Inc.




LEGEND:

| | |
|---|---|
| W-1 | MONITORING WELL LOCATION |
| (7.48) | GROUND WATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL |
| 7.0 | WATER TABLE CONTOUR IN FEET RELATIVE TO MEAN SEA LEVEL |
| | GROUND WATER FLOW DIRECTION |
| (NM) | NOT MEASURED |

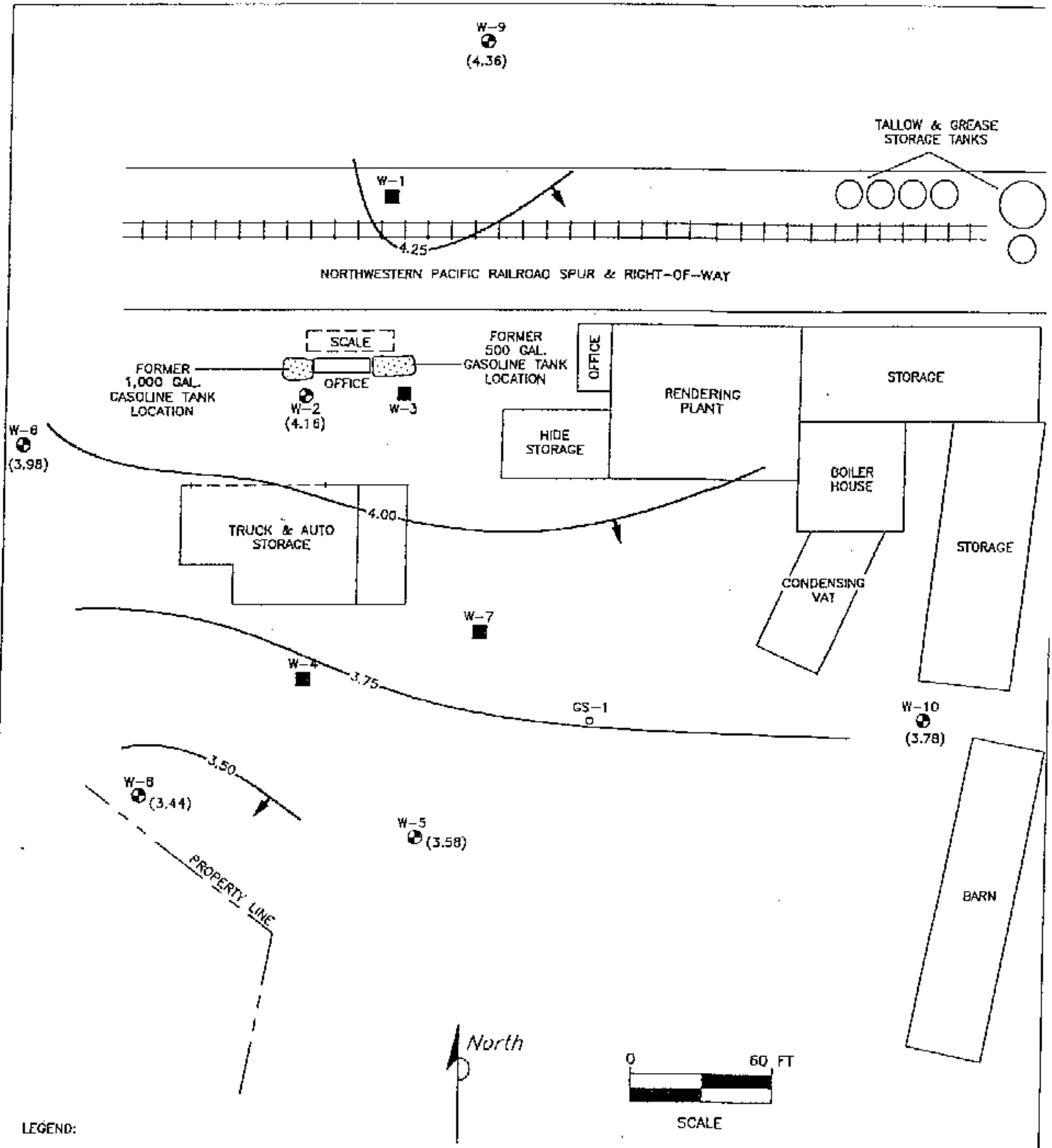
FIGURE 3

WATER TABLE CONTOUR MAP – 3/16/95

DARLING INTERNATIONAL INC.
2592 LAKEVILLE HIGHWAY
PETALUMA, CA.

| | |
|---|---|
| PROJECT NO. D093-005 | DRAWN BY I.H. 4/17/95 |
| FILE NO. 93-005-1 | PREPARED BY WJS |
| REVISION NO. 1 | REVIEWED BY CHs 4/17/95 |

Delta Environmental Consultants, Inc.




LEGEND:

- UMITS OF EXCAVATION
- W-2 MONITORING WELL LOCATION
- GS-1 HAND AUGER LOCATION
- W-1 DESTROYED MONITORINC WELL LOCATION
- (3.58) GROUND WATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- 4.00 WATER TABLE CONTOUR IN FEET RELATIVE TO MEAN SEA LEVEL
- GROUND WATER FLOW DIRECTION

FIGURE 3
GROUND WATER ELEVATION CONTOUR MAP
7/17/98
DARLING INTERNATIONAL INC.
2592 LAKEVILLE HIGHWAY
PETALUMA, CA.

| | |
|---|---|
| PROJECT NO. D093-005 | DRAWN BY M.L. 10/26/98 |
| FILE NO. 93-005-1 | PREPARED BY TLA |
| REVISION NO. 1 | REVIEWED BY 12/4/98 |

Delta Environmental Consultants, Inc.

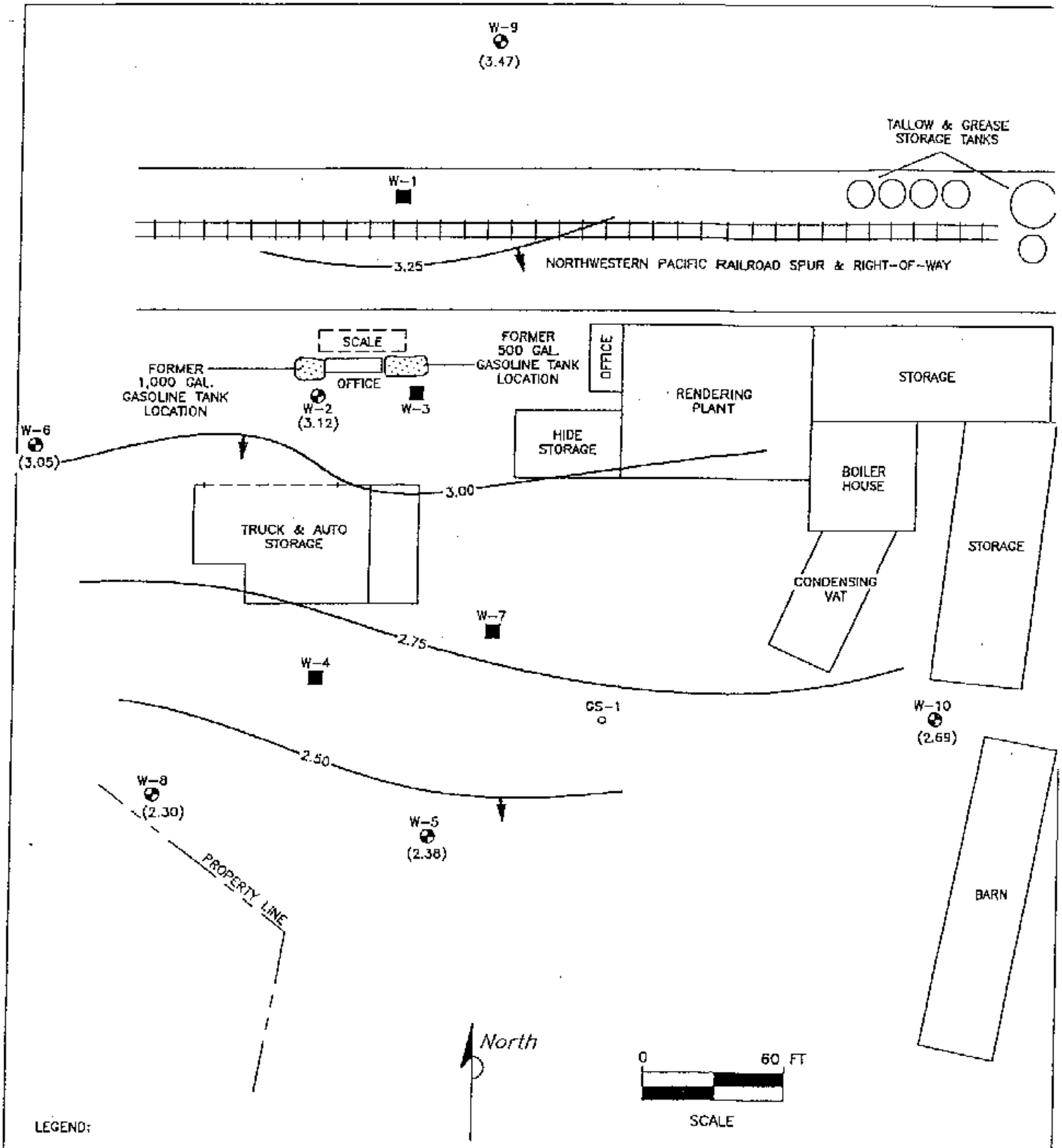
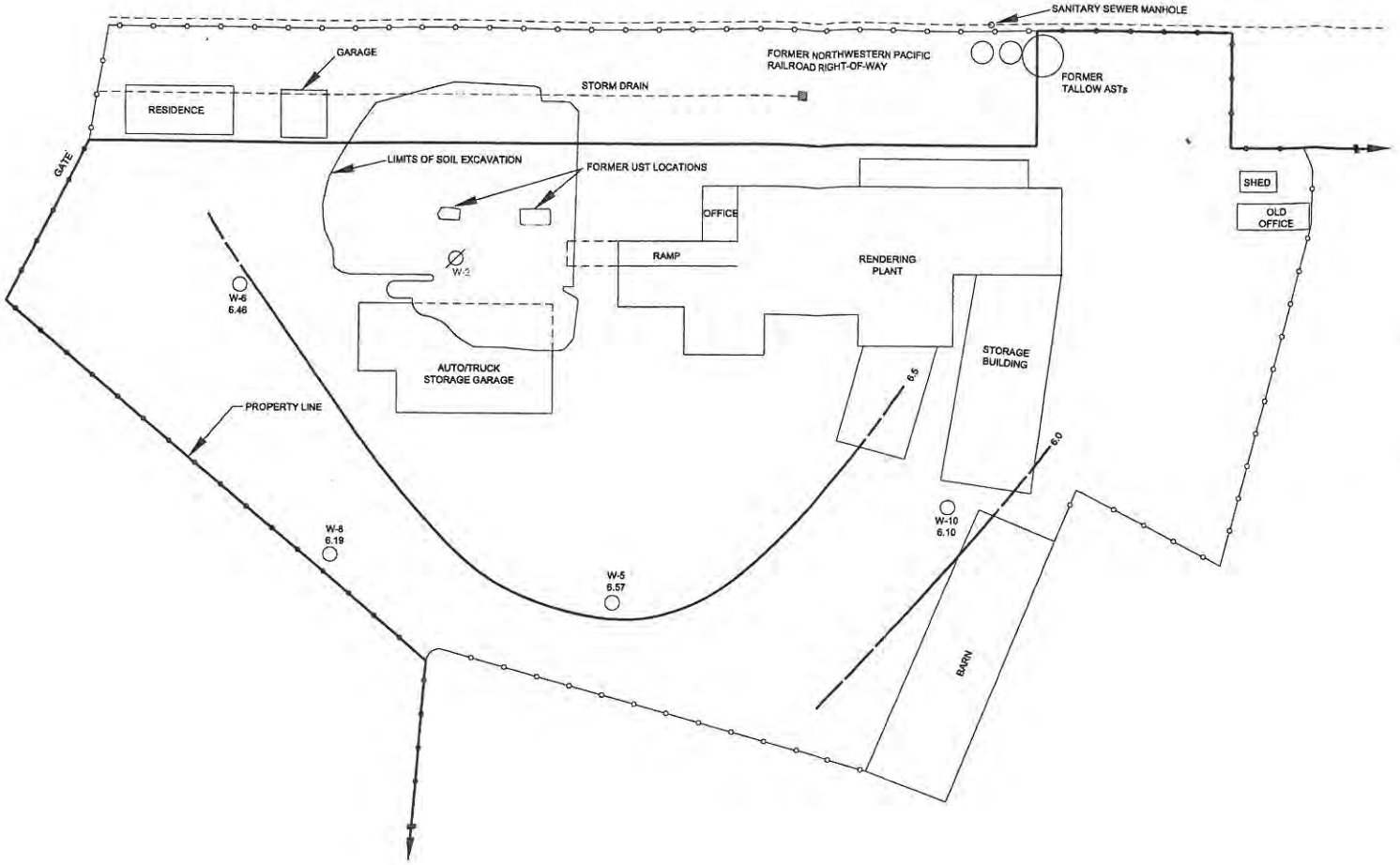



FIGURE 4
GROUND WATER ELEVATION CONTOUR MAP
10/9/98
DARLING INTERNATIONAL INC.
2592 LAKEVILLE HIGHWAY
PETALUMA, CA.

| | |
|---|---|
| PROJECT NO. D093-005 | DRAWN BY M.L. 10/26/98 |
| FILE NO. 93-005-1 | PREPARED BY TLA |
| REVISION NO. 1 | REVIEWED BY 12/4/98 |

Delta Environmental Consultants, Inc.

J:\030070\Task 3\Figures\Figure 3.dwg




EXPLANATION:

- W-6 ○ LOCATION AND DESIGNATION OF MONITORING WELL WITH
- ∅ GROUNDWATER ELEVATION (FT NGVD)
- W-2 FORMER LOCATION AND DESIGNATION OF MONITORING WELL DECOMMISSIONED NOVEMBER 29, 2000
- PROPERTY LINE
- FENCE
- 6.0 LINE OF EQUAL ELEVATION (FT NGVD)
- UST UNDERGROUND STORAGE TANK
- AST ABOVEGROUND STORAGE TANK

NOTE:

1. LOCATIONS ARE APPROXIMATE.

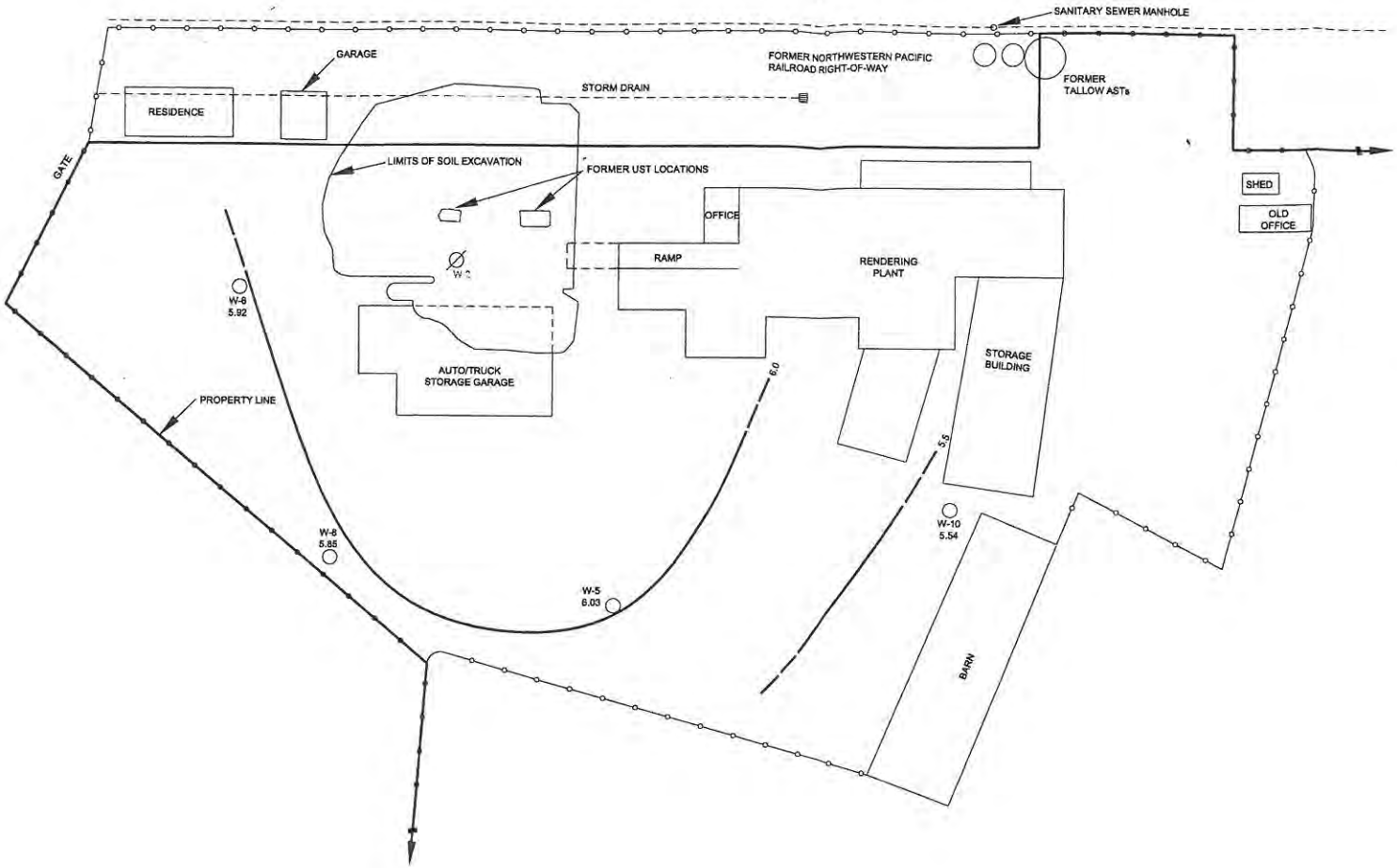
GROUNDWATER ELEVATION MAP
January 13, 2003

Darling International, Inc.
2592 Lakeville Highway
Petaluma, California

| | | |
|---|---|---|
| Project No. 030070 | By: J. Mills | Figure 3 |
| Date: 4/23/03 | Checked: CJW | |

MFG, Inc.
consulting scientists and engineers

J:\030070\Task 3\Figures\Figure 4.dwg




EXPLANATION:

- ○ W-6 LOCATION AND DESIGNATION OF MONITORING WELL WITH GROUNDWATER ELEVATION (FT NGVD)
- ⌀ W-2 FORMER LOCATION AND DESIGNATION OF MONITORING WELL DECOMMISSIONED NOVEMBER 29, 2000
- PROPERTY LINE
- FENCE
- 6.0 LINE OF EQUAL ELEVATION (FT NGVD)
- UST UNDERGROUND STORAGE TANK
- AST ABOVEGROUND STORAGE TANK

NOTE:

1. LOCATIONS ARE APPROXIMATE.

N

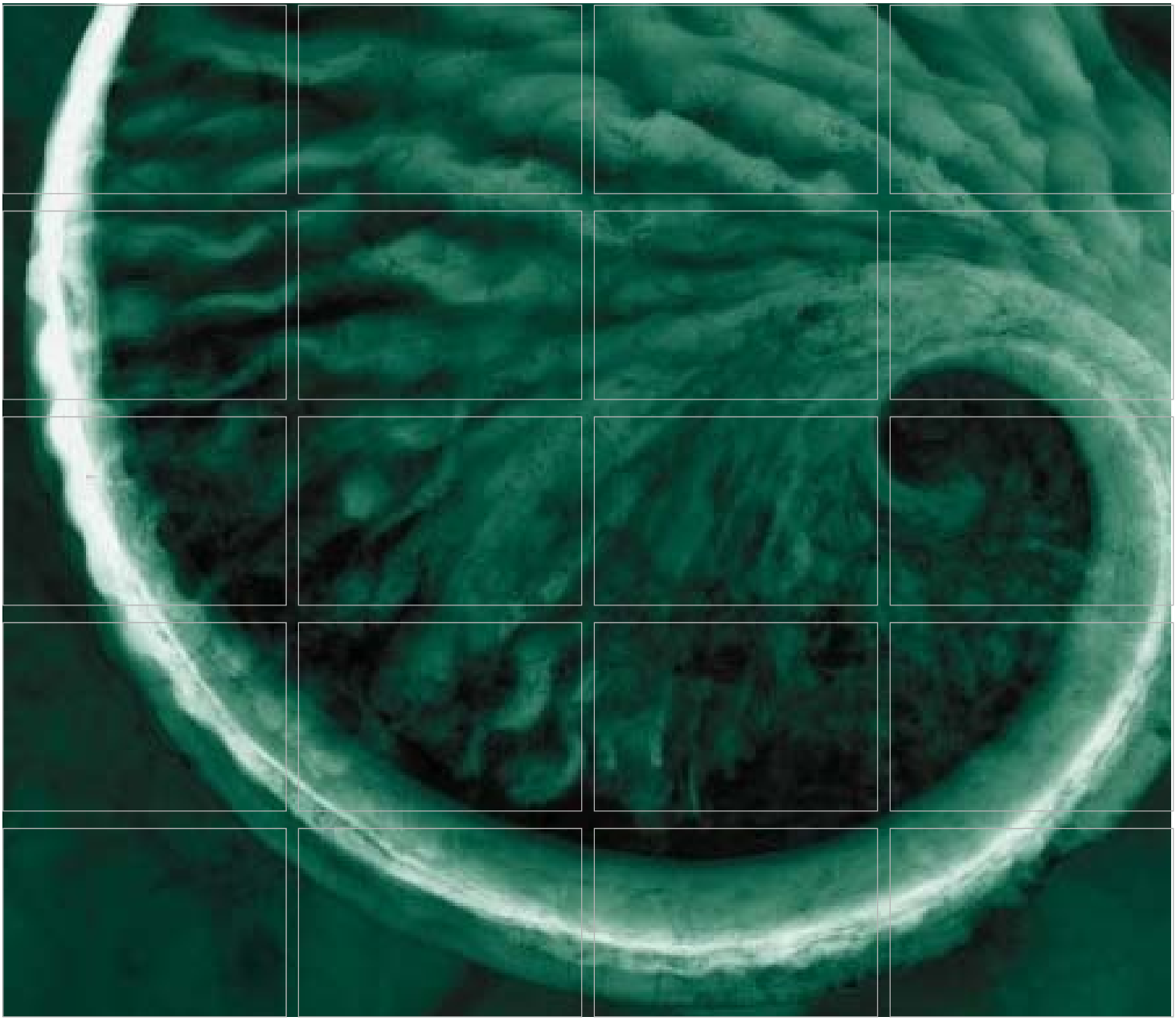
0 60

GROUNDWATER ELEVATION MAP
March 25, 2003

Darling International, Inc.
2592 Lakeville Highway
Petaluma, California

| | | |
|---|---|---|
| Project No. 030070 | By: J. Mills | Figure 4 |
| Date: 4/23/03 | Checked: CBJ | |

MFG, Inc.
consulting scientists and engineers



# Soil Vapor Investigation Summary Report

**Prepared for:**
Darling Ingredients Inc.

**2592 Lakeville Highway**
**Petaluma, California**
**EHS Site #00001359,**
**SFBRWQCB #49-0142**

February 2017

www.erm.com

ERM

*The business of sustainability*

Darling Ingredients Inc.

# Soil Vapor Investigation Summary Report

2592 Lakeville Highway
Petaluma, California
EHS Site #00001359,
SFBRWQCB #49-0142

February 2017

Project No. 0334845

Cecile Fleckten
*Principal-in-Charge*

Christopher Berg, P.G.
*Project Manager*

Matthew A. Scheeline, P.G.
*Certifying Geologist*

PROFESSIONAL GEOLOGIST
Matthew A. Scheeline
No. 8987
Exp: 9/30/18
STATE OF CALIFORNIA

**Environmental Resources Management**
1277 Treat Blvd, Suite 500
Walnut Creek, California 94596
T: 925-946-0455
F: 925-946-9968

*TABLE OF CONTENTS*


*LIST OF FIGURES* *iii*

*LIST OF TABLES* *iv*

*LIST OF ACRONYMS* *v*

*1.0 INTRODUCTION* *1*

*1.1 SITE DESCRIPTION* *1*
*1.1.1 Background* *1*
*1.1.2 Recent Activities* *2*

*1.2 SOIL VAPOR INVESTIGATION OBJECTIVE* *3*

*1.3 DOCUMENT ORGANIZATION* *3*

*2.0 SUMMARY OF FIELD ACTIVITIES* *5*

*2.1 PRE-INVESTIGATION ACTIVITIES* *5*

*2.2 SOIL VAPOR PROBE INSTALLATION* *5*
*2.2.1 Soil Vapor Probe Field Screening* *7*

*2.3 SOIL SAMPLE COLLECTION AND ANALYSIS* *7*

*2.4 SOIL VAPOR SAMPLE COLLECTION AND ANALYSIS* *8*

*2.5 INVESTIGATION-DERIVED WASTE* *9*

*3.0 INVESTIGATION RESULTS* *10*

*3.1 SOIL VAPOR RESULTS* *10*

*3.2 SOIL RESULTS* *11*

*3.3 DATA VALIDATION* *13*

*4.0 CONCLUSION* *14*

*5.0 REFERENCES* *15*

*APPENDIX A – PERMITS*

*APPENDIX B – SOIL VAPOR PROBE CONSTRUCTION LOGS*

*APPENDIX C – FIELD SCREENING DATA*

*APPENDIX D – SOIL LABORATORY ANALYTICAL REPORTS*

*APPENDIX E – SOIL VAPOR LABORATORY ANALYTICAL REPORTS*

*APPENDIX F – DATA VALIDATION REPORTS*

*LIST OF FIGURES*

*(Figures immediately follow the text)*

*Figure 1* *Site Location*

*Figure 2* *Soil Vapor Sample Results*

*Figure 3* *Soil Sample Results Map*

*LIST OF TABLES*

*(Tables immediately follow the Figures)*

*Table 1* *Summary of Soil Vapor Probe Construction Details*

*Table 2* *Soil Vapor Analytical Results*

*Table 3* *Soil Analytical Results*

*LIST OF ACRONYMS*

| | |
|---|---|
| AEI | AEI Consultants |
| bngs | Below native ground surface |
| BTEX | Benzene, toluene, ethylbenzene, and xylenes |
| County | County of Sonoma, Department of Health Services |
| Darling | Darling Ingredients Inc. |
| DTSC | Department of Toxic Substances Control |
| ERM | ERM-West, Inc. |
| FCSL | Future Commercial Screening Level |
| FRSL | Future Residential Screening Level |
| PID | Photoionization detector |
| RWQCB | San Francisco Bay Regional Water Quality Control Board |
| TPH-G | Total petroleum hydrocarbons in the gasoline range |
| USCS | Unified Soil Classification System |
| USEPA | United States Environmental Protection Agency |
| UST | Underground storage tank |

## *1.0 INTRODUCTION*

On behalf of Darling Ingredients Inc. (Darling), ERM-West, Inc. (ERM) has prepared this *Soil Vapor Investigation Summary Report* for the former Royal Tallow property located at 2592 Lakeview Highway in Petaluma, California (Figure 1).

The soil vapor investigation activities were performed between 28 November and 22 December 2016, and were completed in accordance with the following documents/communications approved by Sonoma County Department of Health Services (County):

- *Site Investigation Workplan* (ERM 2016b);
- County of Sonoma, Department of Health Services (County) Work Plan Approval Correspondence (County 2016); and
- *Proposed Addendum to 12 August Workplan* Email Correspondence (ERM 2016c).

This document describes the methods used to install temporary soil vapor probes, collect and analyze soil samples, and collect and analyze soil vapor samples; and summarizes the results of soil and soil vapor probe sampling.

## *1.1 SITE DESCRIPTION*

The property is located at 2592 Lakeview Highway in Petaluma, California. The property is currently bounded by a dog park to the west, apartments to the north, and a warehouse to the east. The southern portion of the property is surrounded by undeveloped land, and abuts the Petaluma River.

### *1.1.1 Background*

The former facility was operated by the Royal Tallow Company between approximately 1941 and 1986. As part of its operations, Royal Tallow operated two fuel underground storage tanks (USTs) containing regular unleaded gasoline. The Sonoma County Leaking Underground Storage Tank Local Oversight Program opened Case EHS Site #00001359 (SFBRWQCB #49-0142) for the tanks in 1989. Between 1989 and 2004, Royal Tallow removed the tanks, investigated soil and groundwater

conditions around the tank area, and excavated accessible contaminated soil.

Approximately 2,400 cubic yards of hydrocarbon contaminated soil was excavated from the former UST location in phases between November 2000 and June 2001 (MFG, Inc. 2002). The approximate lateral limits of the excavation are shown on Figure 2 and the depth of excavation was approximately 6 feet bgs. The excavated soil was treated on site via bioremediation. Once confirmation sampling showed that the bioremediated soil contained hydrocarbon concentrations below the target remediation levels,[1] the treated soil was returned to the excavation area as backfill. The backfill was graded and compacted. The final ground surface approximated the surrounding and original site grade.

All work was conducted under County and SFBRWQCB oversight and was documented in the *Soil Remediation Report* (MFG, Inc. 2002). The County, with SFBRWQCB approval, closed the UST case on 30 July 2004, after reviewing the Soil Remediation Report and all underlying data, including confirmation sampling. The County determined that the cleanup action met the cleanup goals to a sufficiently protective degree based upon the then-current commercial/industrial use, and in the Case Closure Summary acknowledged that (1) residual petroleum hydrocarbon contamination remained at the site in excess of applicable cleanup levels and (2) corrective action could be required if the land use changed, and future site development should address the presence of residual soil contamination, proper handling, and disposal. These remedial actions are described in further detail in the *Soil Remediation Report* (MFG 2002). It does not appear that the potential presence of soil vapor played a role in defining the County's cleanup goals at the time.

### *1.1.2 Recent Activities*

In 2008, Darling sold the property to Baywood LLC (Baywood). Baywood demolished all remaining structures and reportedly undertook, for a period of time, various operations such as concrete crushing, grinding, materials reclamation, stockpiling of reclaimed and crushed materials (e.g., concrete, asphalt), the import and stockpiling of fill material, and fueling and maintenance of industrial equipment. Several soil stockpiles generated from these operations are present at the site, totaling

---

[1] Target soil remediation levels were 1 milligram per kilogram (mg/kg) for TPH-G and 0.0075 mg/kg for any BTEX compound.

approximately 25,000 cubic yards. The former location of the USTs is overlain by the stockpiled material. The site remains vacant and undeveloped, and, according to a letter from Baywood to the County dated April 26, 2016, "there is no current plan to redevelop the Property."

In September 2015, the County received a *Phase II Subsurface Investigation* Report (Phase II Report) from AEI Consultants (AEI), dated 2 September 2014. The report contained analytical results exceeding screening levels in the area of the former USTs.

On 9 December 2015, Darling received notice from the County that they had reopened the previously closed case. The case was reopened based on the publication of data in the AEI Phase II Report (AEI 2014) conducted on behalf of DeNova Homes, Inc., a prospective purchaser of the property. The AEI Phase II Report indicated that soil vapor concentrations within the former UST remediation area exceeded acceptable residential risk levels.

## *1.2 SOIL VAPOR INVESTIGATION OBJECTIVE*

The data collected as part of the 2016 soil vapor investigation will be used to confirm whether conditions at the former UST area of the site meet current, acceptable risk thresholds for total petroleum hydrocarbons in the gasoline range (TPH-G); and benzene, toluene, ethylbenzene, and xylenes (BTEX). The data will also be used to propose the next steps for the site.

## *1.3 DOCUMENT ORGANIZATION*

Following this introductory section, this document is organized into the following sections:

- Section 2 provides a summary of field activities, including pre-investigation activities, soil vapor probe installation, and sampling activities conducted as part of the soil vapor investigation;
- Section 3 summarizes the results of the soil vapor investigation;
- Section 4 presents conclusions and recommendations to complete certification of the site; and
- Section 5 presents a list of references used in the preparation of this report.

Figures and tables follow the text. Appendices to this report include:

- Appendix A – Permits;
- Appendix B – Soil Vapor Probe Construction Logs;
- Appendix C – Field Screening Data;
- Appendix D – Soil Laboratory Analytical Reports;
- Appendix E – Soil Vapor Laboratory Analytical Reports; and
- Appendix F – Data Validation Reports.

## *2.0 SUMMARY OF FIELD ACTIVITIES*

This section summarizes the investigation activities performed. Field activities were performed between 28 November and 22 December 2016. Field activities were performed under the direction of a State of California Professional Geologist in general accordance with the *Final Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (Vapor Intrusion Guidance; Department of Toxic Substances Control [DTSC] 2011) and the current *Advisory – Active Soil Gas Investigations* (Advisory; DTSC, et al. 2015).

## *2.1 PRE-INVESTIGATION ACTIVITIES*

Consistent with the County-approved *Site Investigation Workplan* (ERM, 2016b), and prior to the initiation of the soil vapor probe installation efforts, a number of pre-investigation activities were conducted, as follows:

- ERM secured drilling permits from the County (Appendix A).
- ERM prepared a site-specific HASP for this project.
- All proposed drilling locations were marked prior to performing any subsurface activities and Underground Services Alert North, a notification service for marking underground utilities on public rights of way, was notified prior to initiating the proposed work. In addition, ERM contracted with Ground Penetrating Radar Systems, Inc., to locate and mark underground utilities (where present) near all proposed drilling locations.

## *2.2 SOIL VAPOR PROBE INSTALLATION*

Ten temporary soil vapor probes (W-01 through W-10) were installed using direct-push dual-tube drilling technology by a C-57-licensed (California Code of Regulations Title 16, Division 8, Article 3) drilling contractor, TWS Environmental, LLC.

Due to the presence of soil stockpiles overlying the proposed drilling locations, as described in Section 1.1.2, soil vapor probes were advanced through the soil stockpiles utilizing the direct-push dual-tube drilling technology. This approach allowed for collection of continuous soil cores through a cased borehole, allowing for the identification of the contact

between the base of the soil stockpiles and native ground surface. The preceding sections reference this contact when discussing depth intervals related to probe construction and/or sample collection.

Descriptions of subsurface materials from recovered soil cuttings were described by a field geologist under the supervision of California-registered Professional Geologist and consistent with the Unified Soil Classification System (USCS). Soil type, size, and color were noted along with any evidence suggesting hydrocarbon contamination (i.e., visual staining and/or elevated photoionization detector [PID] readings). Soil samples were collected, as each boring was advanced, directly beneath native ground surface (bngs) and immediately above groundwater.

The first test boring (W-01) was advanced to the water table, to approximately 6 feet bngs, in order to determine the appropriate depth for soil vapor probe construction. Once the total depth of each boring was reached, the soil vapor probes were constructed as follows:

- The targeted depth for the soil vapor probes was 5 feet bngs. Because groundwater depth at the site ranges from approximately 3 to 6 feet bngs, to the extent possible, probes were advanced to a total depth of approximately 5 feet bngs.
- Each probe was constructed of 0.25-inch outside-diameter (OD) by 0.125-inch inner-diameter (ID) semi-rigid Teflon® tubing attached to a 3-inch-long, stainless-steel vapor probe with anchor point.
- A 1-foot-thick annular filter pack was installed around the soil vapor probe. The filter pack consisted of clean, washed, well-graded, silica sand, and extended approximately 0.5 feet below and 0.5 feet above the midpoint of the 3-inch–long, stainless-steel vapor probe.
- A 6-inch layer of dry granular bentonite was added to the annular space directly above the filter pack.
- The remainder of the annular space consisted of hydrated bentonite to ground surface. The probes were constructed above the water table and associated capillary fringe. In some cases, the depth bngs, which accounts for and excludes the overlying stockpiled material, was as little as 2 to 3 feet bngs (see Appendix B).

Figure 2 shows the temporary soil vapor probe locations. Soil boring and vapor probe construction logs are presented in Appendix B.

### *2.2.1 Soil Vapor Probe Field Screening*

Each soil vapor probe was screened for the presence of volatile organic compounds using a parts-per-billion range PID and for oxygen, carbon dioxide, and methane using a landfill gas analyzer. Due to the low flow conditions of the temporary soil vapor probes, readings were taken both after probe installation and soil vapor sampling had been completed. The post-probe installation readings were taken after the temporary soil vapor probes were allowed to equilibrate and three purge volumes were removed. Readings were taken immediately following the completion of soil vapor sampling. Field screening data are provided in Appendix C.

## *2.3 SOIL SAMPLE COLLECTION AND ANALYSIS*

Per the instruction of the County, as documented in the County of Sonoma, Department of Health Services Work Plan Approval Correspondence (County 2016), soil samples were collected via Terra Core™ at depth intervals directly beneath native ground surface and immediately above groundwater at each soil vapor probe location.

Subsurface materials from recovered soil cuttings were described by a field geologist under the supervision of a California-registered Professional Geologist and consistent with the USCS. Soil type, size, and color were noted along with any evidence suggesting hydrocarbon contamination (i.e., visual staining and/or elevated PID readings).

Soil samples were delivered to TestAmerica, Inc., in Pleasanton, California, and placed "on hold" until soil vapor analytical results were available for review. Prior to selecting soil samples for analysis, corresponding field observations (i.e., visual staining and/or elevated PID readings) and soil gas sample analytical results were reviewed. Soil samples were selected for analysis if the following criteria were met:

- Corresponding soil gas sample analytical results exceeded respective screening levels; and
- Field observations noted at the soil sample collection depth recorded elevated PID readings and/or visual staining.

Soil samples were analyzed for volatile organic compounds and TPH-G using United States Environmental Protection Agency (USEPA) Method 8260B. Soil sampling results are presented in Table 3 and corresponding laboratory analytical reports are provided in Appendix D.

## *2.4 SOIL VAPOR SAMPLE COLLECTION AND ANALYSIS*

Soil vapor sampling was conducted as outlined in the *Site Investigation Workplan* (ERM 2016b) and the *Proposed Addendum to 12 August Workplan* Email Correspondence (ERM 2016c); vapor sampling was not conducted during or up to 5 days after a significant rain or storm event, consistent with the *DTSC Advisory – Active Soil Gas Investigations* (Advisory; DTSC et al. 2015).

Prior to purging and sampling at each location, a shut-in test was performed to ensure ambient air was not introduced through leaks in the sampling train. If there was any observable loss of vacuum, the fittings were adjusted, as needed, until the vacuum did not change noticeably.

Once the shut-in test was completed and leaks were not present in the sampling train, the soil vapor probe was purged of stagnant air. In an effort to avoid over-purging, for the shallow soil vapor probes installed at approximately 5 feet bngs, a purge volume test was not conducted. Instead, a default of three purge volumes was removed prior to sampling.

Immediately preceding sample collection, helium shroud leak testing was conducted. A helium tracer gas was used to test for leaks around the probe at the ground surface and in the sampling system at all locations. The shroud was filled with helium until the concentration was at least 20 percent by volume, or 200,000 parts per million by volume.

Following purging and leak testing, soil vapor samples were attempted to be collected into 1-liter, stainless-steel Summa™ canisters at flow rates of approximately 100 to 200 milliliters per minute.

During collection of initial soil vapor samples, ERM staff encountered small amounts of moisture within the vapor probe tubing. To accommodate these conditions, ERM purged each probe of moisture and adapted the sample collection approach to incorporate guidance-based (Advisory; DTSC et al. 2015) low-flow techniques (<100 milliliters per minute), thereby eliminating moisture drawn into the sampling apparatus and preventing abandonment of the temporary soil vapor probes.

The samples were delivered to Eurofins-Air Toxics, Inc., in Folsom, California, for analysis of BTEX using USEPA Method TO-15, TPH-G using USEPA Method TO-3 Modified, and helium using Modified ASTM International D-1946.

Soil vapor sampling results are presented in Table 2 and soil vapor laboratory analytical reports are provided in Appendix E.

## *2.5 INVESTIGATION-DERIVED WASTE*

Prior to soil vapor probe installation, all drilling equipment, downhole drilling tools, and sampling devices were decontaminated consistent with the *Site Investigation Workplan* (ERM 2016b). Decontamination rinsate and groundwater generated from investigation activities is temporarily stored on site in one 55-gallon steel drum. Soil cuttings generated during investigation activities are temporarily stored on site in one 55-gallon steel drum. The water and soil will be profiled consistent with DTSC requirements and will be disposed at a licensed disposal facility.

## *3.0 INVESTIGATION RESULTS*

Section 3.0 summarizes the results of soil vapor investigation performed between 28 November and 22 December 2016.

## *3.1 SOIL VAPOR RESULTS*

Soil vapor sample analytical results are presented in Table 2, along with applicable screening concentrations. As outlined in the *Site Investigation Workplan* (ERM 2016b), the screening concentrations used for this analysis are environmental screening levels based on *Environmental Screening Levels and User's Guide: Derivation and Application of Environmental Screening Levels. Interim Final.* (Regional Water Quality Control Board, San Francisco Bay Region, 2016).

Nine soil vapor sample locations contained BTEX concentrations that exceeded the Future Residential Screening Level (FRSL) and Future Commercial Screening Level (FCSL). Six soil vapor sample locations contained TPH-G concentrations that exceeded the corresponding FRSL and two soil vapor sample locations contained TPH-G concentrations that exceeded the corresponding FCSL. The screening levels are conservative values because they are based on default soil vapor attenuation factors that do not consider site-specific attributes (such as depth of sample, soil moisture, or biodegradation).

Locations of constituents exceeding either residential or commercial screening levels are noted on Figure 2. In general, the results are as follows:

- Benzene was detected in nine of 10 locations at concentrations greater than the FRSL of 0.048 micrograms per liter (µg/L) and the FCSL of 0.42 µg/L. The maximum detected benzene concentration was 190 µg/L (W-03 and W-10).
- Ethylbenzene was detected in seven of 10 samples at concentrations greater than the FRSL of 0.56 µg/L and in three of 10 samples at concentrations greater than the FCSL of 4.9 µg/L. The maximum detected ethylbenzene concentration was 20 µg/L (W-03).
- Toluene was not detected at concentrations greater than either the FRSL of 156 µg/L or the FCSL of 1,314 µg/L in any of the 10 samples collected.

- Xylenes were not detected at concentrations greater than either the FRSL of 52 µg/L or the FCSL of 438 µg/L in any of the 10 samples collected.
- TPH-G was detected in six of 10 samples at concentrations greater than the FRSL of 297 µg/L and in two of 10 samples at concentrations greater than the FCSL of 2,497 µg/L. The maximum detected TPH-G concentration was 16,000 µg/L (W-03).

Oxygen was detected in all samples collected with a minimum concentration of 10 percent and a maximum concentration of 20.9 percent (Appendix C). Petroleum hydrocarbons are readily biodegraded and attenuated in the presence of oxygen (USEPA 2015). These oxygen concentrations indicate conditions facilitating biodegradation (State Water Resources Control Board 2012; USEPA 2015). However, due to the presence of competent shallow clays at the site natural attenuating conditions are likely limited in nature.

Ambient air sample concentrations reported were all nondetect for BTEX and TPH-G. Ambient air sample analytical results are included in Table 2.

The following nine sample locations included constituents exceeding commercial screening levels: W-01, W-03, W-04, W-05, W-06, W-07, W-08, W-09, and W-10. All of these exceedances were within the shallow sample depth location (3 to 7 feet bngs). In general, these soil gas results reflect lower concentrations and/or are within the same order of magnitude as the soil gas results reported in the AEI Phase II Report (AEI 2014).

## *3.2 SOIL RESULTS*

Soil sample analytical results are presented in Table 3, along with applicable screening concentrations. The screening concentrations used for this analysis are environmental screening levels based on *Environmental Screening Levels and User's Guide: Derivation and Application of Environmental Screening Levels. Interim Final.* (Regional Water Quality Control Board, San Francisco Bay Region, 2016).

As described in Section 2.3, soil samples were collected at depth intervals directly beneath native ground surface and immediately above groundwater at each soil vapor probe location. Of the twenty soil samples collected, ten samples were selected for analysis based on the following criteria:

- Corresponding soil gas sample analytical results exceeded respective screening levels; and
- Field observations noted at the soil sample collection depth recorded elevated PID readings and/or visual staining.

Due to the soil sample selection screening process, all soil samples were frozen until preparation for analysis and were therefore analyzed outside of method prescribed holding times for all analysis. Because all of the samples remained frozen until preparation for analysis, all results are considered estimated and have been qualified accordingly. Additional detail regarding data qualifiers is provided in Section 3.3.

Eight soil sample locations contained BTEX concentrations that exceeded either the Soil Tier 1 Environmental Screening Levels (Tier 1 ESL), Leaching to Groundwater Levels – Nondrinking water (LGL) and/or Direct Exposure to Human Health Risk Levels – Residential Shallow Soil Exposure (RSSE). Six soil sample locations contained TPH-G concentrations that exceeded the corresponding Tier 1 ESL and three soil sample locations contained TPH-G concentrations that exceeded the corresponding RSSE. The screening levels are conservative values which consider several exposure scenarios, land or groundwater use, and other site characteristics.

Locations of constituents exceeding the Tier 1 ESL, the LGL, or the RSSE are noted on Figure 3. In general, the results are as follows:

- Benzene was detected in seven of 10 locations at concentrations greater than the Tier 1 ESL of 0.044 milligrams per kilogram (mg/kg), the LGL of 0.049 mg/kg and the RSSE of 0.23 mg/kg. The maximum detected benzene concentration was 8 mg/kg (W-10) at 5.5 feet bngs.
- Ethylbenzene was detected in six of 10 samples at concentrations greater than the Tier 1 ESL of 1.40 mg/kg, LGL of 1.40 mg/kg and the RSSE of 5.10 mg/kg. The maximum detected ethylbenzene concentration was 20 mg/kg (W-03) at 8 feet bngs.
- Toluene was not detected at concentrations greater than either the Tier 1 ESL of 2.90 mg/kg, the LGL of 9.30 mg/kg or the RSSE of 970 mg/kg in any of the 10 samples collected.
- Xylenes were detected in six of 10 samples at concentrations greater than the Tier 1 ESL of 2.3 mg/kg and the LGL of 11 mg/kg. Xylenes were not detected at concentrations greater than the RSSE of 560

mg/kg. The maximum detected xylenes concentration was 66 mg/kg (W-03) at 8 feet bngs.

- TPH-G was detected in six of 10 samples at concentrations greater than the Tier 1 ESL of 100 mg/kg. TPH-G was detected in three of 10 samples at concentrations greater than the RSSE of 740 mg/kg. TPH-G was not detected at concentrations greater than the LGL of 3,400 mg/kg. The maximum detected TPH-G concentration was 1,200 mg/kg (W-03) at 8 feet bngs.

The following eight sample locations included constituents exceeding Tier 1 ESLs: W-03-8, W-04-7, W-05-4.5, W-06-4.5, W-07-5, W-08-5, W-09-4, and W-10-5.5. All of these exceedances occur beneath native ground surface and immediately above groundwater at each soil vapor probe location (4.5 to 8 feet bngs).

The corresponding soil laboratory analytical reports are included in Appendix D.

## *3.3 DATA VALIDATION*

The quality of the data was assessed and any necessary qualifiers were applied following the USEPA *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review,* September 2016.

The field quality assurance/quality control soil vapor samples included one field duplicate soil vapor sample collected simultaneously with its corresponding primary soil vapor sample using a T-splitter. In addition, one 8-hour, time-integrated, ambient air sample was collected along with equipment blanks to evaluate background contribution from ambient air, the sampling train and the sampling tubing.

The laboratory also analyzed surrogate spike samples, method blank samples, laboratory control samples, and laboratory control sample duplicates, and performed continuous calibration verification to provide internal quality control for both soil vapor and soil analysis.

All of the data can be used for decision-making purposes. The results of the quality assurance/quality control review for this data set are presented in Appendix F.

## *4.0 CONCLUSION*

The soil vapor investigation was completed between 28 November and 22 December 2016. Soil and soil vapor samples were successfully collected from all 10 temporary soil vapor probe locations.

The goal of this investigation was to obtain soil vapor data to confirm whether conditions at the former UST area of the site meet acceptable risk thresholds for TPH-G and BTEX. Nine soil vapor sample locations contained BTEX concentrations that exceeded the FRSL and FCSL. Six soil vapor sample locations contained TPH-G concentrations that exceeded the corresponding FRSL and two soil vapor sample locations contained TPH-G concentrations that exceeded the corresponding FCSL. Eight soil sample locations contained BTEX concentrations that exceeded either the Tier 1 ESL, the LGL and/or the RSSE. Six soil sample locations contained TPH-G concentrations that exceeded the corresponding Tier 1 ESL and three soil sample locations contained TPH-G concentrations that exceeded the corresponding RSSE. Under these conditions, observed chemical concentrations at the site do not meet unrestricted residential or commercial acceptable risk thresholds.

Evaluation of remedial approaches that may be considered to address the observed conditions at the site is recommended as the next step toward site re-closure.

Darling will upload relevant information to GeoTracker upon County approval of this *Soil Vapor Investigation Summary Report*.

## *5.0 REFERENCES*


AEI Consultants. 2014. *Phase II Subsurface Investigation, 2592 Lakeville Highway, Petaluma, California.* 2 September.

County of Sonoma, Department of Health Services. 2016. *Site Evaluation Work Plan Submittal (Revised) at 2592 Lakeville Highway, Petaluma, CA, EHS Site #00001359; SFBRWQCB #49-0142.* Email to Darling International. Inc. 16 August.

Department of Toxic Substances Control (DTSC). 2011. *Final Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air.* October.

DTSC, Los Angeles Regional Water Quality Control Board, and San Francisco Regional Water Quality Control Board. 2015. *Advisory – Active Soil Gas Investigations*

ERM-West, Inc. (ERM). 2016a. *Site Evaluation and Work Plan, 2592 Lakeville Highway, Petaluma, California, EHS Site #00001359, SFBRWQCB #49-0142.* April.

ERM. 2016b. *Site Investigation Workplan. 2592 Lakeville Highway, Petaluma, California, EHS Site #00001359, SFBRWQCB #49-0142.*August.

ERM. 2016c. *Proposed Addendum to 12 August Workplan.* Email to County of Sonoma Department of Health Services. 14 November.

MFG, Inc. 2002. *Soil Remediation Report, Former Royal Tallow and Soap Facility, 2592 Lakeville, Highway, Petaluma, California*. Prepared for Darling International, Inc., MFG Project No. 030070.1. October 31.

Regional Water Quality Control Board, San Francisco Bay Region. 2016. *Environmental Screening Levels and User's Guide: Derivation and Application of Environmental Screening Levels. Interim Final.* February.

State Water Resources Control Board (SWRCB). 2012. *Leaking Underground Fuel Tank Guidance Manual*. September.

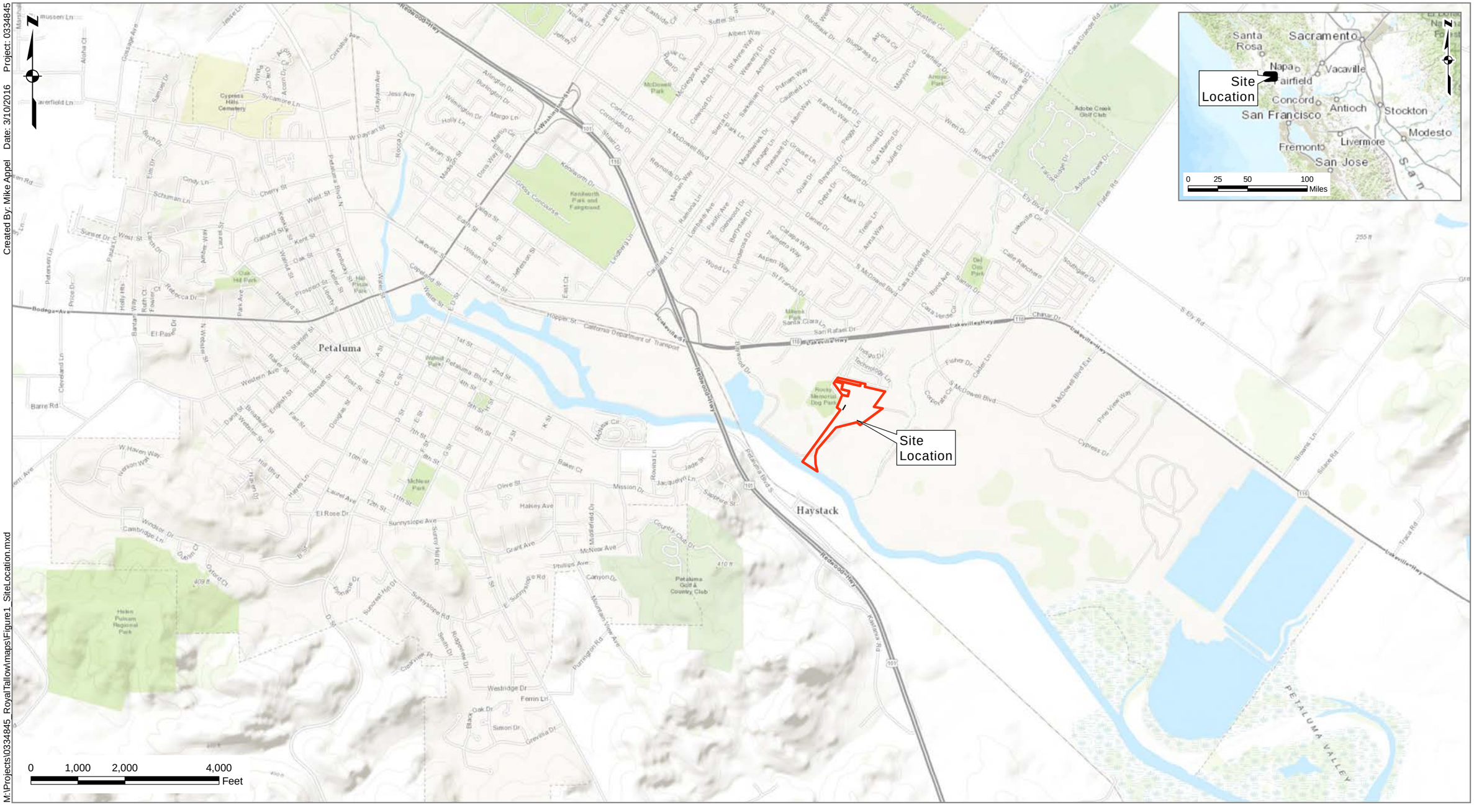
USEPA. 2015. *Technical Guide For Addressing Petroleum Vapor Intrusion At Leaking Underground Storage Tank Sites.* June.

USEPA. 2016. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. September.

*Figures*

Created By: Mike Appel Date: 3/10/2016 Project: 0334845

M:\Projects\0334845_RoyalTallow\maps\Figure1_SiteLocation.mxd




**Legend**

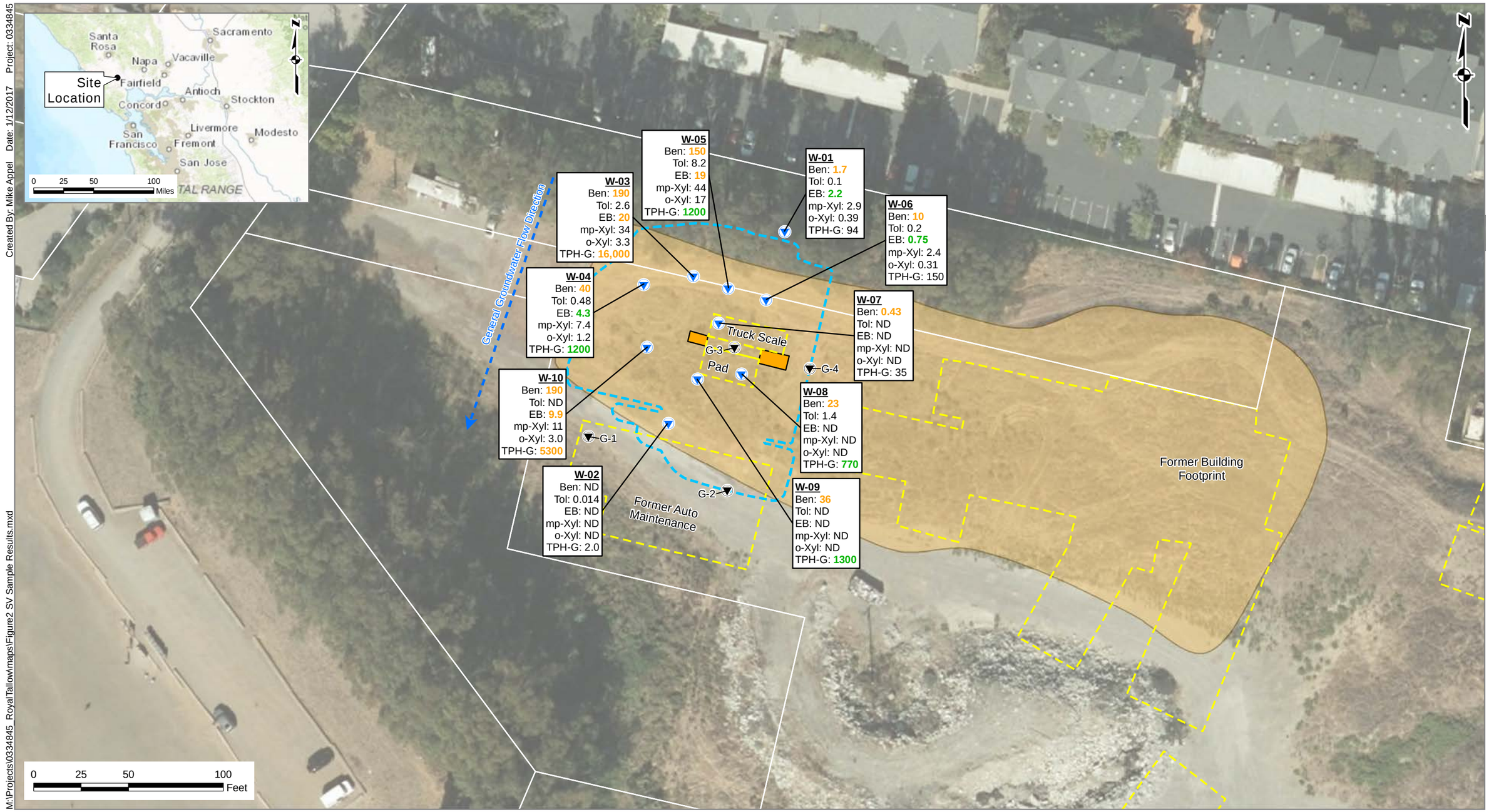
Subject Property

**Figure 1**
*Site Location*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

Source: ESRI World Topography Webservice NAD 1983 StatePlane California II FIPS 0402 Feet

Project: 0334845
Date: 1/12/2017
Created By: Mike Appel




M:\Projects\0334845_RoyalTallow\maps\Figure2 SV Sample Results.mxd

## Legend

- Soil Vapor Sample Location (2016)
- AEI Soil Vapor Sample Location (2014) Proximate to the Former USTs
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation
- Parcel Boundaries

Notes:
All historical locations approximate. Taken from historical locations figures.
Orange concentrations exceed both the residental and commercial screening levels.
Green concentrations exceed the residental screening levels.
ND = Analyte Not Detected
All results in micrograms per liter (µg/L).

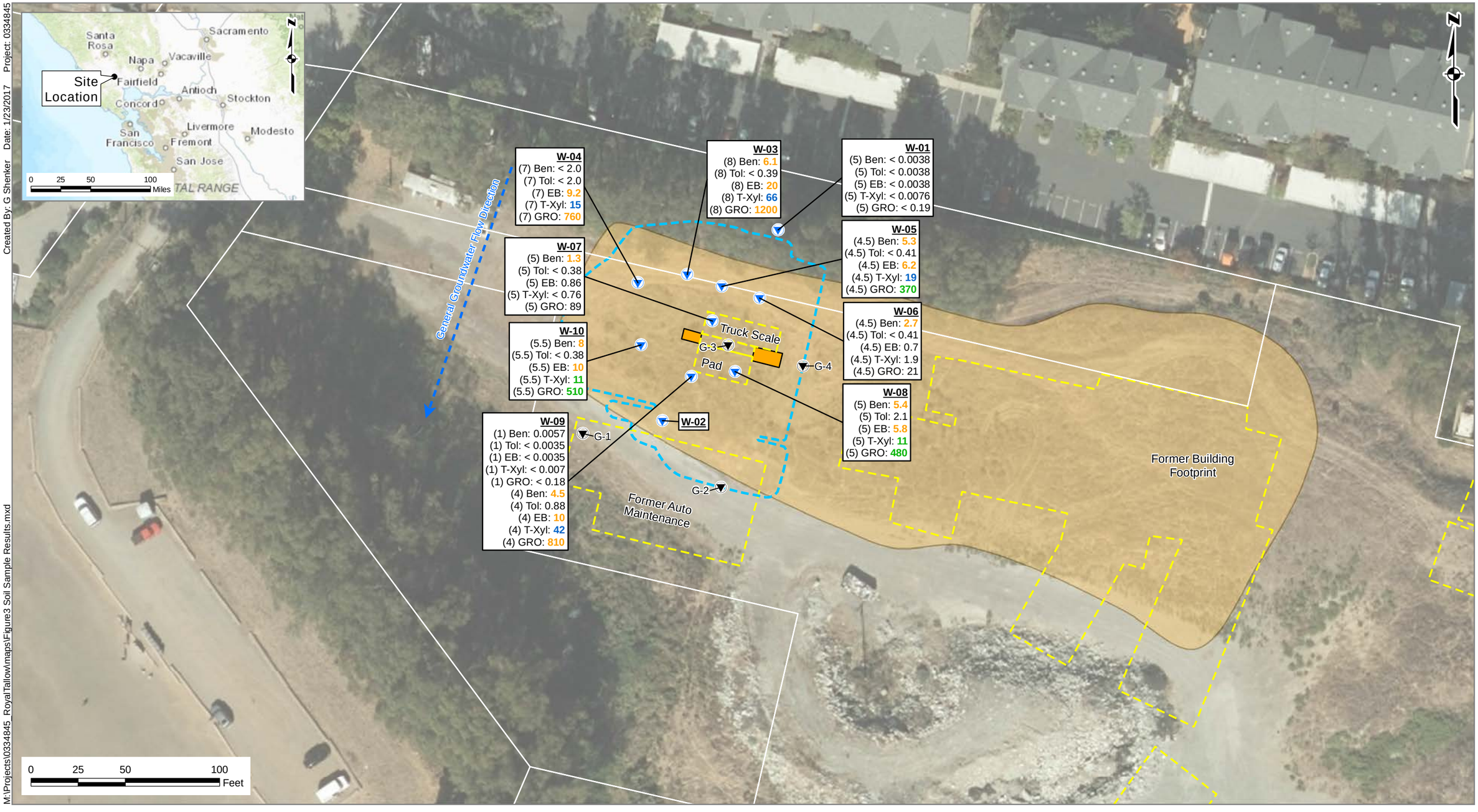
Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

**Figure 2**
*Soil Vapor Sample Results*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

Created By: G Shenker Date: 1/23/2017 Project: 0334845

M:\Projects\0334845_RoyalTallow\maps\Figure3 Soil Sample Results.mxd




## Legend

- Soil Sample Location (2016)
- AEI Soil Vapor Sample Location (2014) Proximate to the Former USTs
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation
- Parcel Boundaries

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

Notes:
All historical locations approximate. Taken from historical locations figures.
**Orange** concentrations exceed Direct Exposure to Human Health Risk Levels - Residential Shallow Soil Exposures.
**Blue** concentrations exceed Leaching to Groundwater Levels - Nondrinking water
**Green** concentrations exceed Soil Tier 1 ESLs.
All results in micrograms per kilogram (mg/kg).

(Depth in ft bngs) Analyte: W-01 (Location ID) / (5) Ben: < 0.0038 (Concentration)

**Figure 3**
*Soil Sample Results*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com
ERM

*Tables*

*Table 1*
*Summary of Soil Vapor Probe Construction Details*
*Darling Ingredients*
*Petaluma, California*

| Well Name | Date Installed/ Modified | Casing Diameter (in.) | Total Casing Depth (feet bgs) | Vapor Probe Depth (feet bngs) | Screen Depth (feet bngs) |
|---|---|---|---|---|---|
| W-01 | 11/28/2016 | 2.25 | 6.0 | 2.25 | 1.75 to 2.75 |
| W-02 | 11/28/2016 | 2.25 | 12.0 | 6.0 | 5.5 to 6.5 |
| W-03 | 11/28/2016 | 2.25 | 28.0 | 6.0 | 5.5 to 6.5 |
| W-04 | 11/28/2016 | 2.25 | 20.0 | 6.5 | 6 to 7 |
| W-05 | 11/29/2016 | 2.25 | 24.0 | 4.5 | 4 to 5 |
| W-06 | 11/29/2016 | 2.25 | 20.0 | 4.5 | 4 to 5 |
| W-07 | 11/29/2016 | 2.25 | 20.0 | 5.0 | 4.5 to 5.5 |
| W-08 | 11/29/2016 | 2.25 | 20.0 | 5.0 | 4.5 to 5.5 |
| W-09 | 11/30/2016 | 2.25 | 20.0 | 3.5 | 3 to 4 |
| W-10 | 11/30/2016 | 2.25 | 20.0 | 4.0 | 3.5 to 4.5 |

**Key:**
bgs = Below ground surface
bngs = Below native ground surface
in. = Inches
msl = Above mean sea level

*Table 2*
*Soil Vapor Analytical Results*
*Soil Vapor Investigation*
*Darling Ingredients*
*Petaluma, California*

| Sample ID | Date | Feet Below Native Ground Surface (ft-bngs)[b] | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | m,p- Xylene (µg/L) | o-Xylene (µg/L) | TPH-G (µg/L) | Helium (%) |
|---|---|---|---|---|---|---|---|---|---|
| | | | USEPA TO-15 | | | | | Modified USEPA TO-3 GC/FID | Modified ASTM International D-1946 |
| **Future Residential Screening Level (µg/L)[a]** | | | **0.048** | **156** | **0.56** | **52** | **52** | **297** | **NS** |
| **Future Commercial Screening Level (µg/L)[a]** | | | **0.42** | **1314** | **4.9** | **438** | **438** | **2497** | **NS** |
| W-01-12012016-GS | 12/12/2016 | 2.25 | 1.7 | 0.1 | 2.2 | 2.9 | 0.39 | 94 | 0.44 |
| W-02-12222016-GS | 12/22/2016 | 6.0 | < 0.011 | 0.014 | < 0.014 | < 0.014 | < 0.014 | 2 NJ | < 0.34 |
| W-03-12052016-GS | 12/5/2016 | 6.0 | 190 | 2.6 | 20 | 34 | 3.3 | 16000 J | 0.18 |
| W-04-12062016-GS | 12/6/2016 | 6.5 | 40 | 0.48 | 4.3 | 7.4 | 1.2 | 1200 J | < 0.22 |
| W-05-12052016-GS | 12/5/2016 | 4.5 | 150 | 8.2 | 19 | 44 | 17 | 1200 J | < 0.12 |
| W-06-12052016-GS | 12/5/2016 | 4.5 | 10 | 0.2 | 0.75 | 2.4 | 0.31 | 150 | < 0.13 |
| W-06D-12052016-GS | 12/5/2016 | 4.5 | 13 | 0.25 | 0.86 | 2.6 | 0.37 | 180 | < 0.13 |
| W-07-12212016-GS | 12/21/2016 | 5.0 | 0.43 | < 0.17 | < 0.2 | < 0.2 | < 0.2 | 35 NJ | < 0.23 |
| W-08-12212016-GS | 12/21/2016 | 5.0 | 23 | 1.4 | < 1.1 | < 1.1 | < 1.1 | 770 NJ | 0.42 |
| W-09-12212016-GS | 12/21/2016 | 3.5 | 36 | < 1.6 | < 1.9 | < 1.9 | < 1.9 | 1300 NJ | < 0.22 |
| W-10-12062016-GS | 12/6/2016 | 4.5 | 190 | < 0.93 | 9.9 | 11 | 3.0 | 5300 J | 0.3 |
| ST-01-12062016-GS | 12/6/2016 | -- | < 0.0038 | < 0.0044 | < 0.0051 | < 0.0051 | < 0.0051 | NA | < 0.12 |
| TB-01-12062016-GS | 12/6/2016 | -- | < 0.0039 | < 0.0046 | < 0.0053 | < 0.0053 | < 0.0053 | < 0.50 | < 0.12 |
| AA-01-12062016-GS | 12/6/2016 | -- | < 0.0025 | < 0.0029 | < 0.0034 | < 0.0034 | < 0.0034 | < 0.32 | < 0.078 |

**Notes:**
< = Not detected above laboratory reporting limit.

[a]As per *RWQCB Environmental Screening Levels and User's Guide: Derivation and Application of Environmental Screening Levels* (RWQCB 2016), screening levels are based on RWQCB Subslab/Soil Gas Vapor Intrusion: Human Health Risk Levels.

[b]ft-bngs is necessary because several soil vapor probes were drilled through stockpiles and their additional height is not representative of where soil vapor probes were placed in the ground.

**Qualifiers:**

J = Estimated value. These results for TPH were instead calculated based on a single point calibration performed on 7 December 2016.

NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern.

= Detection above residential screening level
= Detection above both residential and commercial screening levels

**Abbreviations:**
µg/L = Micrograms per liter of air
DTSC = Department of Toxic Substances Control
NA = Not analyzed
NS = No standard
RWQCB = Regional Water Quality Control Board
TPH-G = Total petroleum hydrocarbons as gasoline
USEPA = United States Environmental Protection Agency

*Table 3*
*Soil Analytical Results*
*Soil Vapor Investigation*
*Darling Ingredients*
*Petaluma, California*

| Sample ID | Date | Feet Below Native Ground Surface (ft-bngs)[b] | PID Reading | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | GRO (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| | | | | USEPA 8260B | | | | USEPA 8260B |
| **Soil Tier 1 ESL (mg/kg)** | | | | 0.044 | 2.90 | 1.40 | 2.3 | 100 |
| **Leaching to Groundwater Levels - Nondrinking water (mg/kg)** | | | | 0.049 | 9.30 | 1.4 | 11 | 3400 |
| **Direct Exposure to Human Health Risk Levels - Residential Shallow Soil Exposure (mg/kg)** | | | | 0.23 | 970 | 5.10 | 560 | 740 |
| W-01 | 11/28/2016 | 1.0 | 84 ppb | NA | NA | NA | NA | NA |
| W-01 | 11/28/2016 | 5.0 | 621 ppb | < 0.0038 | < 0.0038 | < 0.0038 | < 0.0076 | < 0.19 |
| W-02 | 11/28/2016 | 1.0 | 28 ppb | NA | NA | NA | NA | NA |
| W-02 | 11/28/2016 | 7.0 | 192 ppm | NA | NA | NA | NA | NA |
| W-03 | 11/28/2016 | 0.0 | 51 ppb | NA | NA | NA | NA | NA |
| W-03 | 11/28/2016 | 8.0 | 297 ppm | 6.1 | < 0.39 | 20 | 66 | 1200 |
| W-04 | 11/28/2016 | 1.0 | 4687 ppb | NA | NA | NA | NA | NA |
| W-04 | 11/28/2016 | 7.0 | 401 ppm | < 2.0 | < 2.0 | 9.2 | 15 | 760 |
| W-05 | 11/29/2016 | 0.5 | 1412 ppb | NA | NA | NA | NA | NA |
| W-05 | 11/29/2016 | 4.5 | 423 ppm | 5.3 | < 0.41 | 6.2 | 19 | 370 |
| W-06 | 11/29/2016 | 0.5 | 787 ppb | NA | NA | NA | NA | NA |
| W-06 | 11/29/2016 | 4.5 | 107 ppm | 2.7 | < 0.41 | 0.7 | 1.9 | 21 |
| W-07 | 11/29/2016 | 0.0 | 498 ppb | NA | NA | NA | NA | NA |
| W-07 | 11/29/2016 | 5.0 | 180 ppm | 1.3 | < 0.38 | 0.86 | < 0.76 | 89 |
| W-08 | 11/29/2016 | 0.0 | 202 ppb | NA | NA | NA | NA | NA |
| W-08 | 11/29/2016 | 5.0 | 427 ppm | 5.4 | 2.1 | 5.8 | 11 | 480 |
| W-09 | 11/30/2016 | 1.0 | 13 ppm | 0.0057 | < 0.0035 | < 0.0035 | < 0.007 | < 0.18 |
| W-09 | 11/30/2016 | 4.0 | 409 ppm | 4.5 | 0.88 | 10 | 42 | 810 |
| W-10 | 11/30/2016 | 0.5 | 2479 ppb | NA | NA | NA | NA | NA |
| W-10 | 11/30/2016 | 5.5 | 79.5 ppm | 8 | < 0.38 | 10 | 11 | 510 |

**Notes:**

< = Not detected above laboratory reporting limit.

[a]As per RWQCB Environmental Screening Levels and User's Guide: Derivation and Application of Environmental Screening Levels (RWQCB 2016), screening levels are based on RWQCB Direct Exposure Human Health Risk Levels - Residential Shallow Soil Exposure Scenario, Leaching to Groundwater Levels under "non-drinking water" classification and Tier 1 ESLs.

[b]ft-bngs is necessary because several soil borings were drilled through stockpiles and their additional height is not representative of where the soil samples were collected.

= Detection above Soil Tier 1 ESL
= Detection above Leaching to Groundwater Levels - Nondrinking water
= Detection above Direct Exposure to Human Health Risk Levels - Residential Shallow Soil Exposure

ERM Qualifiers:
J = Detected sample result qualified as estimated.
UJ = Nondetected sample result qualified as estimated.

**Abbreviations:**
ESL = Environmental Screening Level
ft-bngs = Feet below native ground surface
GRO = Gasoline range organics
mg/kg = Milligram per kilogram
NA = Not analyzed
ppb = Parts per billion
ppm = Parts per million
RWQCB = Regional Water Quality Control Board
USEPA = United States Environmental Protection Agency

*Appendix A*
*Permits*

DEPT. OF HEALTH SVCS

NOV 17 2016

ENVIRONMENTAL HEALTH & SAFETY

gm

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment/LOP Lead

*For Office Use Only*
Amount Paid exempt
Receipt Number _____ PE 1425
Payment Date _____ Rev. Code _____
Site ID# PR0013706 / FA0003178
Permit # SR0013971

**Permit Type:**

☒ Monitoring Well ☐ Borings ☐ Destruct ☐ Environmental Assessment

**Well Type:** ☐ Remediation Well ☐ Extraction Well ☒ Soil Vapor
☐ Other _____

# On-Site Well 10 ID # W-1 through W-10 # Off-Site Well 0 ID # _____

# On-Site Boring 0 ID # _____ # Off-Site Boring 0 ID # _____

**Submit legal right-of-entry/off-site well address/encroachment permit**

Site Address 2592 Lakeville Highway Petaluma, California AP# 005-060-042-000

Facility Name Former Darling International Inc. property

Site Owner Baywood LLC. Phone _____

Street 414 Aviation Blvd. City Santa Rosa State CA Zip 95403

Responsible Party Darling Ingredients Inc. Phone _____

Street 251 O'Conner Ridge Suite 300 City Irving State TX Zip 75038

Consultant Matt Scheeline, P.G. License#/Type 8987 Phone 1-916-924-9378

Street 2525 Natomas Park Dr Suite 350 City Sacramento State CA Zip 95833

License #/Type _____ Email Matt.Scheeline@ERM.com

Drilling Contractor Cascade Drilling, L.P. Phone 916-638-1169

Street 3000 Duluth Street City West Sacramento State CA Zip 95691

C-57 License 938110

Disposal method for soil cuttings Stored in DOT drums, profiled, and disposed of accordingly

Disposal method for development water not applicable

Drilling method Determined by groundwater level. If more than 5 ft below ground surface Direct push. If less than 5 ft hand auger

Method of drill equipment rinsate containment and disposal Stored in DOT drums, profiled, and disposed of accordingly

If destroying a well, abandonment method not applicable

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leach field? ○Yes ◉No
50 feet of any sanitary sewer line? ○Yes ◉No
25 feet of any private sanitary sewer line? ○Yes ◉No

In addition, all monitoring wells must include an ***identification system*** affixed to the interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

***For Office Use Only***

Address _____

_____

Site ID# _____

Permit # _____

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Environmental Health and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by the Department of Health Services, Environmental Health and Safety Section within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

_____ Date 11/18/16

Signature of Well Driller—***no proxies (Wet Signature Required)***

Insurance Carrier Aon Risk Services Southwest, Inc. Expiration Date 11/1/2017

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

---

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by _____ Date 11/17/2016

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ___/___/___

RWQCB/LOP approval _____ Date 11/17/2016



Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party

ERM

2525 Natomas Park Drive
Suite 350
Sacramento, CA 95833

Telephone: +1-916-924-9378
Fax: +1-916-920-9378

www.erm.com

30 August 2018

Mr. Glenn Morelli
625 Fifth Street
Santa Rosa, CA 95404

Reference: 0334845.07

Subject: Well Abandonment Workplan
2592 Lakeville Highway, Petaluma, California
EHS Site #00001359
SFBRWQCB #49-0142

Dear Mr. Morelli:

On behalf of Darling Ingredients Inc. (Darling), ERM-West, Inc. (ERM) has prepared this *Well Abandonment Workplan* (Workplan) to provide details on the abandonment procedures of four groundwater monitoring wells located on the former Royal Tallow property located at 2592 Lakeville Highway in Petaluma, California. The wells discussed in this Workplan include GW-1, GW-2, GW-3, and GW-4 (Figure 1). These wells were verbally approved for abandonment by Sonoma County Department of Health Services (SCDHS) during the joint execution meeting on 14 August 2018; however, appropriate drilling permits will be submitted to SCDHS prior to mobilizing well abandonment activities.

## WELL ABANDONMENT METHODS

In accordance with the requirements of SCDHS and the State of California, wells GW-1, GW-2, GW-3, and GW-4 will be abandoned by overdrilling to the total depth of the borehole.

The work will be performed by a C-57 licensed driller, and appropriate permits will be obtained from SCDHS. Dig tickets will be opened for all locations in advance of work. Well construction details are included in Table 1, and boring logs and well completion reports are included in Appendix A.

### *Abandonment by Overdrilling*

Based on the proposed implementation of Remedial Alternative 3, as presented in the *Feasibility Study/Corrective Action Plan* (ERM 2018), wells GW-1, GW-2, GW-3, and GW-4 will be abandoned by overdrilling prior to relocation of Baywood stockpiles currently staged on top of the remediation area of concern. Each well has a 2-inch casing diameter and total depths of the wells are between 15 and 28 feet below ground surface (Table 1). Boring logs and well completion reports are included in Appendix A.

Each well will be overdrilled to the total depth of the borehole with a diameter greater than that of the original borehole. The borehole will be grouted from the bottom of the borehole to within 0.5 foot of ground surface using a tremie pipe with a neat cement mixture. The borehole will be finished to match the surrounding surface.

**WASTE MANAGEMENT**

Soil cuttings, debris, and any water generated from well abandonment activities will be containerized, profiled, and appropriately managed.

**SCHEDULE**

Work is anticipated to occur in September 2018 and will take up to 1 week to complete.

**REPORTING**

A summary of well abandonment activities will be provided in the forthcoming remedial action summary report.

**CLOSING**

If you have any questions or concerns regarding this *Well Abandonment Workplan*, please do not hesitate to contact Christopher Berg at (916) 769-9050.

Sincerely,

Christopher Berg, P.G.
Project Manager




Mark Ransom, P.E.
Partner-in-Charge

*Figure*




Project: 0334845
Date: 2/28/2018
Created By: Kara Batdorff
M:\Projects\0334845_RoyalTallow\maps\November 2017 GWM Install\Figure1 GW Potentiometric_Feb2018.mxd

**Legend**

- Groundwater Monitoring Well
- Estimated Extent of Imported Fill
- Former Structure
- Locations of Former Underground Storage Tanks (USTs)
- Approximate Extent of Remedial Excavation

Notes:
MSL: Mean Sea Level

Source: Sonoma County Aerial Imagery, flown October 11, 2013 at 6in per pixel, NAD 1983 StatePlane California II FIPS 0402 Feet

**Figure 1**
*Monitoring Well Location Map*
*Well Abandonment Workplan*
*2592 Lakeville Highway*
*Petaluma, California*

Environmental Resources Management
www.erm.com

*Table*

*Table 1*
*Groundwater Monitoring Wells Construction Details*
*Well Abandonment Workplan*
*Darling Ingredients*
*Petaluma, California*

| Well Name | Northing | Easting | Date Installed | Casing Diameter (in.) | Top of Casing Elevation (feet amsl) | Total Casing Depth (feet bgs) | Casing Depth Elevation (feet amsl) | Screen Depth (feet bgs) | Screen Elevation (feet amsl) | Filter Pack Depth (feet bgs) | Filter Pack Elevation (feet amsl) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GW-1 | 1846496.96 | 6387579.97 | 11/16/2017 | 2 | 17.01 | 28.0 | -11.0 | 18 to 28 | -0.99 to -10.99 | 16 to 30 | 1.01 to -12.99 |
| GW-2 | 1846485.57 | 6387489.69 | 11/16/2017 | 2 | 13.11 | 22.0 | -8.9 | 12 to 22 | 1.11 to -8.89 | 10 to 22 | 3.11 to -8.89 |
| GW-3 | 1846456.83 | 6387577.05 | 11/15/2017 | 2 | 15.93 | 24.0 | -8.1 | 14 to 24 | 1.93 to -8.07 | 12 to 25 | 3.93 to -9.07 |
| GW-4 | 1846373.29 | 6387494.11 | 11/15/2017 | 2 | 7.04 | 15.0 | -7.96 | 3.0 to 15 | 4.04 to -7.96 | 2.0 to 15 | 5.04 to -7.96 |

**Key:**
amsl = Above mean sea level
bgs = Below ground surface
in. = Inches

*Appendix A*

*Boring Logs and*
*Well Completion Reports*

**ERM**
2525 Natomas Park Drive, Suite 350
Sacramento, CA 95833
Phone: (916) 924-9378
Fax: (916) 920-9378

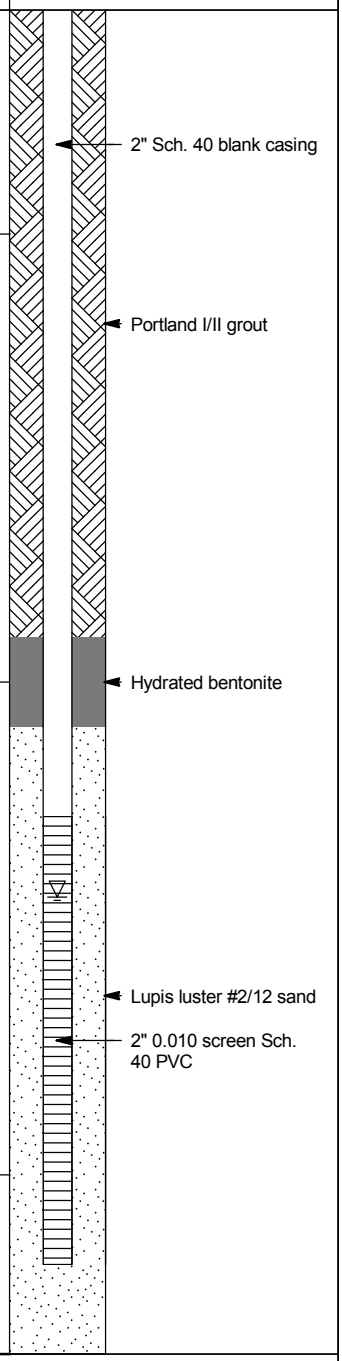
# LOG OF MONITORING WELL: GW-1

Project Number: 0334845
Project Name: Darling Ingredients
Location: Petaluma, California
Contractor: Cascade Drilling
Drilling Method: Hollow Stem Auger
Logged By: D. Reioux
Reviewed By:

Date Started: 11/8/2017
Date Completed: 11/16/2017
Total Depth: 30 feet
Borehole Diameter: 8 inches
Initial Water Level: 19.8 feet bgs
Notes:

| Depth (ft) | Sample Interval | PID (ppm) | USCS Code | GRAPHIC LOG | Soil Descriptions and Observations |
|---|---|---|---|---|---|
| | | | | | First 5' cleared with Air Vac; not logged. |
| 5 | | 0.0 | | | SAND (SW): black (2.5Y 2.5/1), some clay, very fine to coarse, trace gravel, dense, no staining, no odor, moist. |
| 10 | | 0.0 | SW | | Approximate depth (10 feet) of native ground surface (aka base of stockpile). |
| | | 0.0 | | | CLAYEY SAND (SW): black (2.5Y 2.5/1), very fine to medium, medium dense, green staining, slight odor, moist. |
| 15 | | 16.4 | | | CLAY with SAND (CH): greenish gray (GLEY1 5/10Y), very fine to coarse, dense, petroleum odor, moist. |
| | | 55 | | | |
| 20 | | 994 | CH | | CLAY with SAND (CH): dark greenish gray (GLEY1 4/10Y), very fine to fine sand, medium dense, petroleum odor, increased moisture content from above, wet. |
| | | 212 | | | |
| 25 | | | | | Same as above, slight odor. |
| | | 0.0 | | | CLAY with SAND (CL): greenish gray (GLEY1 5/10Y); very fine to fine sand; medium dense; green, black and brown streaks, increasing brown with depth; no odor; moist. |
| | | | CL | | |
| | | 0.0 | | | CLAY with SAND (CL): olive gray (5Y 5/2), very fine to fine sand, dense, black streaks, no odor, moist. |

WELL DIAGRAM




Total Depth - 30 feet bgs



MW TO 30 FT SAC - - 2/14/18 08:19 - Q:\GENERAL\GINT BORING LOGS\0334845-PETALUMA\PETALUMA_DARLING.GPJ

**ERM**
2525 Natomas Park Drive, Suite 350
Sacramento, CA 95833
Phone: (916) 924-9378
Fax: (916) 920-9378

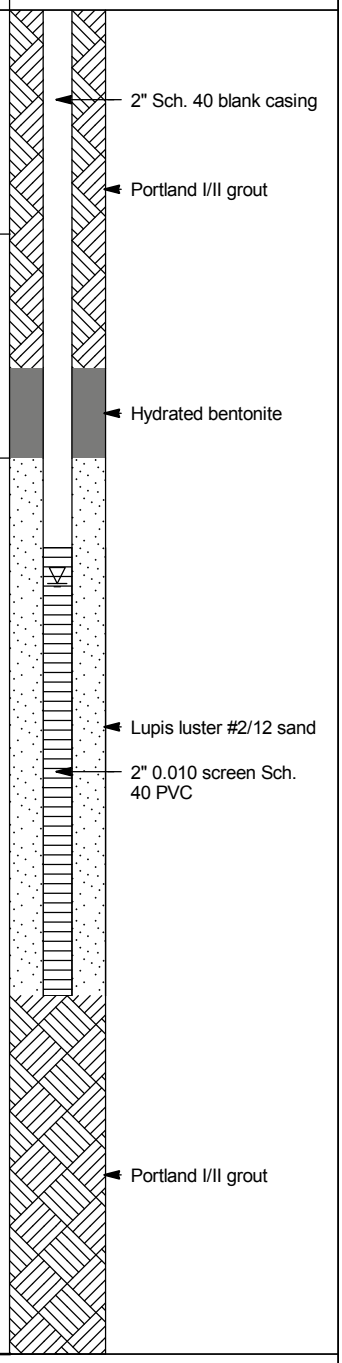
# LOG OF MONITORING WELL: GW-2

Project Number: 0334845
Project Name: Darling Ingredients
Location: Petaluma, California
Contractor: Cascade Drilling
Drilling Method: Hollow Stem Auger
Logged By: D. Reioux
Reviewed By:

Date Started: 11/8/2017
Date Completed: 11/16/2017
Total Depth: 30 feet
Borehole Diameter: 8 inches
Initial Water Level: 12.8 feet bgs
Notes:

| Depth (ft) | Sample Interval | PID (ppm) | USCS Code | GRAPHIC LOG | Soil Descriptions and Observations |
|---|---|---|---|---|---|
| | | | | | Cleared by Air Knife; 0-5' not logged. |
| 5 | | 0.0 | SW | | SAND with CLAY (SW): Black (10YR 2/1), very fine to coarse sand, trace fine gravel, loose, no staining, no odor, moist. |
| 10 | | 1.4 | CH | | SANDY CLAY (CH): very dark gray (10YR 3/1), very fine to fine sand, trace coarse sand, loose, no staining, no odor, moist.<br>Approximate depth (10.5 feet) of native ground surface (aka base of stockpile). |
| | | 314 | | | |
| 15 | | 3826 | | | CLAY (CH): greenish gray (GLEY1 5/10Y), trace sand, very fine sand, medium, green staining, strong odor, moist. |
| 20 | | 2.5 | | | Same as above, petroleum odor. |
| | | | | | CLAY with SAND (CH): grayish brown (10YR 5/2), very fine to medium sand, no staining, no odor, moist. |
| 25 | | | | | |

WELL DIAGRAM




Total Depth - 30 feet bgs



MW TO 30 FT SAC - - 2/14/18 08:19 - Q:\GENERAL\GINT BORING LOGS\0334845-PETALUMA\PETALUMA_DARLING.GPJ

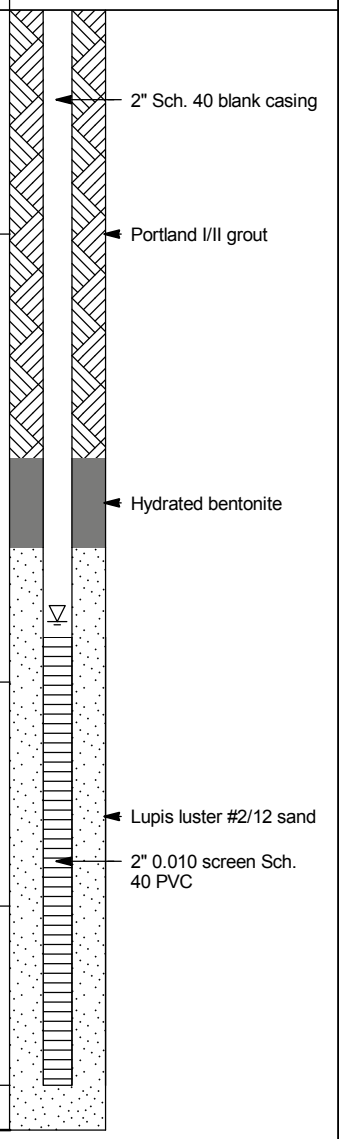
**ERM**
2525 Natomas Park Drive, Suite 350
Sacramento, CA 95833
Phone: (916) 924-9378
Fax: (916) 920-9378

# LOG OF MONITORING WELL: GW-3

Project Number: 0334845
Project Name: Darling Ingredients
Location: Petaluma, California
Contractor: Cascade Drilling
Drilling Method: Hollow Stem Auger
Logged By: D. Reioux
Reviewed By:

Date Started: 11/8/2017
Date Completed: 11/15/2017
Total Depth: 25 feet
Borehole Diameter: 8 inches
Initial Water Level: 13.65 feet bgs
Notes:

| Depth (ft) | Sample Interval | PID (ppm) | USCS Code | GRAPHIC LOG | Soil Descriptions and Observations |
|---|---|---|---|---|---|
| | | | | | Cleared by Air Knife; 0-5' not logged. |
| 5 | | 0.0 | SM | | SANDY SILT (SM): Black (7.5YR 2.5/1), fine to coarse, medium dense, no odor, moist. |
| 10 | | | SM | | SANDY SILT (SM): Black (7.5YR 2.5/1), fine to coarse, medium dense, no odor, moist.<br>Approximate depth (11 feet) of native ground surface (aka base of stockpile). |
| 15 | ⊠ | 1650 | SW | | SILTY SAND (SW): gray (GLEY1 5/N), fine to coarse, medium dense, green staining, strong petroleum odor, moist. |
| 20 | | 667 | SM | | SANDY SILT (SM): greenish gray (GLEY1 5/10Y), fine sand, dense, strong petroleum odor, moist. |
| 25 | ⊠ | 0.0 | SW | | SAND (SW): grayish brown (2.5Y 5/2), trace silt, very fine to coarse, dense, some green staining, grayish brown at 25', no odor, moist.<br>Total Depth - 25 feet bgs |






MW TO 30 FT SAC - - 2/14/18 08:19 - Q:\GENERAL\GINT BORING LOGS\0334845-PETALUMA\PETALUMA_DARLING.GPJ

**ERM**
2525 Natomas Park Drive, Suite 350
Sacramento, CA 95833
Phone: (916) 924-9378
Fax: (916) 920-9378

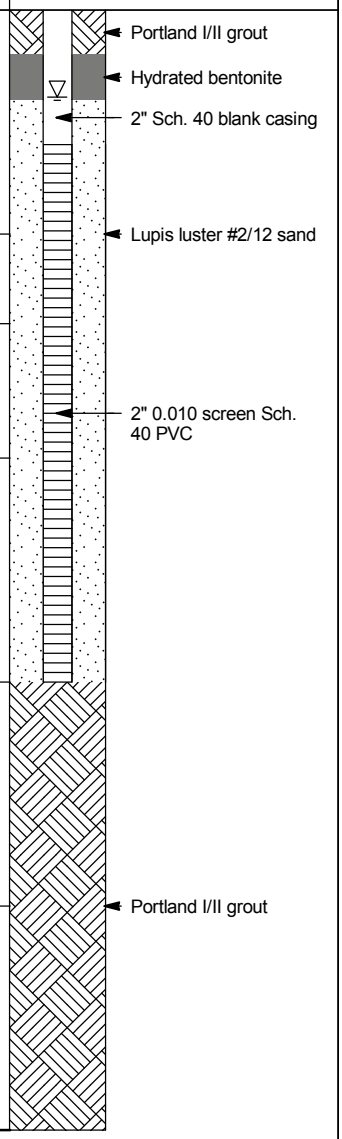
# LOG OF MONITORING WELL: GW-4

Project Number: 0334845
Project Name: Darling Ingredients
Location: Petaluma, California
Contractor: Cascade Drilling
Drilling Method: Hollow Stem Auger
Logged By: D. Reioux
Reviewed By:

Date Started: 11/8/2017
Date Completed: 11/15/2017
Total Depth: 25 feet
Borehole Diameter: 8 inches
Initial Water Level: 1.94 feet bgs
Notes:

| Depth (ft) | Sample Interval | PID (ppm) | USCS Code | GRAPHIC LOG | Soil Descriptions and Observations |
|---|---|---|---|---|---|
| | | | | | No stockpiled material present at this location. Cleared by Air Knife; 0-5' not logged. |
| 5 | | 1.4 | CH | | SANDY CLAY (CH): very dark brown (10YR 2/2), very fine to coarse sand, loose, no staining, no odor, wet. |
| | | 1385 | SM | | SILTY SAND (SM): dark greenish gray (GLEY1 4/10Y), fine to medium sand, dense, green staining, strong odor, moist. |
| 10 | | 15.6 | SW | | SAND with SILT (SW): dark greenish gray (GLEY1 4/10Y), fine to medium sand, medium dense, green staining, strong odor, wet. |
| 15 | | 0.7 | CL | | CLAY with SAND (CL): greenish gray (GLEY1 5/10Y), very fine to fine sand, loose, green staining, no odor, wet. |
| 20 | | 0.0 | CH | | CLAY (CH): greenish gray (GLEY1 5/10Y), dense, green staining, no odor, moist. |
| 25 | | 0.0 | | | CLAY with SAND (CL): greenish gray (GLEY1 5/10Y), very fine to fine sand, dense, green staining, no odor, moist. |
| | | | | | Total Depth - 25 feet bgs |

WELL DIAGRAM



# PERMIT RECORD

**STREET ADDRESS:** D. Casa Grande - AKA 2041 Lakeville Hwy

**COUNTY ASSESSOR'S PARCEL NUMBER**

| LOT | SUBDIV. | ZONING DIST. | FIRE ZONE | OCCUP. | OTHER: Royal Tallow |
|---|---|---|---|---|---|
| | | | | | |

| TYPE OF PERMIT | PERMIT NO. | PLAN NO. | DATE ISSUED | OTHER | REMARKS |
|---|---|---|---|---|---|
| | 20080385 | | 4/24/2008 | | GRADING PERMIT |
| | | | | | ADMD |

PERMIT DESIGNATION:

B – BUILDING
P – PLUMBING
T – TRAILER

E – ELECTRICAL

U – USE PERMIT
V - VARIANCE
H - HEATING

HM – HOUSE MOVING

CITY OF PETALUMA
COMMUNITY DEVELOPMENT DEPARTMENT
11 ENGLISH STREET, PETALUMA, CA 94952
(707) 778-4302 Fax (707) 778-4498

# Permit to Perform Work

**Permit Number:** 20080389

**Inspection Request: (707) 778-4479**

**LICENSED CONTRACTORS DECLARATION**
I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.
License No. _____ Class _____ Exp. Date _____

**WORKERS' COMPENSATION DECLARATION**
I hereby affirm under penalty of perjury one of the following declarations:
___ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 7200 of the Labor Code, for the performance of the work for which this permit is issued.
___ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier, policy number and expiration date are:
Carrier: _____ Policy No. _____ Exp. date: _____
___ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions or this permit shall be deemed revoked.

**WARNING: FAILURE TO SECURE WORKERS COMPENSATION COVERAGE IS UNLAWFUL, AN SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL CRIMES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.**

**OWNER-BUILDER DECLARATION**
I hereby affirm under penalty of perjury that I am exempt from the Business and Professions Code Chapter 9, (9.5 and ) for the following reasons:
___ I am owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale.
___ I am owner of the property, and I am currently contracting with licensed contractors to construct the project.
___ I certify that I have read this application and state that the information given is true and correct. I agree to comply with all City ordinances and State laws relating to building construction, and hereby authorize representatives of the City to enter upon the above-mentioned property for inspection purposes at any time, and I make this statement under penalty of law.

**HAZARDOUS MATERIALS**
Hazardous Materials. Indicate if the intended occupancy will use chemicals. Initialing Yes acknowledges that Health & Safety Code Sections 25505, 25534 & 25534 as well as filing directions were made available to you. Yes ____ No ____

**CONSTRUCTION LENDING AGENCY**
I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. Code).
Lender's Name: ____ ____ ____ ____
Lender's Address: ____ ____ ____ ____

I certify that I have read this application and state that the above information is correct. I agree to comply with all City and County ordinances and State laws relating to building construction, and hereby authorize representatives of the City to enter upon the above-mentioned property for inspection purposes. I further agree to save, indemnify and hold harmless the City of Petaluma against liabilities, judgments, costs and expenses, which may accrue against the City in consequence of the granting of this permit. I further agree to pay all expenses including attorney's fees in connection therewith. All work performed by virtue of this permit shall conform to plans and specifications filed by the owner or his/her authorized agent with the City. This permit does not constitute approval of any violation of the above-noted provisions, nor of any State or City ordinance.

Signature: ____ ____ ____ ____ Date: ____

**THIS PERMIT SHALL EXPIRE BY LIMITATION IF AUTHORIZED WORK IS NOT COMMENCED WITHIN 180 DAYS OF ISSUANCE OR IS ABANDONED FOR 180 DAYS OR MORE (PER CALIFORNIA BUILDING CODE AND PETALUMA MUNICIPAL CODE).**

| | |
|---|---|
| **Date Applied:** | 04/21/2008 |
| **Date Issued:** | May 16 2008 12:00AM |
| **Permit Type:** | Building/Building Demolition/NA |
| **Job Address:** | 0 CASA GRANDE RD PETALUMA CA |
| **Parcel No.:** | 006080041, 006080042 |
| **Owner:** | LANDS OF SAYWOOD LLC<br>414 AVIATION BLVD<br>SANTA ROSA, CA 95407<br>578-5344 |
| **Applicant:** | DAVIS, DANIEL O INC<br>1251 TODD RD<br>SANTA ROSA, CA 95407<br>585-1903 |
| **CONTRACTOR:** | DAVIS, DANIEL O INC<br>1251 TODD RD<br>SANTA ROSA, CA 95407<br>585 1903<br>431984 |
| **Valuation: (Contractor)** | $ 100,000.00 |

**Fee Information:**

| Fee Items | # of Each | Amount |
|---|---|---|
| Demolition Permit (enter 1) | 1.00 | $1,446.57 |
| Incidental Records Fee (enter 1) | 1.00 | $619.00 |
| Microfilm - 8.5x11 (each) | 1.00 | $2.50 |
| Microfilm - Lg. Plans / Blue Prints (each) | 2.00 | $8.50 |
| FreePlanCheckFee - Grading (Soil Remediation) (enter 1) | 1.00 | $475.00 |
| Demo Plan Check Fee (enter 1) | 1.00 | $1,446.57 |
| **Total** | | $3,989.14 |

**Payment Information:**

| Date | Receipt No. | Amount |
|---|---|---|
| 04/21/2008 15:56:22 | | $1,446.57 |
| 05/16/2008 11:05:11 | 17829 | $2,542.57 |
| **Total** | | $3,989.14 |

**Description of Work:**
ROYAL TALLOW SITE - AKA 2344 LAKEVILLE & 2505 CASA GRANDE RD. DEMOLISH & REMOVE COMMERCIAL FACILITY BUILDINGS AND ASSOCIATED BUILDINGS DOWN TO CLEAN DIRT. CLEAR PROPERTY OF ANY DEBRIS.

CITY OF PETALUMA
PLANNING/BUILDING
MAY 16 2008

PAID

0 Casa Grande Rd

FILE COPY

131) SPECIAL INSPECTION REQUIRED ☐ YES ☐ NO IF YES, SEE ADDITIONAL SHEET

| INSPECTION RECORD | DATE | NAME | REMARKS |
|---|---|---|---|
| 103) FOUNDATION | | | |
| FORMS/SETBACK | | | |
| FOOTING | | | |
| WALLS | | | |
| 106) UFER GROUND # | | | |
| 104) CAISSONS/PIERS | | | |
| 105) SLAB REINFORCING | | | |
| 107) UNDERGROUND UTILITIES | | | |
| ☐ SEWER ☐ WATER ☐ FIRE | | | |
| 110) MASONRY | | | |
| 109) RETAINING WALLS | | | |
| 120) UNDERSLAB | | | |
| ☐ PLUMBING ☐ ELECTRICAL | | | |
| 115) HYDRONICS | | | |
| 116) U/F ELECTRICAL | | | |
| 117) U/F MECHANICAL | | | |
| 118) U/F PLUMBING | | | |
| 119) U/F FRAMING | | | |
| 139) U/F INSULATION | | | |
| 126) SHEAR WALLS | | | |
| ☐ INTERIOR ☐ EXTERIOR | | | |
| 127) DIAPHRAGMS | | | |
| ☐ ROOF ☐ FLOOR | | | |
| 137) Roofing Progress | | | |
| 134) SIDING/SHEATHING | | | |
| 125) HOLD DOWNS | | | |
| 132) CLOSE-IN | | | |
| 122) ROUGH ELECTRICAL | | | |
| 123) ROUGH MECHANICAL | | | |
| 124) ROUGH PLUMBING | | | |
| 128) ROUGH FRAME | | | |
| 759) FIRE SPRINKLER/CLOSE-IN/HYDRO | | | |
| 139) INSULATION | | | |
| ☐ WALLS ☐ CEILING | | | |
| 142) WALLBOARD | | | |
| 143) FIREWALLS | | | |
| 135) STUCCO/PLASTER | | | |
| ☐ LATH ☐ SCRATCH | | | |
| 130) TUB/SHOWER PAN | | | |
| 164, SUSPENDED CEILING | | | |
| ☐ ROUGH ELEC. ☐ ROUGH MECH. | | | |
| 171) TEMPORARY ELECTRICAL | | | |
| 172) TEMPORARY GAS | | | |
| 174) ELECTRIC METER AUTHORIZATION | | | |
| 175) GAS METER AUTHORIZATION | | | |
| 153) GAS PRESSURE TEST | | | |
| ☐ HOUSE ☐ YARD | | | |
| **SWIMMING POOLS** | | | |
| 194) PRE-GUNITE/POOL PIPING | | | |
| 195) PRE-DECK | | | |
| 196) PRE-PLASTER/FENCE | | | |
| 197) PREFAB/POOL EXCAVATION/PIPING | | | |
| ANTI-ENTRAPMENT COVER | | | |
| ☐ VERIFIED ☐ N/A | | | |
| **FINALS** | | | |
| 102) SIGN FINAL | | | |
| 176) ELECTRICAL FINAL | | | |
| 177) MECHANICAL FINAL | | | |
| 178) PLUMBING FINAL | | | |
| 199) BUILDING FINAL | | | |
| OCCUPANCY (OK TO OCCUPY) | 10-30-09 | | |

| EXTERIOR WILDFIRE CONSTRUCTION | DATE | NAME |
|---|---|---|
| DEFENSIBLE SPACE-(FIRE TO VERIFY) | | |
| CLASS A ROOF | | |
| • VALLEY INTERWOVEN COMP SHINGLE (IF APPLICABLE) | | |
| • METAL FLASHING OVER #72 ASTM GAP SHEET (IF APPLICABLE) | | |
| ROOF GUTTER PROVIDED WITH MEANS TO PREVENT ACCUMULATION | | |
| EAVE AND CORNICE VENTS NOT PERMITTED UNLESS PROVIDED WITH FLAME INTRUSION ASSEMBLY | | |
| NON-COMBUSTIBLE EXTERIOR | | |
| DOUBLE PANE WINDOWS W/ONE TEMPERED PANE | | |
| NON-COMBUSTIBLE OR SOLID CORE EXTERIOR DOOR(S) | | |

FIRE INSPECTION REQUIRED

☐ YES ☐ NO

FOR FIRE INSPECTION CALL 778-4089

| | | |
|---|---|---|
| 772) FUEL TANK/DISPENSOR | | |
| 773) FIRE HYDRANTS/UNDERGROUND | | |
| 770) FIRE SPRINKLER FINAL | | |
| 779) ALARM SYSTEM | | |
| 780) HOOD & DUCT SYSTEM | | |

CLEARANCE/CERTIFICATE OF OCCUPANCY:

FIRE

HEALTH DEPARTMENT

PLANNING

PUBLIC WORKS

WATER

ROLLED PLANS ☐ YES ☐ NO

# CITY OF PETALUMA

POST OFFICE BOX 61
PETALUMA, CA 94953-0061

Pamela Torliatt
*Mayor*

Teresa Barrett
David Glass
Mike Harris
Mike Healy
David Rabbitt
Tiffany Renée
*Councilmembers*

October 28, 2009

Lands of Baywood LLC or Current Owner
414 Aviation Blvd.
Santa Rosa, CA 95407

RE: Address: 0 Casa Grande Road Permit #: 20080389

Dear Sir or Madam,

Our records indicate that an outstanding building permit exists for your property. A review of the permit file verified that the work has not been inspected for over 180 days and per the 2007 California Building Code Sections 106.4.4 and 107.4, the permit has expired. We are giving you this last opportunity to final the following permit(s):

Project: Royal Tallow site – demolition of entire site
Date Issued: 5/16/08
Last Inspected: never

We would like to validate the work performed under the above permit(s). If no work has been performed, and you wish to keep the permit active, please respond **in writing** to request a one-time 180 day extension on the above permit(s). Please call (707) 778-4479 to schedule an inspection, or provide your records to us showing that inspections have been performed and the permit has been finaled. You may do this by:

1) **Mailing a copy of the permit to the Building Division,**
2) **Faxing a copy of the permit to the Building Division at (707) 778-4498,**
3) **Bringing a copy of the permit to the Building Division office at City Hall.**

This letter is formal notification that if we do not hear from you within **10 working days** from the date of this letter, the permit will be expired and become null and void. Our records will indicate that the work was done without a finalized permit, and that no further permits of any kind will be issued until this matter is resolved. Notification of this action will be recorded in our permit tracking system, and is public record. Please contact our office with any questions you may have, as we would like to assist you in this process. When calling this office, please make reference to this letter.

Sincerely,

Edward John Hamer
Chief Building Official
City of Petaluma

*Community Development Department*
*11 English Street*
*Petaluma, CA 94952*
*E-Mail*
*cdd@ci.petaluma.ca.us*

*Building*
*Phone (707) 778-4301*
*Fax (707) 778-4498*
*To Schedule Inspections*
*Phone (707) 778-4479*

*Planning*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

EQUAL HOUSING OPPORTUNITY

S:\BUILDING\BP Expire Letters\Letters sent 2009\Letters sent Oct 28\0 Casa Grande.doc

**CITY OF PETALUMA**
11 English Street
Petaluma, CA 94952
Office: (707) 778-4302 Fax: (707) 778-4498

UM 5/14/08 DF

# CONTRACTOR ONLY PERMIT WORKSHEET

Permit # 20080389

| BUILDING ADDRESS | SUBDIVISION/LOT # | PARCEL # |
|---|---|---|
| ~~2044 Lakeville Hwy~~ Ø Casa Grande Rd | | 005-060-075 |

| OWNER NAME | (H) PHONE | (W) PHONE |
|---|---|---|
| Lands of Baywood, LLC | | 707/578-5344 |

| OWNER MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 414 Aviation Blvd. | Santa Rosa | Ca | 95403 |

| ARCHITECT/DESIGNER | LICENSE NO. | PHONE |
|---|---|---|
| | | |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| | | | |

| ENGINEER | LICENSE NO. | PHONE |
|---|---|---|
| | | |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| | | | |

| CONTRACTOR | LICENSE NO. | PHONE |
|---|---|---|
| Daniel O. Davis Inc. | 431984 | 707/585-1903 |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 1051 Todd Rd | Santa Rosa | Ca | 95407 |

Fund 001-400-0000

| | | | |
|---|---|---|---|
| ☐ BUILDING | ☐ ELECTRICAL | BUILDING | 3321 | 1446.57 |
| ☐ MECHANICAL | ☐ PLUMBING | PLAN CHK | 3322 | 1446.57 |
| ☐ GRADING | ☐ SIGN | | | |
| ☐ BUILDING SURVEY | ☐ MOVE BUILDING | FIRE PLN CK | 3371 | 475.00 |
| ☒ DEMOLITION | ☐ POOL | INCREMENTAL | 3323 | 610.00 |
| ☐ RE-ROOF | ☐ FENCE | CSIP/CSIFO | 3324 | |

| | | | | |
|---|---|---|---|---|
| ☐ NEW | ☐ ADDITION | ENERGY | 3325 | |
| ☐ ALTERATION | ☐ REPAIR | ELECTRICAL | 3326 | |
| ☐ ACCESSORY BLD. | ☐ RESIDENTAL | MECHANICAL | 3327 | |
| ☐ ASF | ☐ DSF | PLUMBING | 3327 | |
| ☐ DUPLEX | ☐ APARTMENT | MICROFILM | 3312 | 12.60 11.00 |
| ☐ CONDO | ☐ COMMERCIAL | MINEN/MINER | 3329 | |

$3,989.14
(1,446.57)

| FLOOR AREA (Sq. ft.) | REMODEL FLOOR AREA (Sq. ft.) | VALUATION | STORIES |
|---|---|---|---|
| 40,940 | | $100,000 | $2,542.57 |
| GARAGE AREA (Sq. ft.) | REMODEL GARAGE AREA (Sq. ft.) | MAX OCC | |
| | | | |
| DECK AREA (Sq. ft.) | REMODEL DECK AREA (Sq. ft.) | GROUP | TYPE |
| | | | |
| BEDROOMS | | CBC 2001 | NEC 1999 |

PROPOSED WORK: Demolish and remove commercial facility buildings and associated buildings to clean dirt. Clear property of misc. debris.

(OVER)

S/Building/Forms Templates/Permit Worksheet Contractor ONLY

CONSTRUCTION LENDING AGENCY. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. (Sec. 3097, Civ. C)

LENDER NAME N/A

MAILING ADDRESS | CITY | STATE | ZIP

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

LICENSE CLASS A, C21 | STATE LICENSE NUMBER 431984 | EXPIRE DATE 12/31/08

**Hazardous Materials:** Indicate if the intended occupancy will use chemicals. Initialing YES acknowledges that H & S Code Sections 25505, 25533 & 25534 as well as filing directions were made available to you.

YES _____ NO X

WORKERS' COMPENSATION DECLARATION I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

__X__ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier Redwood Fire & Casualty

Policy Number: W-7A38098 Exp: 10/1/08

(*This section need not be completed if the permit is for one hundred dollars ($100) or less.)

____ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR COE, INTEREST AND ATTORNEY'S FEES.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building, construction, and hereby authorize representatives of this agency to enter upon the above-mentioned property for inspection purposes. I (we) further agree to save, indemnify and keep harmless the City of Petaluma against liabilities, judgments, costs and expenses which may in any way accrue against said city in consequence of the granting of this permit and will pay all expenses including attorney's fees in connection therewith. All work performed by virtue of this permit must conform to plans and specifications and application filed by the owner or his authorized agent with the Building Inspection Division. This permit does not constitute approval of any violation of the above recited provisions, nor of any state or city ordinance.

Signature X _____

Print Name X Dustin D Davis Date 4-21-08

# CITY OF PETALUMA

POST OFFICE BOX 61
PETALUMA, CA 94953-0061

ENVIRONMENTAL
OCT 2 1 2003

David Glass
*Mayor*

Keith Canevaro
Mike Harris
Mike Healy
Bryant Moynihan
Mike O'Brien
Pamela Torliatt
*Councilmembers*

## NOTICE AND ORDER

Per The Abatement of Dangerous Buildings Ch. 4

January 2, 2003

**To:** Darling Delaware Company, Inc.
251 O'Connor Ridge Blvd., Suite 370
Irving, TX 75038-6525

**REGARDING ADDRESS:** 2592 Lakeville Highway, Petaluma, CA

**LOCATION DESCRIPTION:** The property is located at the west end of Casa Grande Road. Buildings on the property consist of a Single Family Dwelling, an abandoned industrial tallow plant and several outbuildings, such as barns and garages.

**ASSESSOR'S PARCEL NUMBER: 005-060-042**

**DATE OF INSPECTION:** January 31, 2002

**CONDUCTING INSPECTION:** Clifford Kendall, Deputy Chief Building Official

**THE BUILDING OFFICIAL HAS FOUND THE ABOVE BUILDING DANGEROUS AND UNINHABITABLE DUE TO THE BELOW CONDITIONS.**

The above referenced structures are hereby declared dangerous and uninhabitable, as per Uniform Code For The Abatement Of Dangerous Buildings, Chapter 3, Section 302 Item # 15 and #18 for the following reasons:

RECEIVED
MAY 15 2008
BUILDING DIV.

The buildings on the property have been abandoned and because of lack of maintenance and faulty construction have caused dilapidation and deterioration to constitute a public nuisance.

**Determination of Chief Building Official**

FILE COPY

DI007441

*Community Development Department*
*11 English Street*
*Petaluma, CA 94952*
*E-Mail*
*cdd@ci.petaluma.ca.us*

*Code Enforcement*
*Phone (707) 778-4469*
*Fax (707) 778-4498*
*E-Mail*
*codenforcement@ci.petaluma.ca.us*

*Engineering*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

*Inspection Services*
*Phone (707) 778-4301*
*Fax (707) 778-4498*
*To Schedule Inspections:*
*Phone (707) 778-4479*

*Permit*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

*Planning*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

It is my determination as Chief Building Official that the buildings are to be demolished.

Corrective Action To Be Taken

**You must see that the habitants are vacated and permits to demolish all structures on property are obtained and approved by the Building Official within sixty (60) days from the date of the order.**

**If the work is not commenced within the time specified, I will order the building vacated and posted to prevent further occupancy until the work is complete, and may proceed to cause the work to be done and charge the costs thereof against the property or its owner.**

**Any person having any record title or legal interest in the property may appeal from the notice and order or any action of the Building Official to the board of appeals, provided the appeal is made in writing as provided in this code and filed with the Building Official within 30 days from the date of service of this notice and order. Failure to appear will constitute a waiver of all right to an administrative hearing and determination of the matter.**

# CITY OF PETALUMA

## ACTION REPORT

[ ] Inquiry
[X] Complaint

Date Received: August 4, 2003
Date Closed:

Name of Caller: Jodi Winters, Trammel Crow Residential
Caller's Address: 2682 Bishop Drive, Suite 101, San Ramon, CA 94583
Caller's Phone Number: 925.901.1896

City Employee/Department Receiving Call: Jane Thomson, Code Enforcement Officer

Address of Inquiry/Complaint: 2044 Casa Grande Road

Received Via: [X] Telephone [ ] Letter [ ] In Person

---

Statement as to Nature of Call: Royal Tallow

1. Accessory structure next to property line fencing is disintegrating and falling onto the fence
2. Believes there to be hazardous materials on site that need to be removed/cleaned up
3. The main building is not secured and is an attractive nuisance
4. The property is not secured, and children are accessing it and the buildings

---

Route to:

| | | |
|---|---|---|
| [ ] Animal Control | [ ] Finance | [ ] Recreation |
| [X] Building Division cc/cs | [X] Fire | [ ] Sonoma County Health |
| [ ] City Attorney | [ ] Parks | [ ] Traffic Committee |
| [ ] City Clerk | [X] Planning | [ ] Transit |
| [x] City Manager | [ ] Police | [ ] Other: _____ |
| [ ] Engineering | [ ] Public Works | |

---

REPORT OR ACTION TAKEN
(Attach Additional Documentation as Required)

---

---

Date:_____ By _____

Complainant / Inquirer was notified of the outcome of complaint/inquiry by:
Mail [ ] / Phone [ ] / In Person [ ] on: by:

---

H:\kt\abtlactionreport\2044casagrande

**City Of Petaluma Parcel Information Report**
**APN #005060042**

| | |
|---|---|
| APN | 005060042 |
| Address | CASA GRANDE RD |
| Use Code | 0202 |
| Tax Rate Area | 003011 |
| Land Size (Sq Ft) | 811,523 |
| Owner Name | DARLING DELAWARE COMPANY INC |
| In Care Of | |
| Owner Address | 251 OCONNOR RIDGE BLVD STE 370 |
| Owner City/State | IRVING TX |
| Owner Zip | 750386525 |
| Com/Ind Year Built | 1942 |
| Total Bldg Area (Sq Ft) | 000020606 |
| Single Family Res Year Built | 1941 |
| Living Area (Sq Ft) | 000000962 |
| Bedrooms | 02 |
| Bathrooms | 01 |
| Total Living Area (Sq Ft) | 000000000 |
| Multi Family Res Year Built | 0000 |
| Number of Units | 000 |
| Number of Structures | 01 |
| Sale Price | 000000000 |
| Recording Date | 010175 |
| Official Record Number | 75R2185217 |

1/27/03

Darling Delaware Company Inc
251 O'Connor ridge Blvd Ste 370
Irving, TX 750386525

RE: Royal Tallow & Soap Co. Inc./ 2592 Lakeville Highway

Dear Sirs:

On June 8, 2001 a demolition permit was issued to Speelman Excavation for the partial demolition of a truck garage (Approx 1200 sq.ft. to be removed) and for the removal of contaminated soil beneath slab to a five-foot depth. As of this date the work has not been completed and no inspections have been requested.

As you may well know there is a large Apartment complex under construction on the adjacent parcel to yours. With this in mind the City of Petaluma is very concerned with the condition of your property. It is the City of Petaluma's desire that you as the legal property owner will acquire permits to remove the potent ional attractive nuisance that may exists due to the vacated and dilapidated condition of the buildings on your property.

Please contact me upon of receipt of this letter to further discuss this matter.

Sincerely,

Clifford Kendall
Deputy Chief Building Official

c: Mike Moore

address file

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

# COMPLIANCE & ENFORCEMENT DIVISION

*Regulation 11, Rule 2*

## *Acknowledgement of Notification and Payment of Fees*

4/10/2008

Daniel O Davis Inc
1051 Todd Road
Santa Rosa, CA 95407

Job No: 2Y944
Invoice No: 1XN52

The Bay Area Air Quality Management District (BAAQMD) acknowledges receipt of your payment and your Asbestos Removal or Demolition Plan described as: **Demolition**

Site address: 2044 Lakeville Hwy
Petaluma, CA 94954

Start Date: April 22, 2008
Completion Date: July 22, 2008

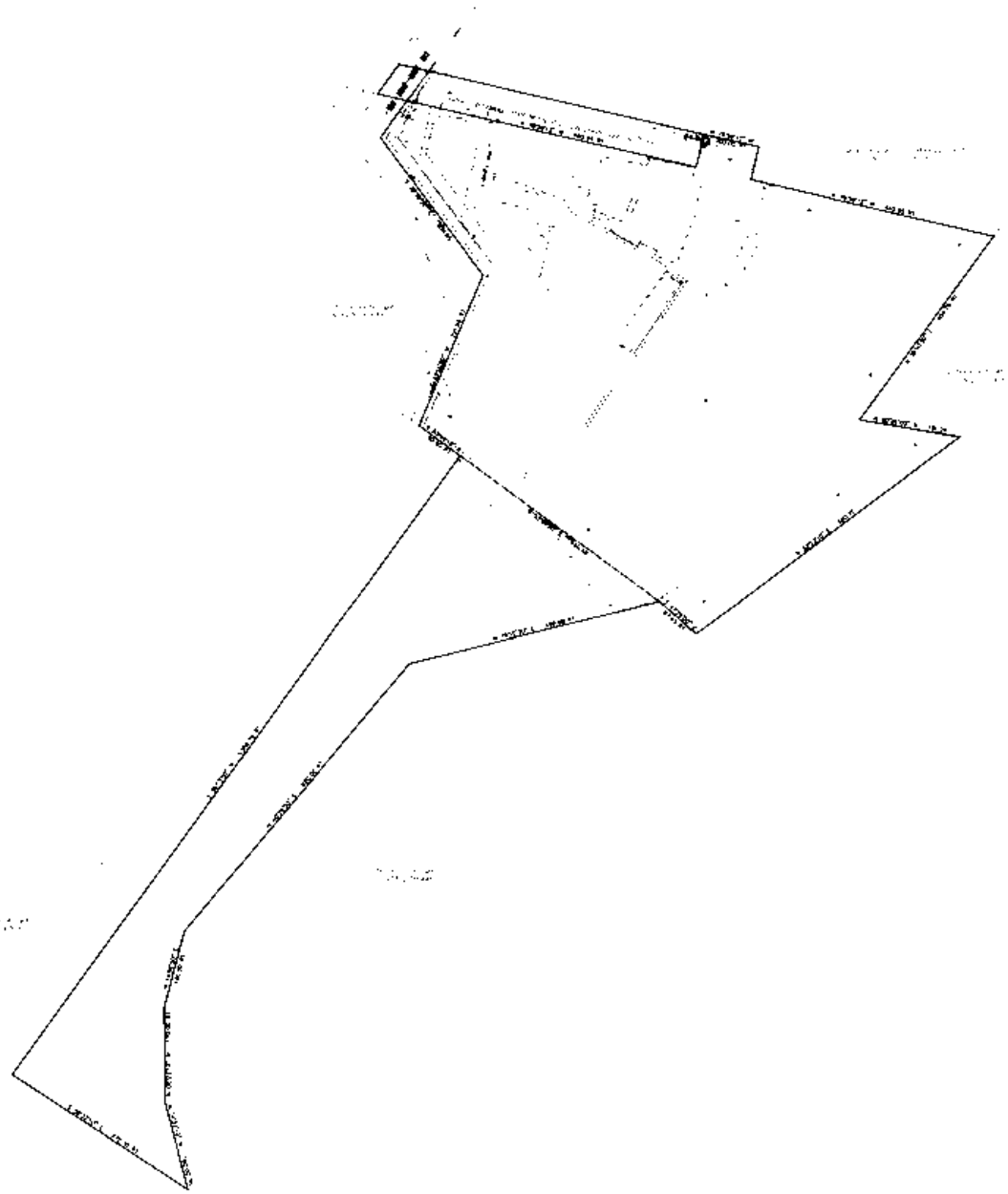
Removal amounts of friable ACM 0 linear feet 0 square feet 0 cubic feet

Should it become necessary to revise this plan, please do so in the spaces provided below and immediately copy the District by fax or by mail.

| REGULATION 11-2 REVISION | BAAQMD J# 2Y944 | |
|---|---|---|
| REVISION # | START DATE | COMPLETION DATE |
| 1 | __/__/__ | __/__/__ |
| 2 | __/__/__ | __/__/__ |
| 3 | __/__/__ | __/__/__ |
| 4 | __/__/__ | __/__/__ |
| 5 | __/__/__ | __/__/__ |

***NOTE:** This form is not intended as a verification of either the completeness of your original notification or of its compliance with BAAQMD Regulation 11-2. If you have any questions about this acknowledgment, please call our office at (415) 749 4762.*

RECEIVED
APR 2 1 2008
BUILDING DIV
FILE COPY



## GENERAL NOTES

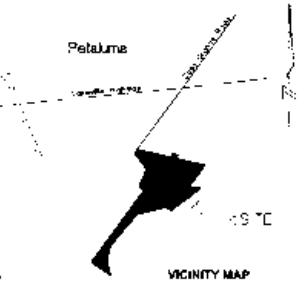
1. TOPOGRAPHIC INFORMATION SHOWN HERE IS BASED UPON A FIELD SURVEY PERFORMED BY STEVEN J. LAFRANCHI & ASSOCIATES, INC. IN JUNE 2005.
2. BOUNDARY SHOWN IS BASED UPON PARCEL MAP NO. [illegible] FILED IN BOOK [illegible] OF MAPS, AT PAGE 21, SONOMA COUNTY RECORDS. BOUNDARY INFORMATION SHOWN IS FOR GRAPHIC LOCATION ONLY AND IS NOT TO BE USED AS A REQUIREMENT OR CONDITION FOR THE SALE, LEASE OR FINANCING OF ANY PARCEL OR PARCELS.
3. BENCHMARK: CITY OF PETALUMA BENCHMARK IN MONUMENT WELL LOCATED AT THE CENTERLINE INTERSECTION OF CASA GRANDE ROAD AND ROAD A (NAD83 ELEV. = 18.40' DATUM: NGVD29)
4. JOB BENCHMARK: SOUTHERLY CORNER OF CONCRETE HEADWALL AT THE RIVER MARGIN AT THE EASTERLY END OF CASA GRANDE ROAD BEARING 315 DEGREES NORTHWESTERLY OF END OF SIDEWALK 2 FEET NORTHERLY OF FACE OF HEADWALL. ELEV=10.98'
5. SANITARY SEWER AND WATER SERVICE LOCATIONS ARE SUBJECT UPON THE CITY OF PETALUMA'S RULES.
6. A TITLE REPORT PREPARED BY NCA CORPORATE TITLE Company, DATED AUGUST 2, 2005, ORDER NO. 0000572E, WAS REVIEWED FOR APPLICABLE EASEMENTS.
7. CITY OF PETALUMA SEWER SYSTEM MAPS SHOW A PORTION OF A LATERAL IN CASA GRANDE ROAD. RESIDENTS WITH FROM MEASURE THAT THEY HAVE NO RECORD OF ANY UNDERGROUND SEWER OR EASEMENT ON THE PROPERTY. THIS IS IN CONFLICT WITH THE TITLE REPORT.
8. THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN ARE THE PROPERTY OF STEVEN J. LAFRANCHI & ASSOCIATES, INC. (LAFRANCHI &). UNAUTHORIZED USE, COPYING, DISCLOSURE OR PUBLICATION BY ANY PARTY FOR ANY PURPOSES WITHOUT THE WRITTEN APPROVAL OF STEVEN J. LAFRANCHI & ASSOCIATES, INC. STEVEN J. LAFRANCHI & ASSOCIATES, INC. ASSUMES NO RESPONSIBILITY FOR ANY UNAUTHORIZED PUBLICATION OF INFORMATION THAT MAY APPEAR ON ANOTHER MAP OR PLAN.
9. THE INFORMATION SHOWN ON THIS PLAN IS CONCEPTUAL IN NATURE AND IS FOR PLANNING PURPOSES ONLY. THIS DRAWING IS NOT A CONSTRUCTION DOCUMENT NOR A SURVEY AND SHOULD NOT BE USED AS SUCH.
10. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON VISIBLE SURFACE INDICATORS AND RECORD INFORMATION AND ARE APPROXIMATE ONLY. FURTHER INVESTIGATION SHOULD BE DONE CONCERNING THE EXACT LOCATION AND ENGINEERING USE OF EXISTING SERVICE.
11. SUBJECT PARCEL IS LOCATED IN ZONE A (NO BASE FLOOD ELEVATIONS DETERMINED), ZONE X (SHADED) (AREAS OF 500 YEAR FLOOD; AREAS OF 100 YEAR FLOOD WITH AVERAGE DEPTH OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100 YEAR FLOOD) AND ZONE X (AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100 YEAR FLOOD) PER FEMA FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 0 0600 0378 D, REVISED MAY 5, 1982.
12. SUBJECT PARCEL IS SUBJECT TO A PORTION OF THE CALIFORNIA STATE LANDS COMMISSION BOUNDARY LINE AGREEMENT AS SHOWN EXHIBIT D PREPARED BY [illegible] & ROAD, DATED 8-18-87.

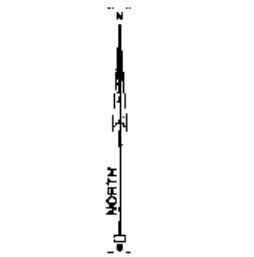
## COURSE DATA

[illegible]

## ABBREVIATIONS

| | |
|---|---|
| APN | ASSESSOR'S PARCEL NUMBER |
| R/S | RECORD OF SURVEY |
| SCR | SONOMA COUNTY RECORDS |




## LEGEND

[illegible]

## RECEIVED

City of Petaluma
Building Division
BUILDING DIV.

Plan Routing — Approval

| | |
|---|---|
| Planning Division | |
| Engineering Division | |
| Fire & Alarms & Office | |
| Water Treatment | |
| Water Reclamation | |
| Water Plant | |
| Sonoma County Health | |
| Building Division | |

| REVISIONS | BY |
|---|---|
| | |

# SITE MAP EXHIBIT

LANDS OF BAYWOOD, LLC
CASA GRANDE ROAD APN 005-060-041 & 042
PETALUMA CALIFORNIA


STEVEN J. LAFRANCHI & ASSOCIATES, INC.
CIVIL ENGINEERS - LAND SURVEYORS - LAND PLANNERS
Petaluma Northern Sonoma County


| | |
|---|---|
| DATE | [illegible] |
| SCALE | 1"=100' |
| DESIGN | |
| DRAWN | [illegible] |
| CHECK | SJH |
| JOB | Baywood |
| JOB no. | 05060.03 |
| SHEET | |

FILE COPY

95002533
+
95002534

1790
S. McDOWELL BLVD
+
2044
LAKEVILLE HWY

# PETALUMA MARSH ENHANCEMENT PHASE 1

## SHOLLENBERGER PARK
## LAKEVILLE HIGHWAY MITIGATION PLAN
## LAND FILL CLOSURE

PROJECT NUMBER 9788 – 9845 – 9852

MAY 1995

## SHEET INDEX


SHOLLENBERGER PARK PROJECT

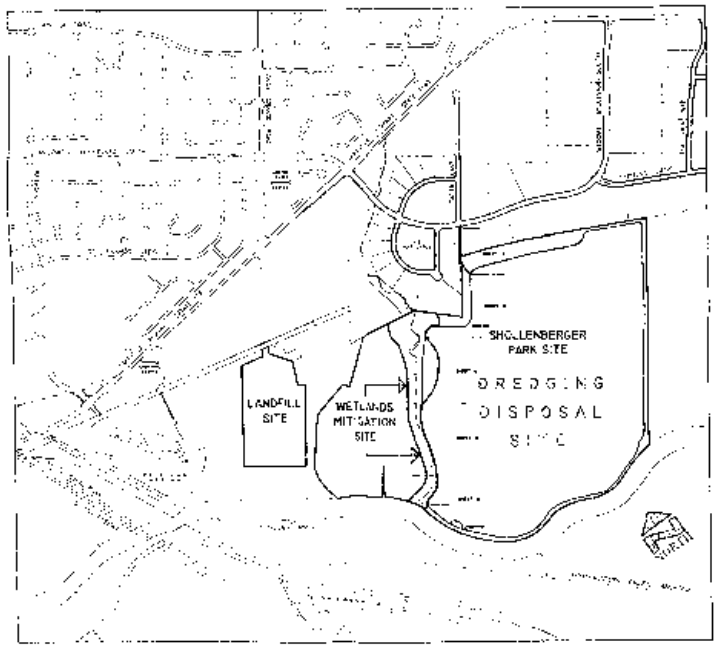
| | | |
|---|---|---|
| 1. | Cover Sheet (Vicinity and Location) | |
| 2. | Topo/Plan and Details | 1+00 to 7+50 |
| 3. | Topo/Plan and Details | 7+50 to 17+50 |
| 4. | Topo/Plan and Details | 17+50 to 27+50 |
| 5. | Topo/Plan and Details | 27+50 to 35+00 |
| 6. | Topo/Plan and Details | 35+00 to 117+00 |
| 7. | Entrance Gate Details | |
| 8. | Profile | 1+00 to 29+00 |
| 9. | Profile | 29+00 to 43+00 |

LAKEVILLE HIGHWAY MITIGATION PROJECT

| | |
|---|---|
| M1 | Title Sheet |
| M2 | Grading / Planting Plan |
| M3 | Grading / Planting Plan |
| M4 | Grading / Planting Plan |
| M5 | Section Details |
| M6 | Irrigation Plan |
| M7 | Irrigation Plan |
| M8 | Irrigation Plan |

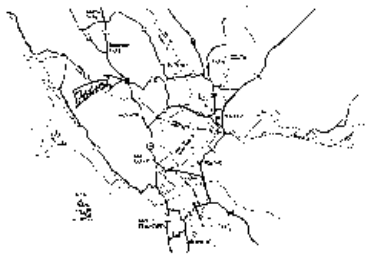
LANDFILL CLOSURE PROJECT

| | |
|---|---|
| L1 | Abbr., General Notes, Symbols and Location Map |
| L2 | Existing Site Conditions |
| L3 | Cut and Fill Grading Plan |
| L4 | Final Grading and Drainage Plan |
| L5 | Landfill Cross Sections |
| L6 | Details and Sections |
| L7 | Erosion Area Site Plan |


LOCATION MAP

SCALE: N.T.S.



VICINITY MAP

SCALE: N.T.S.

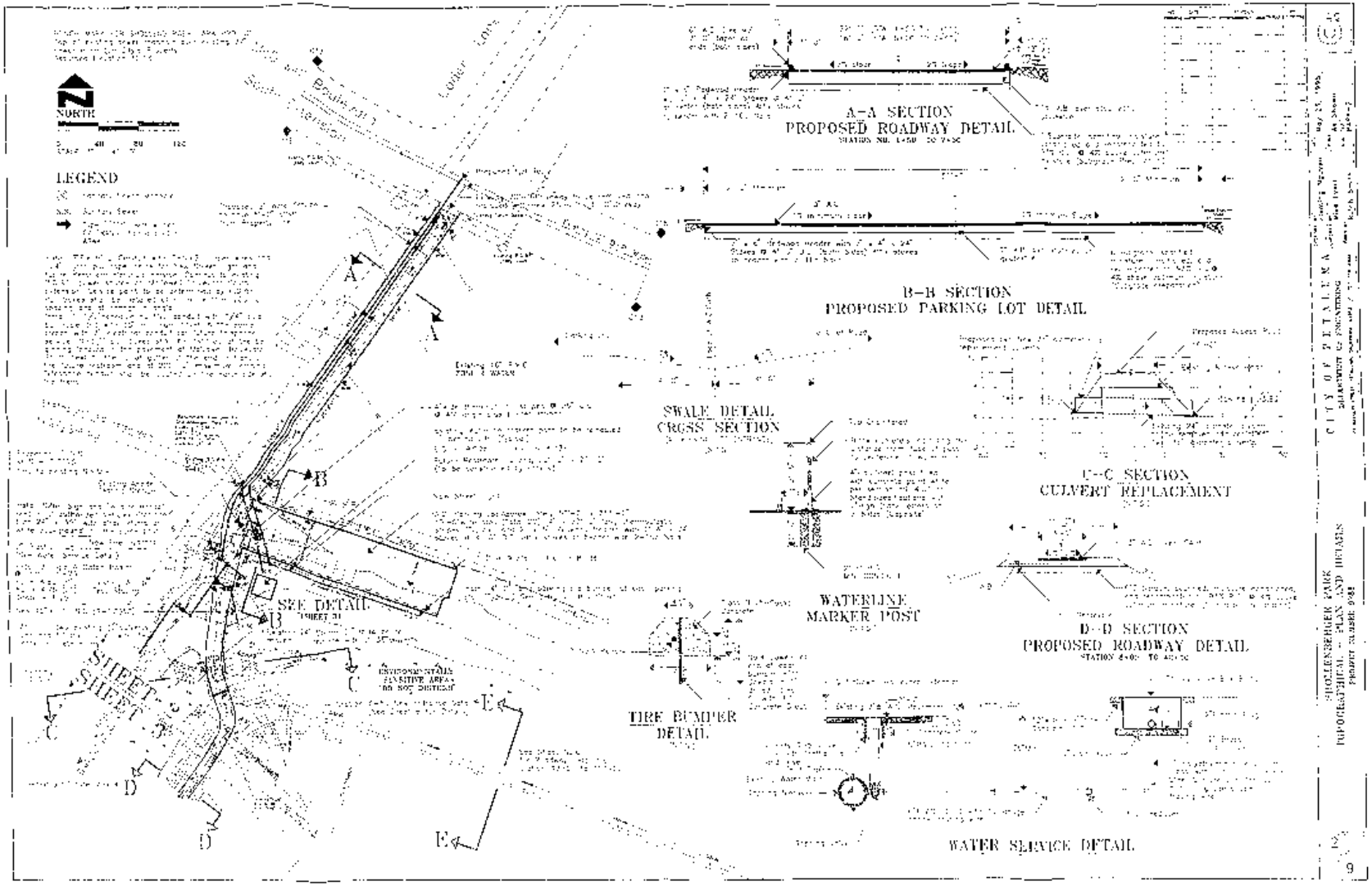
95002533

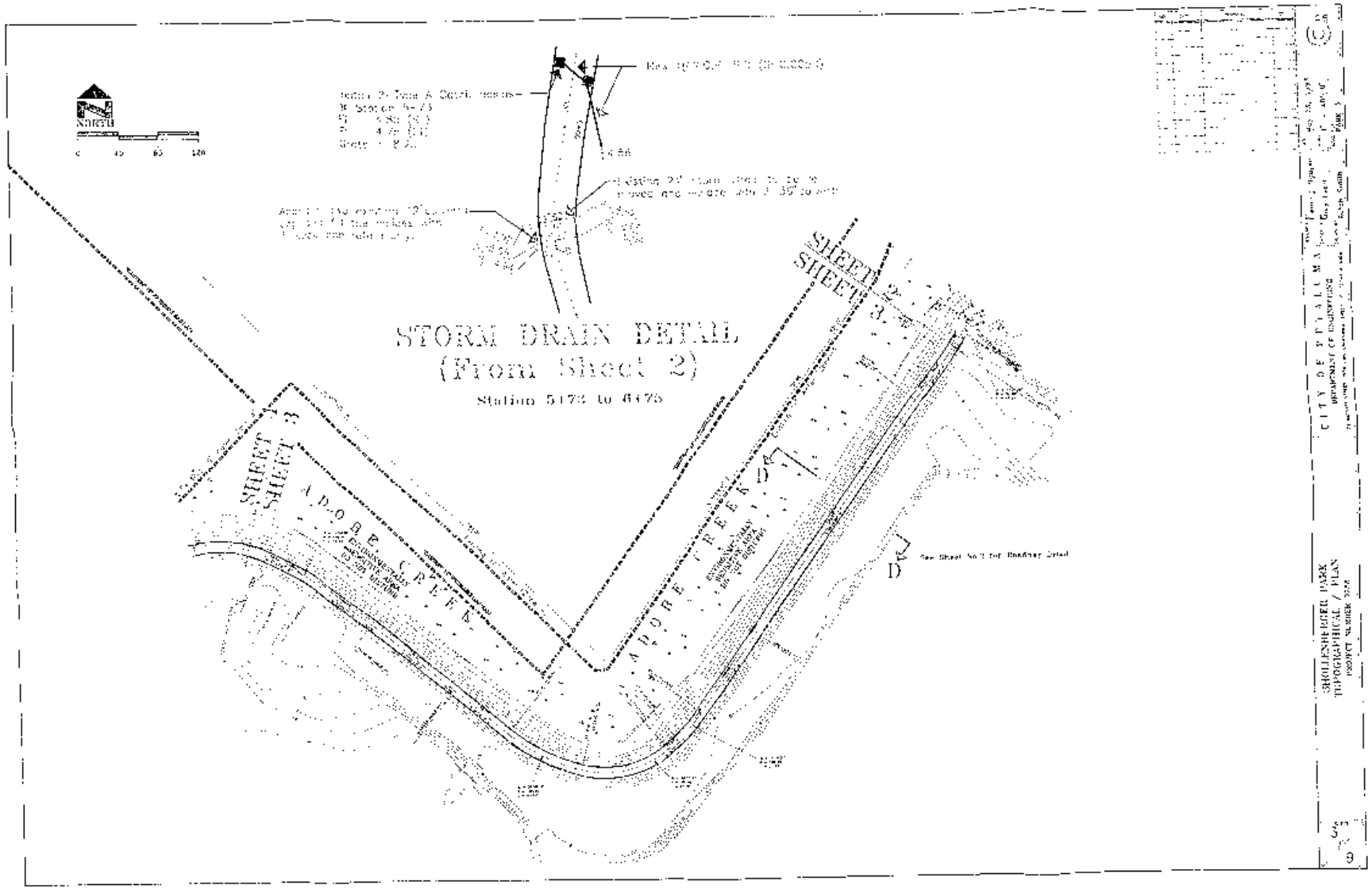
CITY OF PETALUMA
DEPARTMENT OF ENGINEERING

SHOLLENBERGER PARK LAND FILL CLOSURE
LAKEVILLE HIGHWAY MITIGATION PLAN
REFERENCE DRAWING NO. 9788 - 9845 - PROJECT NUMBER 9788 - 9845 - 9852

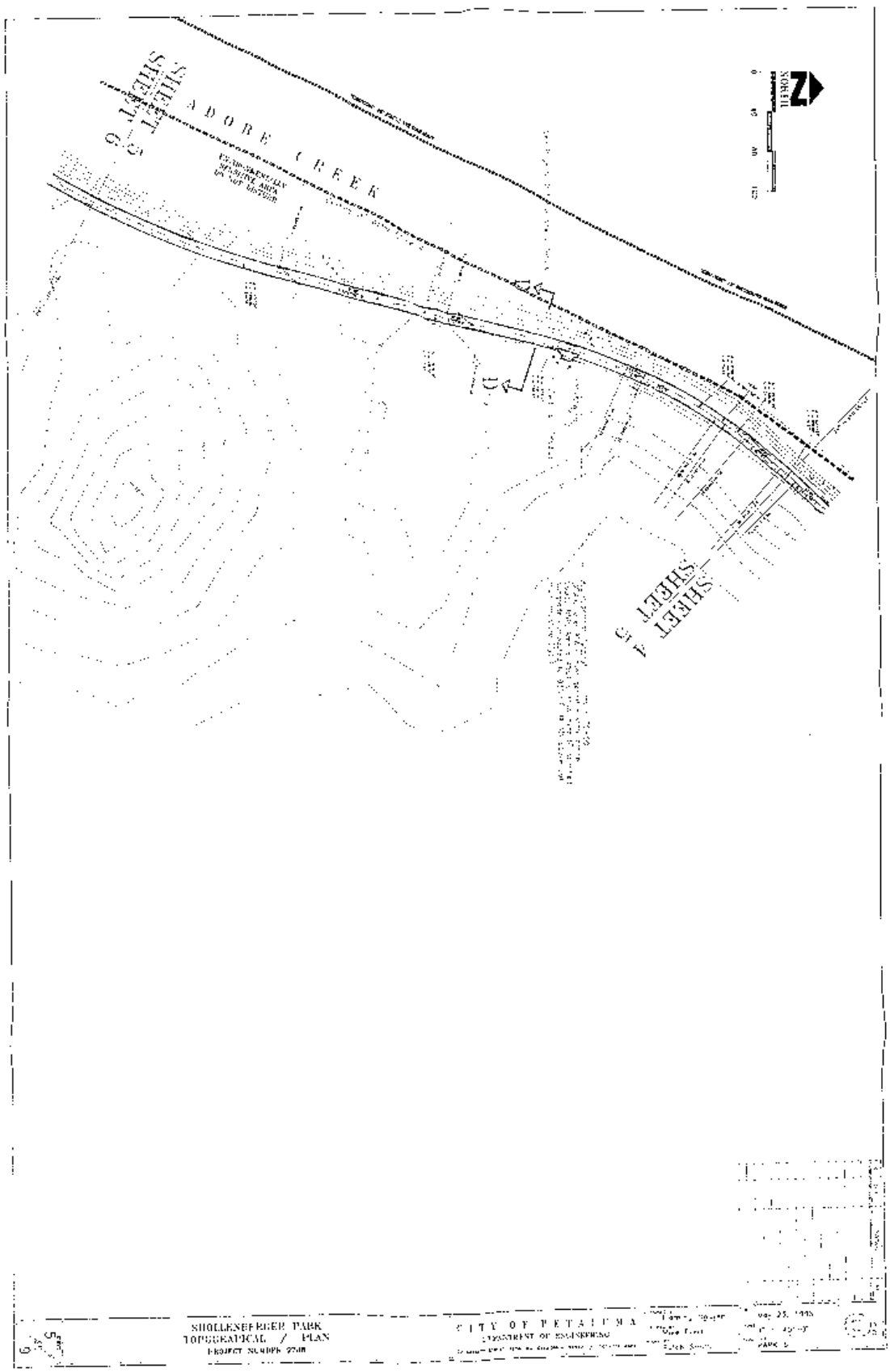
Approved for Construction

Approved for Construction


NORTH
LEGEND
A-A SECTION
PROPOSED ROADWAY DETAIL
B-B SECTION
PROPOSED PARKING LOT DETAIL
SWALE DETAIL
CROSS SECTION
C-C SECTION
CULVERT REPLACEMENT
WATERLINE
MARKER POST
D-D SECTION
PROPOSED ROADWAY DETAIL
TIRE BUMPER
DETAIL
WATER SERVICE DETAIL
SEE DETAIL
SHEET 3
SHEET 3
CITY OF PETALUMA
SHOLLENBERGER PARK
HYDROLOGICAL - PLAN AND DETAILS

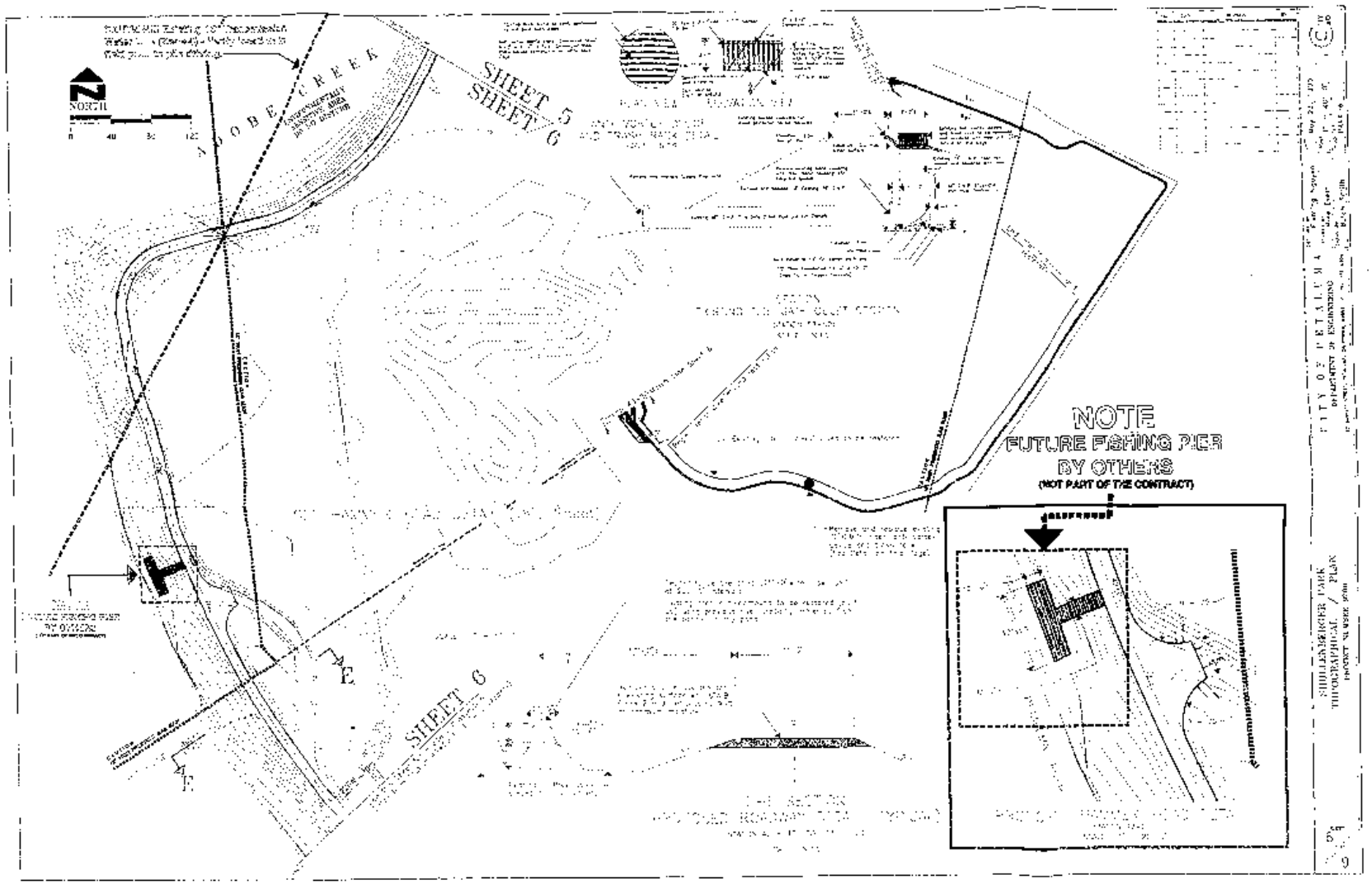

STORM DRAIN DETAIL
(From Sheet 2)
Station 5173 to 6175
SHEET 3
SHEET 2
ADOBE STREET
ADOBE STREET
D
D

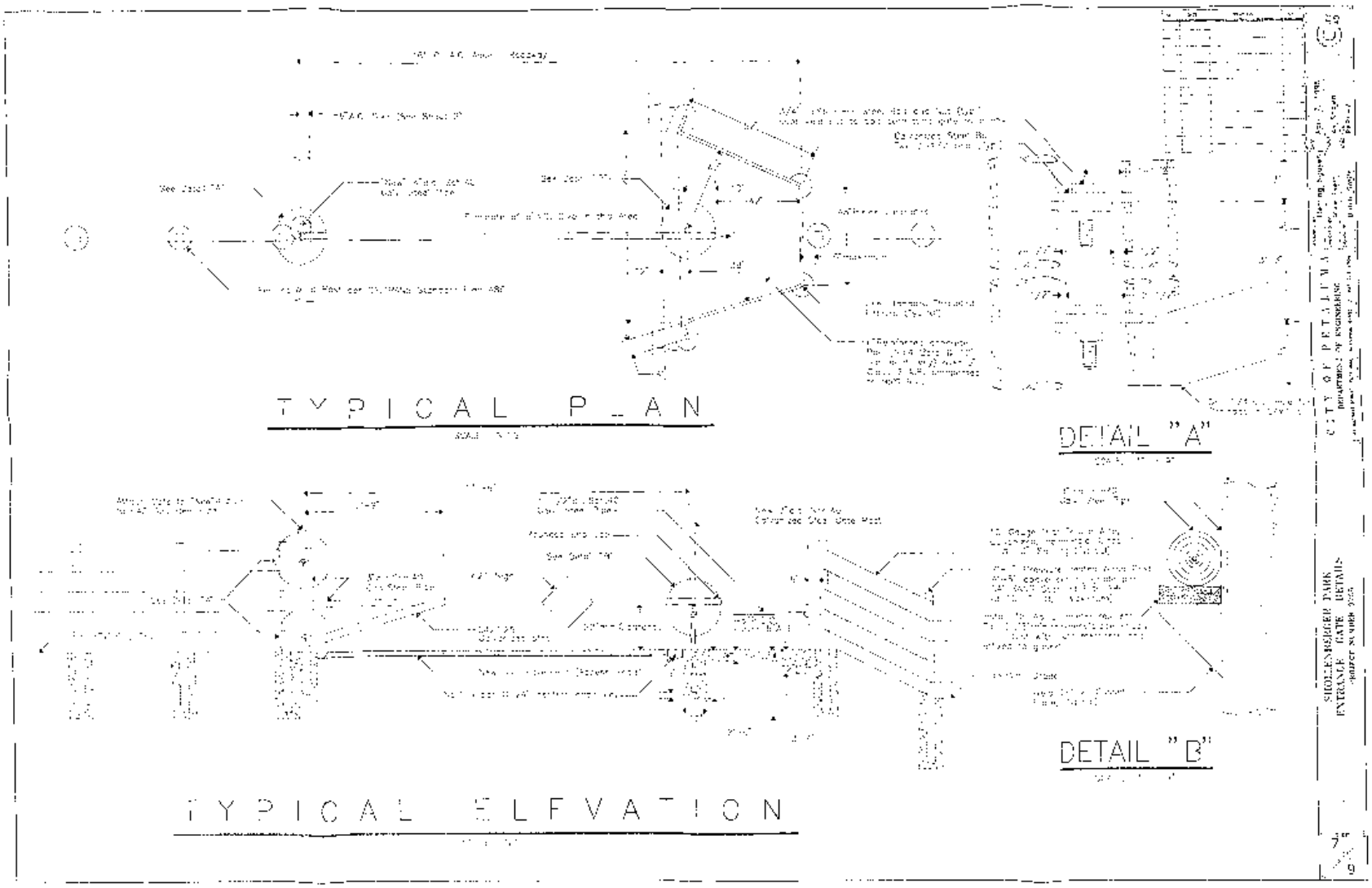
NORTH
SHEET 4
SHEET 3
CONSTRUCTION
STAGING
AREA
ADOBE CREEK
D
D'
SHEET
SHEET 5




SHOLLENBERGER PARK
TOPOGRAPHICAL / PLAN
PROJECT NUMBER 9708

CITY OF PETALUMA
DEPARTMENT OF ENGINEERING


ADOBE CREEK
SHEET 5
SHEET 6
SHEET 6
NOTE
FUTURE FISHING PIER
BY OTHERS
(NOT PART OF THIS CONTRACT)


TYPICAL PLAN
DETAIL "A"
TYPICAL ELEVATION
DETAIL "B"
CITY OF PETALUMA
SIEGLER/HIGHER PARK
ENTRANCE GATE DETAILS

LEGEND

LEGEND

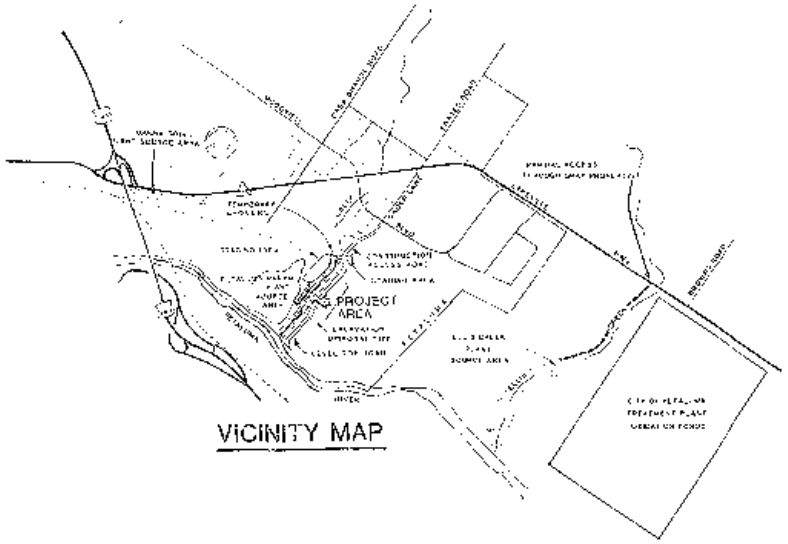
# LAKEVILLE HIGHWAY MITIGATION PROJECT

## LOWER ADOBE CREEK

MAY 1995

SHEET INDEX

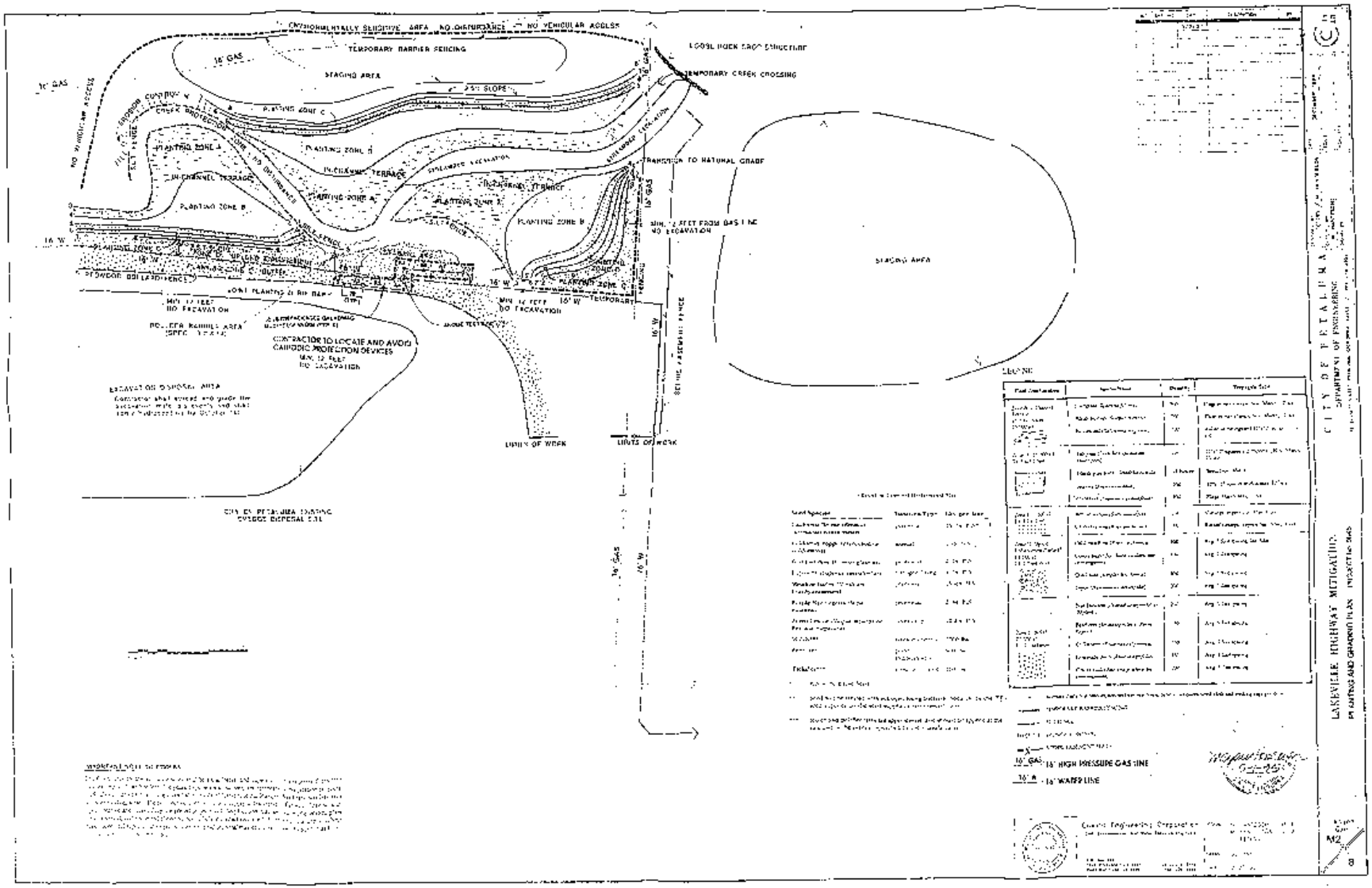

M1 TITLE SHEET
M2 GRADING/PLANTING PLAN
M3 GRADING/PLANTING PLAN
M4 GRADING/PLANTING PLAN
M5 DESIGN DETAILS
M6 IRRIGATION PLAN
M7 IRRIGATION PLAN
M8 IRRIGATION PLAN

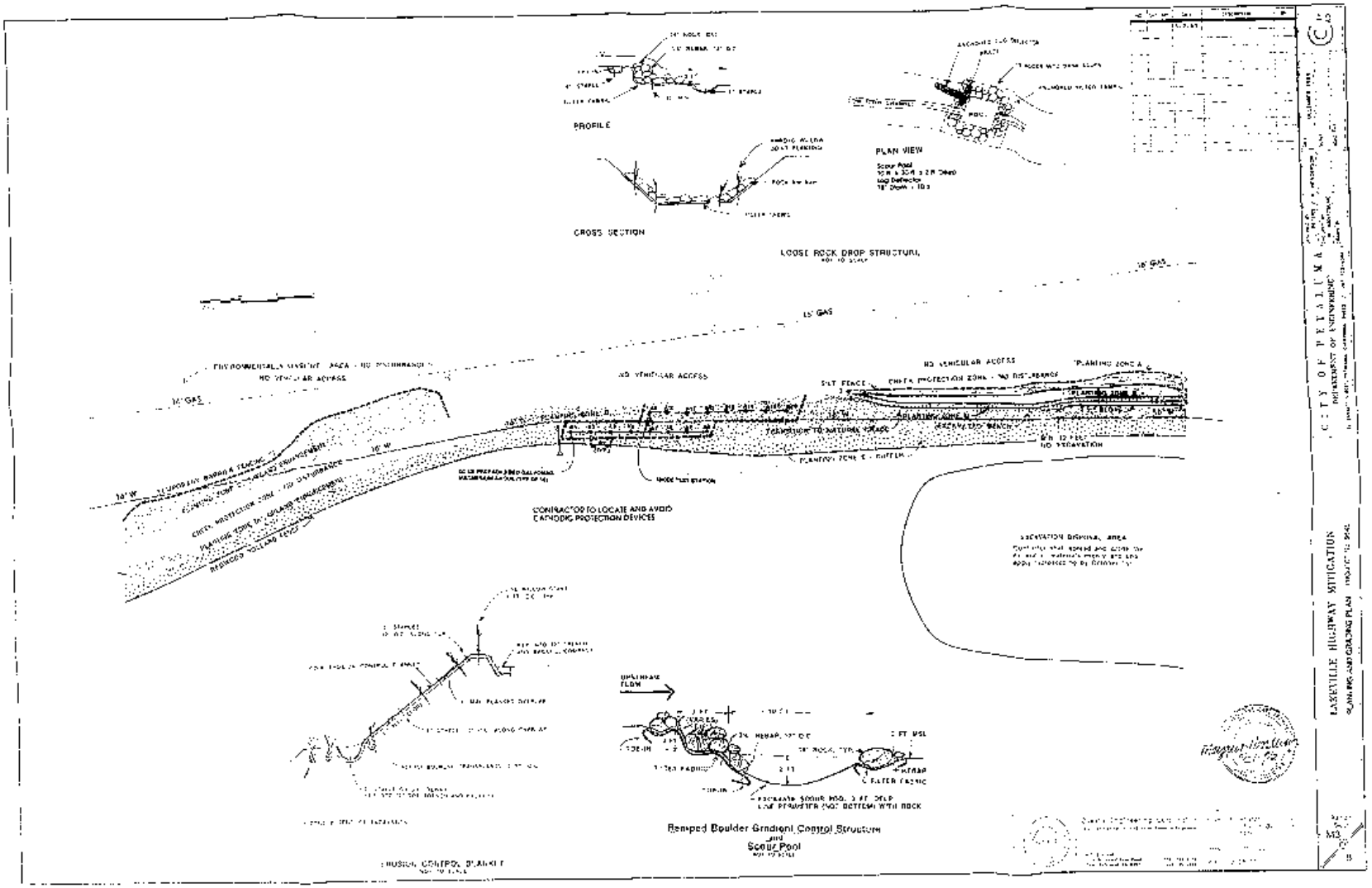



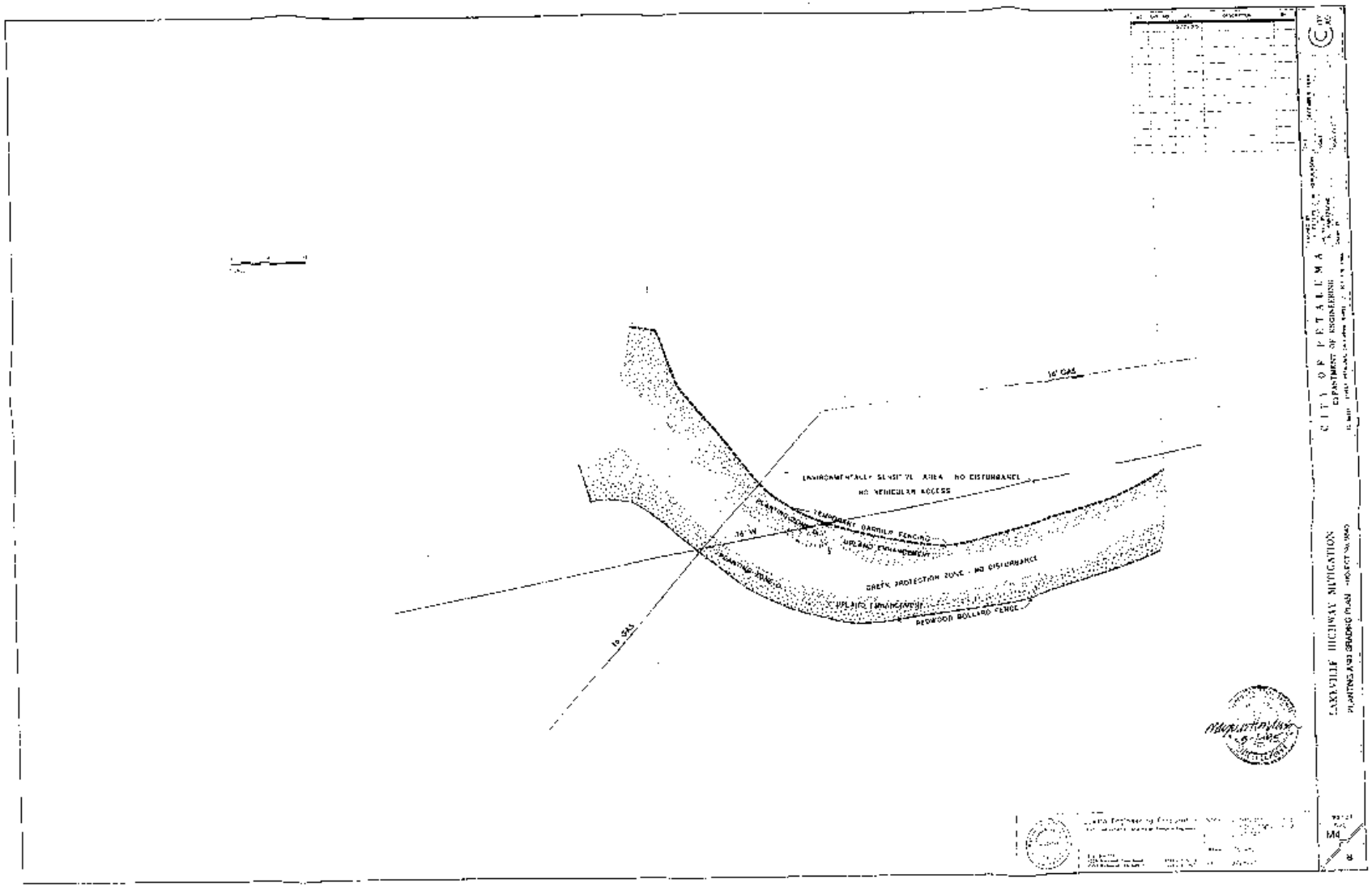

VICINITY MAP

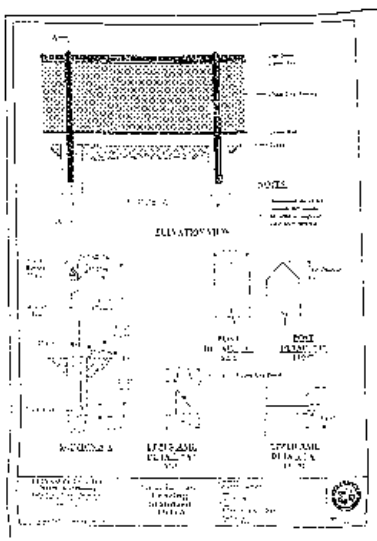


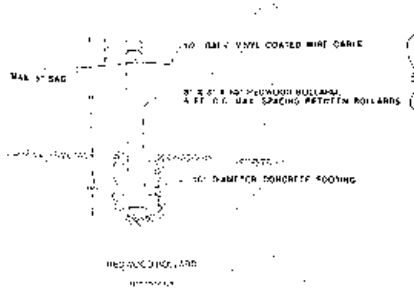
LOCATION MAP

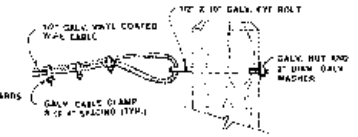

TEMPORARY BARRIER FENCING
STAGING AREA
TEMPORARY CREEK CROSSING
TRANSITION TO NATURAL GRADE
PLANTING ZONE A
PLANTING ZONE B
PLANTING ZONE C
MIN. 12 FEET FROM GAS LINE NO EXCAVATION
CONTRACTOR TO LOCATE AND AVOID CATHODIC PROTECTION DEVICES
LIMITS OF WORK
16" GAS
16" W
16" GAS - 16" HIGH PRESSURE GAS LINE
16" W - 16" WATER LINE
CITY OF PETALUMA
LAKEVILLE HIGHWAY MITIGATION
PLANTING AND GRADING PLAN


PROFILE
CROSS SECTION
PLAN VIEW
LOOSE ROCK DROP STRUCTURE
NO VEHICULAR ACCESS
SILT FENCE
CONTRACTOR TO LOCATE AND AVOID CATHODIC PROTECTION DEVICES
EXCAVATION DISPOSAL AREA
EROSION CONTROL BLANKET
Ramped Boulder Gradient Control Structure
and
Scour Pool
CITY OF PETALUMA
DEPARTMENT OF ENGINEERING
EASTERLEE HIGHWAY MITIGATION

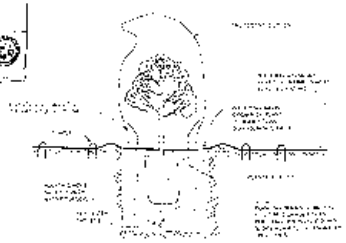

CITY OF PETALUMA
DEPARTMENT OF ENGINEERING
EAST WASHINGTON STREET
PETALUMA, CALIFORNIA
EAST VILLE HIGHWAY MITIGATION
PLANTING AND GRADING PLAN
14" GAS
ENVIRONMENTALLY SENSITIVE AREA - NO DISTURBANCE
NO VEHICULAR ACCESS
TEMPORARY BARRIER FENCING
UPLAND ENHANCEMENT
PLANTING ZONE
GREEN PROTECTION ZONE - NO DISTURBANCE
UPLAND ENHANCEMENT
REDWOOD BOLLARD FENCE
16" GAS
36" W

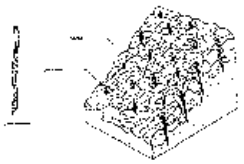


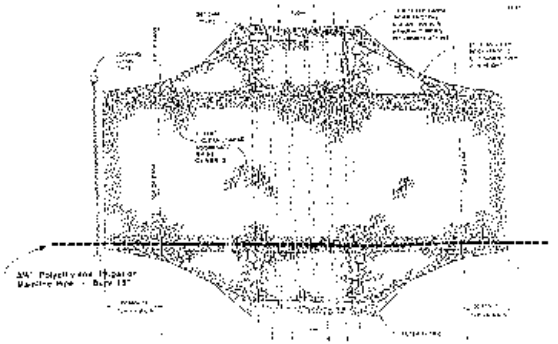


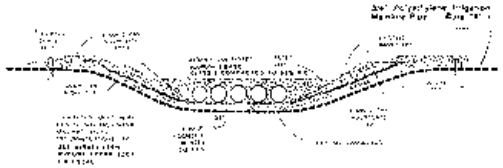




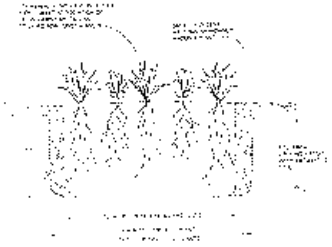


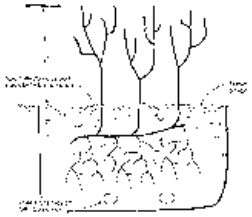


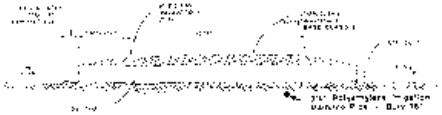


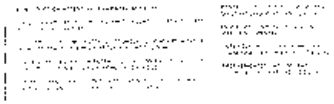












SILT FENCE DETAILS

TRANSPLANTING DETAIL

ROOT CLUMP PLANTING DETAIL

LONGITUDINAL VIEW

TEMPORARY CULVERT CROSSING

CABLE CONNECTION

WILLOW CUTTING

JOINT PLANTING DETAIL

PLAN VIEW

CROSS-SECTION

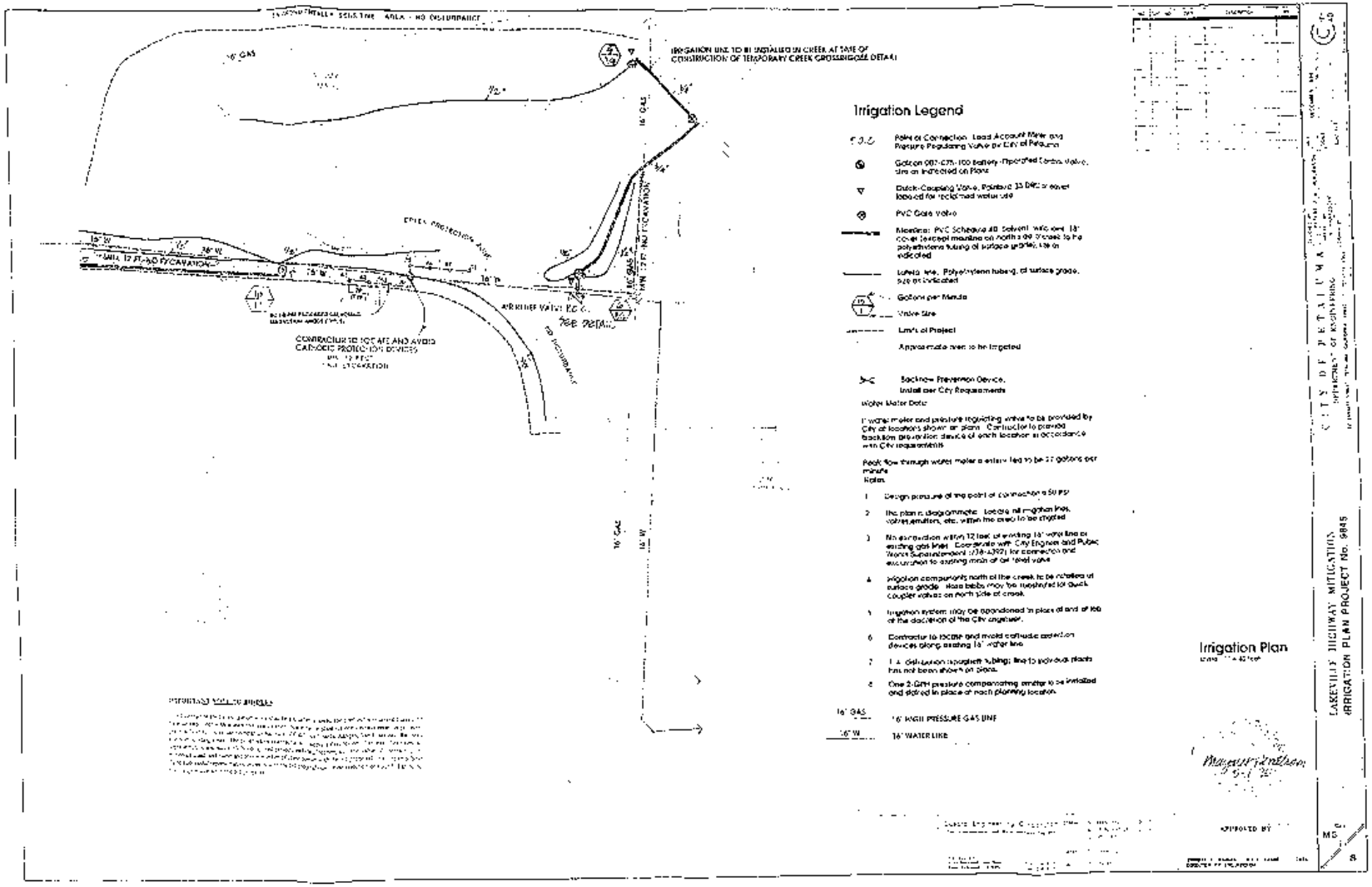
TREE AND SHRUB PLANTING
DEEPOT/LEACH TUBES

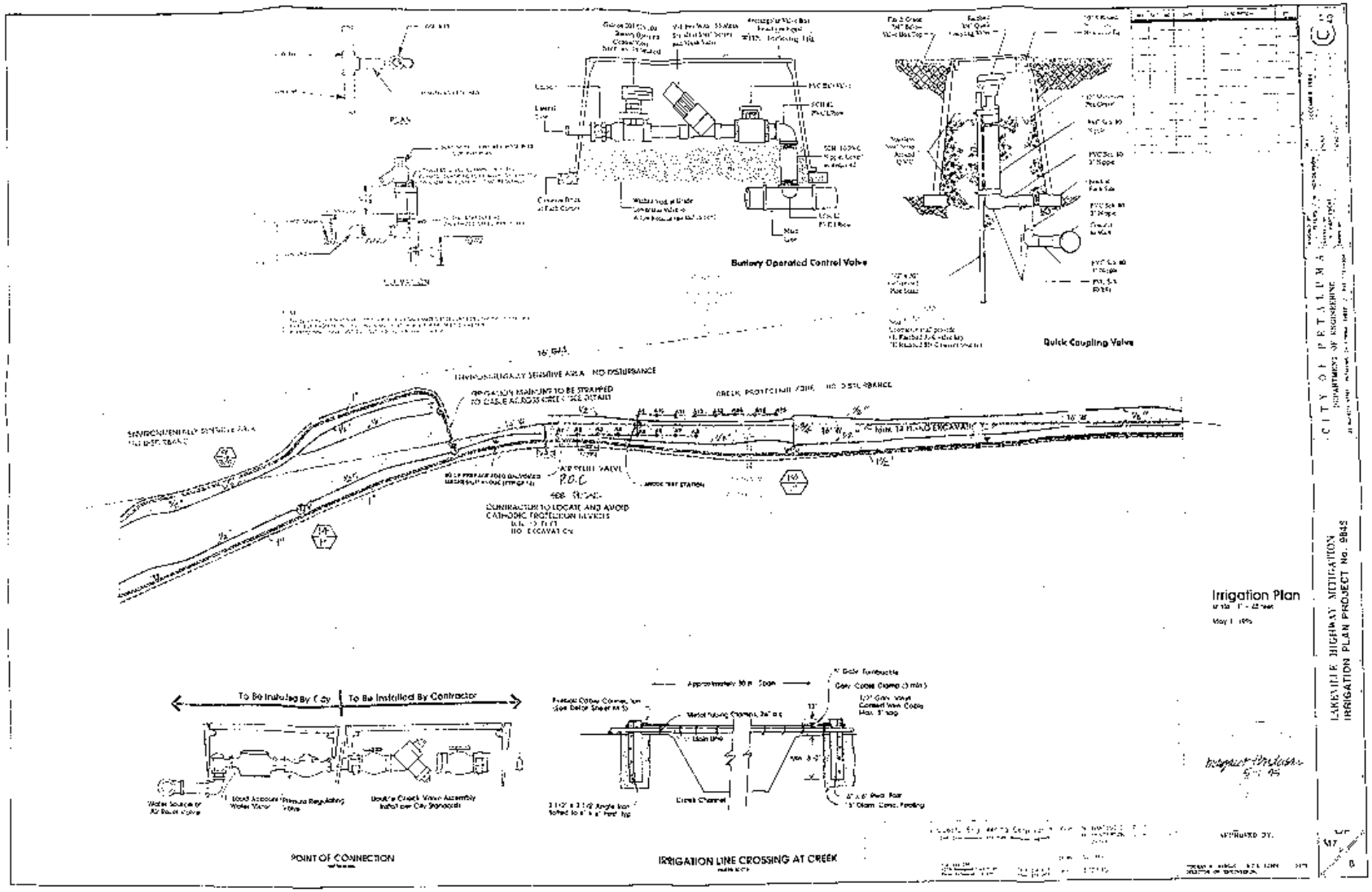
CITY OF FALL RIVER
DEPARTMENT OF HIGHWAYS

LAFAYETTE HIGHWAY MITIGATION
DETAILS PROJECT No. 9845

M5

8


IRRIGATION LINE TO BE INSTALLED IN CREEK AT TIME OF CONSTRUCTION OF TEMPORARY CREEK CROSSING(SEE DETAIL)
16" GAS
16" W
AREA TO BE PLANTED WITH NATIVE SEED MIX
AREA TO BE PLANTED WITH NATIVE SEED MIX - NO DISTURBANCE
AREA TO BE PLANTED WITH NATIVE SEED MIX - NO DISTURBANCE
AREA TO BE PLANTED WITH NATIVE SEED MIX - NO DISTURBANCE
AREA TO BE PLANTED WITH NATIVE SEED MIX - NO DISTURBANCE
EROSION PROTECTION AREA
AREA TO BE PLANTED WITH NATIVE SEED MIX - NO DISTURBANCE


Butterfly Operated Control Valve
Quick Coupling Valve
ENVIRONMENTALLY SENSITIVE AREA - NO DISTURBANCE
CREEK PROTECTION ZONE - NO DISTURBANCE
AIR RELIEF VALVE
P.O.C
To Be Installed By City
To Be Installed By Contractor
POINT OF CONNECTION
IRRIGATION LINE CROSSING AT CREEK
Irrigation Plan
CITY OF PETALUMA
DEPARTMENT OF ENGINEERING
LAKEVILLE HIGHWAY MITIGATION
IRRIGATION PLAN PROJECT No. 9845

CITY OF PETALUMA
LAKEVILLE HIGHWAY MITIGATION
IRRIGATION PLAN PROJECT NO. 1824
Irrigation Plan
ENVIRONMENTALLY SENSITIVE AREA - NO DISTURBANCE
CREEK PROTECTION ZONE - NO DISTURBANCE
16" W
16" GAS

## GENERAL SYMBOLS

## TYPICAL SECTION AND DETAIL NUMBERING SYSTEM

## GENERAL NOTES

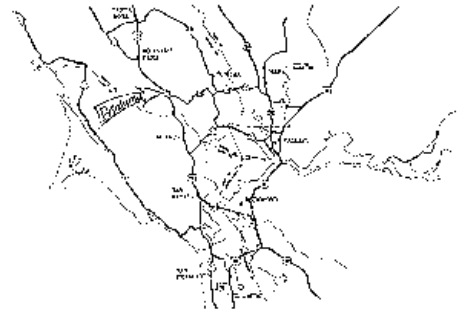
1. EXISTING SITE CONDITIONS MAY VARY FROM WHAT IS SHOWN ON THESE PLAN SHEETS. CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS AND ELEVATIONS PRIOR TO START OF CONSTRUCTION.
2. CONTRACTOR SHALL LOCATE EQUIPMENT IN A CONSTRUCTION DENSITY AREA COMMENSURATE TO AVOID CONFLICTS WITH EXISTING UTILITIES.
3. CONTRACTOR TO CONFINE ALL EROSION CONTROL AS SHOWN ON THESE DRAWINGS, AS STATED IN THE SPECIFICATIONS AND AS DIRECTED BY THE OWNER.
4. EXISTING UTILITIES SHOWN ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSES ONLY. ACTUAL LOCATIONS OF UTILITIES MAY VARY FROM THOSE SHOWN.

## ABBREVIATIONS

## LOCATION MAP



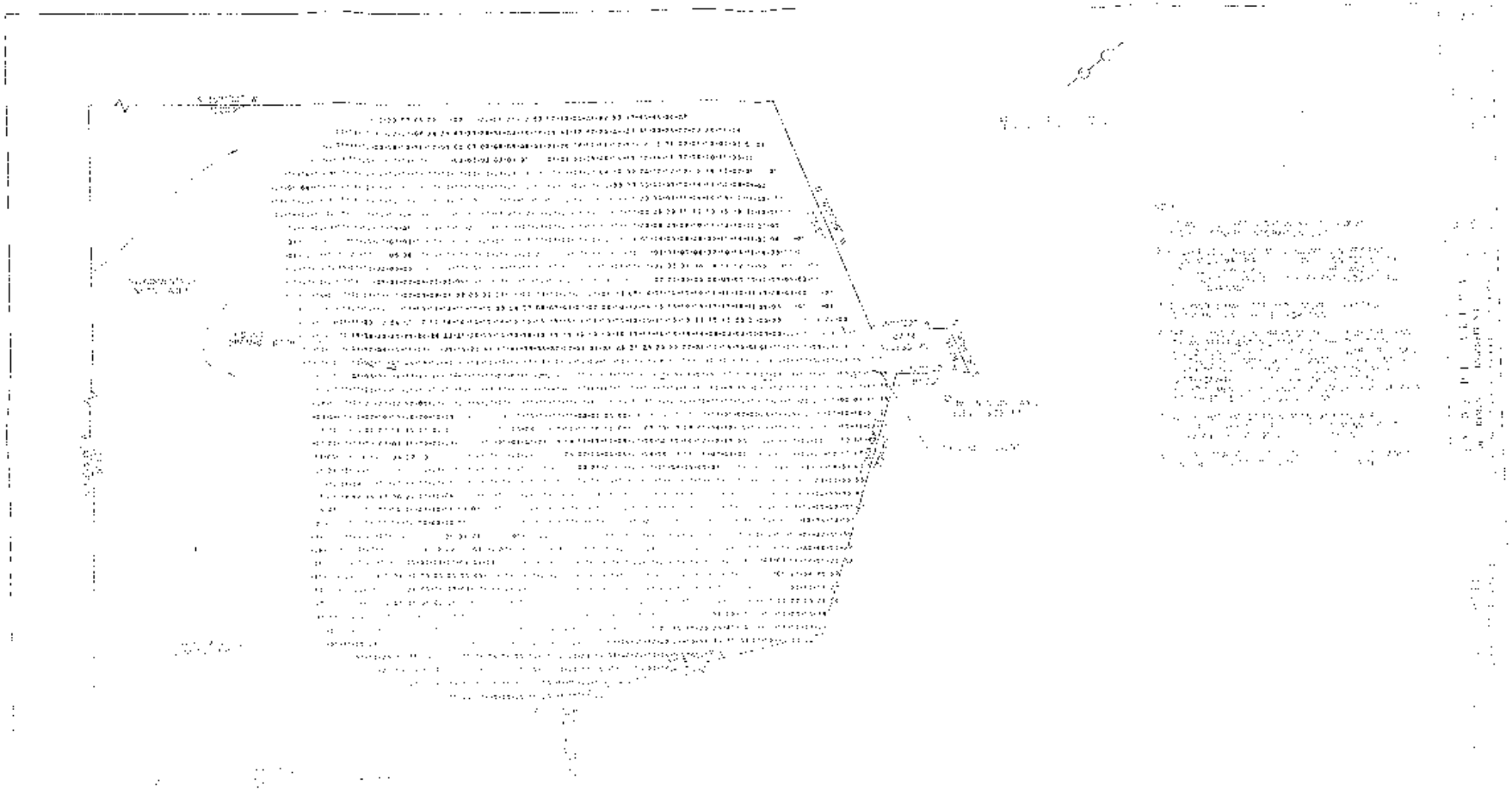

## VICINITY MAP

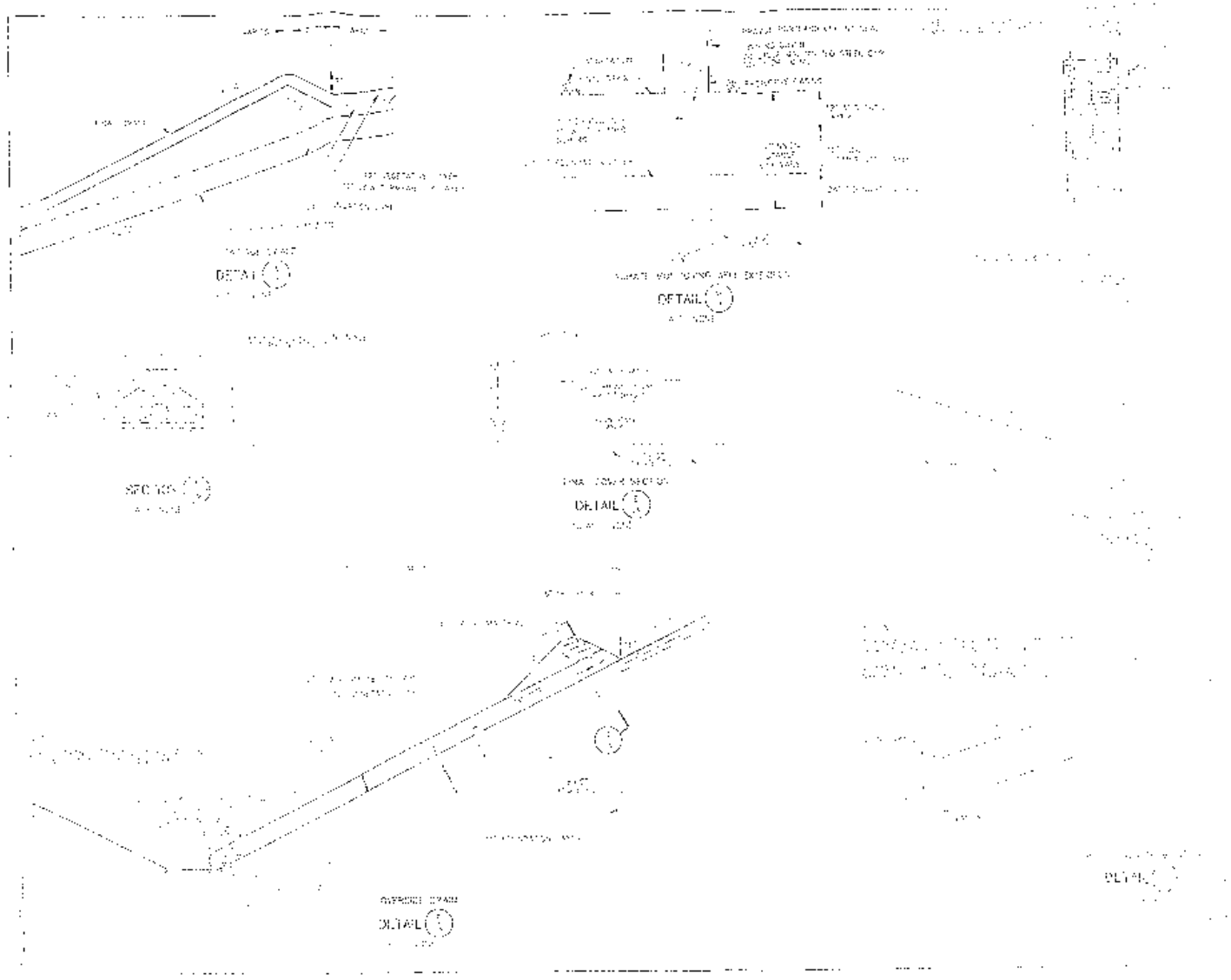


| SHEET NO. | TITLE |
|---|---|
| L1 | ABBR, GENERAL NOTES, SYMBOLS AND LOCATION PLAN |
| L2 | EXISTING SITE CONDITIONS |
| L3 | CUT AND FILL GRADING PLAN |
| L4 | FINAL GRADING AND DRAINAGE PLAN |
| L5 | SECTIONS |
| L6 | DETAILS AND SECTIONS |
| L7 | BORROW AREA SITE PLAN |

BROWN AND CALDWELL

BROWN AND CALDWELL




DETAIL 1
DETAIL 2
DETAIL 3
DETAIL 4
DETAIL

95002533
+
95002534

1790
McDOWELL BLVD
+
2044
LAKEVILLE HWY

RECEIVED
BY
AUG 3 0
NORTH BAY CONSTRUCTION INC.

95002533

CITY OF PETALUMA

PETALUMA, CALIFORNIA

@ 156 Wetlands permit # 95002533

# CONTRACT DOCUMENTS FOR

# PETALUMA MARSH ENHANCEMENT PHASE I

## Shollenberger Park
## Lakeville Mitigation Plan
## Landfill Closure

CITY OF PETALUMA - SONOMA COUNTY - CALIFORNIA

(Bidding Requirements, General Provisions, Special Provisions and City of Petaluma Details - Standards)

## CITY PROJECT NUMBER
## 9788

BID OPENING DATE:
JUNE 29th 1995

FILE COPY

City of Petaluma 11 English Street
Post Office Box 61 • Petaluma, California 94953

*Mayor*
M. Patricia Hilligoss

*Vice Mayor*
Nancy C. Read

*Councilmembers*
Carole Barlas
Jane Hamilton
Matt Maguire
Lori Shea
Mary Stompe

*Engineering Department*
(707) 778-4304
FAX (707) 778-4437

TO: ALL PLANHOLDERS

Subject: Petaluma Marsh Enhancement Phase I
Project No. 9788

ADDENDUM NO. 1

Addendum No. 1 is being issued to the contract documents for the above-referenced project.

1. Refer to Page GEN-4 of Section III, "Special Provisions - GENERAL"

Item J, "CONSTRUCTION STAKING", is amended to read:

J. CONSTRUCTION STAKING/SURVEYING

This work shall consist of furnishing and setting construction stakes and marks by the Contractor to establish the lines and grades required for the completion of the work as shown on the plans and as specified in the Standard Specifications and these special provisions.

All construction staking/surveying shall be performed by the Contractor as necessary to control the work. Construction stakes and marks shall be furnished and set with accuracy adequate to assure that the completed work conforms to the lines, grades, and sections shown on the plans.

All computations necessary to establish the exact position of the work from control points shall be made by the Contractor.

Construction stakes shall be removed from the site of the work when no longer needed.

Full compensation for this item of work shall be considered as included in the prices paid for various contract items of work and no separate payment will be made therefor.

Please attach an acknowledged copy of this Addendum to your proposal. Failure to do so may cause rejection of your bid as being non-responsive.

Date: 6/15/95

Thomas S. Hargis, P.E.
Director of Engineering

9788a331/tb/projects/a:

Subject: Petaluma Marsh Enhancement Phase I - Project No. 9788

ACKNOWLEDGEMENT

Receipt of the above Addendum No. 1 is hereby acknowledged by _____ this _____ day of _____, 1995.

By: _____
(Signature)

_____
Title

_____
Company

9788add1/sb/projects/a:

# City of Petaluma 11 English Street

Post Office Box 61 • Petaluma, California 94953

*Mayor*
M. Patricia Hilligoss

*Vice Mayor*
Nancy Read

*Councilmembers*
Carole Barlas
Jane Hamilton
Mail Maguire
Lori Shea
Mary Stompe

Engineering Department
(707) 778-4301
FAX (707) 778-4437


June 28, 1995

TO: ALL PLAN HOLDERS

Subject: Petaluma Marsh Enhancement Phase I
Project No. 9788

## ADDENDUM NO. 2

Addendum No. 2 is being issued to the contract documents for the above-referenced project.

1. Refer to Section 3-1.10, "Earthwork and Subgrade Preparation for Roadbed", and Section 3-2.8.8, "Spoil Disposal", of the Special Provisions

   Excess soil/spoils generated by any excavations shall not be allowed to be disposed in the dredging disposal site.

   Full compensation for this item of work shall be considered as included in the prices paid for various contract items of work and no separate payment will be made therefor.

Please attach an acknowledged copy of this Addendum to your proposal. Failure to do so may cause rejection of your bid as being non-responsive.

Date: 6/28/95

Phuong Nguyen, P.E.
Associate in Civil Engineering

439788/6/65

Subject: Petaluma Marsh Enhancement Phase I - Project No. 9788

ACKNOWLEDGEMENT

Receipt of the above Addendum No. 2 is hereby acknowledged by _____ this _____ day of _____, 1995.

_____
By: (Signature)

_____
Title

_____
Company

## INTRODUCTORY NOTICE TO BIDDERS:

A. QUESTIONS CONCERNING PLANS AND BID ITEMS:

1. Questions concerning interpretation of Shollenberger Park improvement plans, special provisions, contract documents and bid items shall be directed to:

City of Petaluma
Engineering Department
22 Bassett Street
Petaluma, CA 94952
(707) 778-4304

Attention: Fleming Nguyen

2. Questions concerning interpretation of Lakeville Highway Mitigation improvement plans, special provisions, contract documents and bid items shall be directed to:

Questa Engineering Corporation
P.O. Box 356
Point Richmond, CA 94807
(510) 236-6114

Attention: Jeff Peters

3. Questions concerning interpretation of Landfill Closure improvement plans, special provisions, contract documents and bid documents and bid items shall be directed to:

Brown & Caldwell
3480 Buskirk Avenue
Pleasant Hill, CA 94523
(510) 937-9010

Attention: Ravi Krishnaiah

Office hours: Monday through Friday, 8:00 AM to 5:00 PM

B. PLANS

Plans, contract documents and engineer's estimates are available from the Engineering Department, City of Petaluma, at $50.00 per set (non-refundable).

C. PRE-BID MEETING

A pre-bid meeting is scheduled for Thursday, June 22, 1995 at 10:00 a.m. in the City Council Chamber.

TABLE OF CONTENTS


| Section | Description |
|---|---|
| I. | BIDDING REQUIREMENTS |
| | Notice to Bidders |
| | Proposal with Bid Schedule |
| | Bidder's Affidavit of Non-Collusion |
| | Questionnaire and Financial Statement Form |
| | List of Subcontractors |
| | List of Materials, Suppliers and Material Guarantee |
| | Bid Bond |
| II. | GENERAL PROVISIONS |
| | Section 1: Proposal Requirements |
| | Section 2: Scope of Work |
| | Section 3: Control of Work |
| | Section 4: Control of Materials |
| | Section 5: Legal Relations and Responsibilities to the Public |
| | Section 6: Prosecution of Progress |
| | Section 7: Measurement and Payment |
| | Section 8: Maintenance |
| | Section 9: Definitions and Terms |
| III. | SPECIAL PROVISIONS |
| | GENERAL |
| | Section 3-1: Special Provisions for Shollenberger Park |
| 3-1.1 | Description of Work |
| 3-1.2 | Plans and Specifications |
| 3-1.3 | Cooperation |
| 3-1.4 | Obstructions |
| 3-1.5 | Construction Area Signs |
| 3-1.6 | Maintaining Traffic |
| 3-1.7 | Traffic Control System for Lane Closure |
| 3-1.8 | Clearing, Grubbing, and Mobilization/Demobilization |
| 3-1.9 | Watering |
| 3-1.10 | Earthwork and Subgrade Preparation for Roadbed |
| 3-1.11 | Asphalt Concrete |
| 3-1.12 | Aggregate Base |
| 3-1.13 | Water/Main Service |
| 3-1.14 | Geotextiles |
| 3-1.15 | Storm Drain Pipe |
| 3-1.16 | Storm Drain Inlets/Catch Basins |
| 3-1.17 | Sanitary Sewer |
| 3-1.18 | Maintaining Existing Storm Drain and Sanitary Sewer Facilities |
| 3-1.19 | Concrete Structures |
| 3-1.20 | Fences |
| 3-1.21 | Entrance Gate |
| 3-1.22 | Thermoplastic Traffic Stripe and Pavement Markings |
| 3-1.23 | Abandon Culverts |
| 3-1.24 | Adjust Existing Sewer Manhole and Water Valve Box to Grade |

| Section | Description |
|---|---|
| III. | SPECIAL PROVISIONS (Continued) |
| 3-1.25 | Final Pay Quantities |
| 3-1.26 | Install Road Signs |
| 3-1.27 | Signals, Lighting and Electrical Systems |
| 3-1.28 | Provide a Mud CAT Bulldozer and an Operator to Restore/Build up the Existing Interior Dike/Mound |
| 3-1.29 | Remove and Replace Existing Corrugated Metal Pipe Riser, Antivortex Device and Trash Rack |
| 3-1.30 | Remove and Replace Existing Flap Gate and Assembly |
| 3-1.31 | Install Parking Tire Bumper |
| | Section 3-2: Special Provisions for Lakeville Highway Mitigation Plan |
| 3-2.1 | Description of Work |
| 3-2.2 | Plans and Specifications |
| 3-2.3 | Avoidance of Sensitive Areas |
| 3-2.4 | Coordination with Other Agencies |
| 3-2.5 | Mobilization and Staging Areas |
| 3-2.6 | Access Road and Adobe Creek Crossing |
| 3-2.7 | Location of Existing of Utilities |
| 3-2.8 | Earthwork/Spoils Disposal |
| 3-2.9 | Planting |
| 3-2.10 | Irrigation |
| 3-2.11 | Erosion Control |
| 3-2.12 | Restoration of Staging Area |
| 3-2.13 | Maintenance, Monitoring and Replacement |
| 3-2.14 | Acceptance |
| | Section 3-3: Special Provisions for Landfill Closure Construction |
| | Part A - Technical Specifications |
| | Division 1: General Requirements |
| | Division 2: Site Work |
| | Division 15: Mechanical |
| | Part B - Construction Quality Assurance Plan |
| IV. | CITY OF PETALUMA DETAIL SPECIFICATIONS |
| | Water Main Installation Detail Specification No. 11 |
| | Sanitary Sewer Installation Detail Specification No. 21 |
| | Storm Drain Installation Detail Specification No. 31 |
| | Street Construction Detail Specification No. 41 |
| | Water Services |
| | Permits |
| V. | CITY OF PETALUMA STANDARD PLANS |
| VI. | CONSTRUCTION AGREEMENT |

SECTION I

# BIDDING REQUIREMENTS

CITY OF PETALUMA

Project No. 9788

NOTICE TO BIDDERS

Sealed bids marked "Shollenberger Park Project" will be received at the Office of the City Clerk, City Hall, 11 English Street, Room 4, Petaluma, California 94952-2610 until

2:00 p.m., Thursday, June 29, 1995,

at which time they will be publicly opened and read in the Council Chambers of said building for the project in accordance with the plans and specifications entitled:

(Petaluma Marsh Enhancement Phase I)
Shollenberger Park, Lakeville Highway Mitigation Plan
and City Landfill Closure
Project No. 9788

A pre-bid meeting is scheduled for Thursday, June 22, 1995 at 10:00 a.m. in the City Council Chamber.

Plans and specifications may be seen in the Office of the Engineering Department during regular office hours. Contractors desiring to obtain plans and specifications may do so by contacting the Engineering Department, 22 Bassett Street, Petaluma, CA 94952, phone number (707) 778-4304. A non-refundable charge of $50 per set of plans and specifications will be required.

PROJECT DESCRIPTION

The work to be done consists, in general, of placing asphalt concrete, aggregate base and stabilization fabric; installing storm drain systems, water and sewer services; resurfacing trench; traffic control; grading, earthwork, landscaping; and doing other work specified in these special provisions and as shown on the plans.

PREVAILING WAGE RATES

In accordance with the provisions of Section 1770 of the Labor Code of the State of California, the Department of Industrial Relations has ascertained the general prevailing rate of wages in the locality in which the work is to be performed, for laborers and each craft or type of workman needed to execute the work. Said rate of wages is on file in the Office of the City Clerk and a copy must be posted by the Contractor at the work site.

Attention is directed to the provisions in Section 1777.5 (as amended Chapter 1224, Section 11, 1989) and 1777.6 of the Labor Code concerning the employment of apprentices by the contractor or any subcontractor under him. Section 1777.5 does not apply to contracts of general contractors or to contracts of specialty contractors not bidding for work through a general or prime contractor when the contracts of general contractors or those specialty contractors involved less than Thirty Thousand Dollars ($30,000) or twenty (20) working days. All other contractors and/or subcontractors are subject to the provisions of this section.

A. Section 1777.5 as amended, requires that the contractor and/or subcontractor stipulate to the provisions of that section. The responsibility for compliance with that section is fixed upon the prime contractor.

CONTRACTOR HEREBY STIPULATES TO THAT SECTION, AS FOLLOWS:

The Contractor (or subcontractor) who employes workers in any apprenticeable craft or trade shall apply to the Joint Apprenticeship Committee (JAC) administering the apprenticeship standards of the craft or trade in the area of the site of the public work for a certificate approving the contractor or subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected.

The contractors and subcontractor subject to this section shall submit contract award information to the applicable JAC which shall include an estimate of journeyman hours to be performed under the contract, the number of apprentices to be employed, and the approximate dates the apprentices will be employed.

Every journeyman hour worked during the course of the public works project must be used to calculate the total number of required apprentice hours, except for those journeymen's hours in excess of eight (8) hours per day or forty (40) hours per week. Before the project is complete, the Contractor must employ apprentices for the total number of hours as required by the one to five hourly ratio. Contractor shall endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the job site.

Exemptions from the hourly based one to five ratio are available. In the case of a land surveyor, the minimum daily worker count of one apprentice to five journeymen is applicable.

In any other trade or craft, the Division of Apprenticeship Standards may grant a certificate exempting the Contractor from the one to five hourly ratio.

Unless the contractor or subcontractor certificate from the JAC indicates an exemption from the one to five ratio, that one to five hourly ratio shall apply.

A contractor or any subcontractor who employs journeymen or apprentices is required to make contributions to funds established for the administration of apprenticeship programs if he/she employs journeymen or apprentices in any apprenticeable trade on said contract and if other contractors in the area of the site of the public work are also contributing. Otherwise, contributions not made to a fund shall be made to the California Apprenticeship Council. The contractor or subcontractor may add the amount of the contributions in computing his or her bid for the contract. The Division of Labor Standards Enforcement enforces the payment of contributions.

B. Labor Code Section 1776 requires that the contractor stipulate to comply with provisions of said section. Responsibility for compliance with that section is fixed upon the prime contractor.

THE CONTRACTOR SUBMITTING THE BID HEREBY STIPULATES AS FOLLOWS:

a) Keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work.

b) The payroll records enumerated above shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor under the terms of the Labor Code Section 1776(b).

c) Each contractor shall file a certified copy of the records enumerated in Subdivision (a) with the entity that requested the records within ten (10) days after receipt of written request.

d) Any copy of records made available for inspection as copies and furnished upon request of the public or any public agency by the awarding body, the Division of Apprentice Standards, or the Division of Labor Standards shall be marked or obliterated in such a manner as to prevent disclosure of the individual's name, address and social security number. The name and address of the contractor awarded the contract or performing the contract shall not be marked or obliterated.

e) The contractor shall inform the body awarding the contract of the location of the records enumerated under Subdivision (a), including the street address, city and county, and shall, within five (5) working days provide a notice of change of location and address.

f) In the event of non-compliance with the requirements of this section, the contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects the contractor must comply with this section. Should non-compliance still be evident after the 10-day period, the contractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit Twenty-Five ($25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

C. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex-officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

BID BOND REQUIREMENT - All bids must be accompanied either by a certified check payment to the City Treasurer of the City in an amount of at least 10% of the bid, drawn on a bank which is a member of the Federal Reserve System, or by a bidder's bond in a like amount executed by an approved surety company and on forms satisfactory to or on forms provided by the City. Such warranty to be forfeited should the bidder to whom the contract is warded fail to enter into a contract.

Sureties shall be duly authorized to transact business under the laws of the State of California as sureties.

AWARD OF CONTRACT - The award of contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed.

The City of Petaluma reserves the right to waive irregularities and reserves the right to reject any or all bids.

Any explanation desired by bidders regarding the meaning or interpretation of the plans and specifications must be requested in writing and with sufficient time allowed for a reply to reach them before the submission of their bids. Oral explanations or instructions given before the award of the contract will not be binding. Any interpretations made will be in the form of an addendum to the specifications or drawings and will be furnished to all bidders and its receipt by the bidder shall be acknowledged.

The wording of the proposals shall not be changed. Any additions, conditions, limitations, or provisions inserted by the bidder will render the proposal irregular and may cause its rejection.

Erasure or interlineations in the proposal must be explained or noted over the signature of the bidder.

The award of contract, if it be awarded, will be to the lowest responsible bidder for Schedules "A", "B" and "C" combined.

SECURING WORKMEN'S COMPENSATION - In accordance with Section 3700 of the Labor Code, the Contractor shall secure insurance against liability for Workmen's Compensation or undertake self-insurance in accordance with the provisions of the code.

Dated: May 26, 1995 Patricia E. Evans
City Clerk

# PROPOSAL

To the City Council of the City of Petaluma:

The undersigned declares that he/she has carefully examined the location of the proposed work, that he/she has examined the plans and specifications, and read the accompanying instructions to bidders, and hereby proposes to furnish all materials and do all the work required to complete the said work in accordance with said plans, specifications, and special provisions for the unit or lump sum prices set forth in the attached Bid Schedule.

It is understood and agreed that the undersigned shall complete the work of the contract within the time provided for in the Contract Documents and Specifications governing said work.

If awarded the contract, the undersigned hereby agrees to sign said contract and to furnish the necessary bonds, insurance certificates and agreements within seven (7) days after notice of the award of said contract.

The undersigned has examined the location of the proposed work and is familiar with the plans, specifications and other contract documents and the local conditions at the place where the work is to be done.

The undersigned has checked carefully all the figures on the attached Bid Schedule and understands that the City will not be responsible for any errors or omissions on the party of the undersigned in making up this bid.

Enclosed find bidder's bond, certified check or cashier's Check No. _____ of the _____ (Company) (Bank) for $_____

This project requires a Class "A" California State Contractor's License, for the prime contractor.

In addition to the above requirements, the Contractor or Subcontractor performing the Lakeville Mitigation work shall be a California landscape contractor (current Class C27 License required) with at least five years experience in native plant restoration/revegetation projects, preferably in native estuarine/riparian habitats of California Coastal Ranges, San Francisco Bay area and surrounding areas. The prospective contractor will supply a description of at least three similar, representative and successfully completed projects including location, size and value of contract, plant materials used, and name and phone number of client contact. Failure to submit three successful representative projects may cause rejection of your bid as being non-responsive with the bid proposal.

Contractor's License No.:_____ License Class _____

Expiration Date of Contractor's License:_____

A bid submitted to a public agency by a contractor who is not licensed shall be considered non-responsive and shall be rejected by the public agency. The undersigned contractor declares that the contractor's license number and expiration date stated herein are made under penalty of perjury under the laws of the State of California.

Contractor: _____

Signed by: _____

Address: _____

_____

Dated this _____ day of _____, 19_____

BID SCHEDULE "A"
(SHOLLENBERGER PARK)

| ITEM NO. | DESCRIPTION | UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|---|
| 1. | CONSTRUCTION AREA SIGNS | L.S. | LUMP SUM | _____ | _____ |
| 2. | TRAFFIC CONTROL SYSTEM | L.S. | LUMP SUM | _____ | _____ |
| 3. | CLEARING AND GRUBBING | L.S. | LUMP SUM | _____ | _____ |
| 4. | SUBGRADE PREPARATION | S.F. | 71,000 | _____ | _____ |
| 5. | REMOVE AND RECONSTRUCT EXISTING CONCRETE DRIVEWAY | S.F. | 140 | _____ | _____ |
| 6.(F) | EARTHWORK (EXCAVATION) | C.Y. | 3,800 | _____ | _____ |
| 7.(F) | EARTHWORK (FILL) | C.Y. | 100 | _____ | _____ |
| 8. | PLACE ASPHALT CONCRETE COMPLETE IN PLACE | TON | 900 | _____ | _____ |
| 9. | PLACE AGGREGATE BASE CL. 2 COMPLETE IN PLACE | TON | 9,200 | _____ | _____ |
| 10. | PLACE STABILIZATION FABRIC (GEOTEXTILE) COMPLETE IN PLACE | S.Y. | 7,900 | _____ | _____ |
| 11. | CONSTRUCT 6" A.C. DIKE COMPLETE IN PLACE (TYPE A) | L.F. | 1,200 | _____ | _____ |
| 12. | CONSTRUCT 2" X 6" REDWOOD HEADER BOARD COMPLETE IN PLACE INCLUDING STAKES | L.F. | 1,650 | _____ | _____ |
| 13. | INSTALL 6" WATER MAIN/SERVICE COMPLETE IN PLACE | L.F. | 450 | _____ | _____ |
| 14. | INSTALL 6" GATE VALVE & BOX COMPLETE IN PLACE | EACH | 1 | _____ | _____ |
| 15. | HOT TAP EXISTING WATER MAIN | EACH | 1 | _____ | _____ |
| 16. | INSTALL 36" STORM DRAIN PIPE COMPLETE IN PLACE INCLUDING FLARED HEADWALLS AND ENDWALLS | L.F. | 90 | _____ | _____ |
| 17. | INSTALL TYPE "A" STORM DRAIN CATCH BASIN | EACH | 2 | _____ | _____ |

| ITEM NO. | DESCRIPTION | UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|---|
| 18. | REMOVE EXISTING 24" RCP STORM DRAIN COMPLETE | EACH | 1 | ____ | ____ |
| 19. | ABANDON TWO EXISTING 12" RCP STORM DRAIN CULVERTS | EACH | 2 | ____ | ____ |
| 20. | INSTALL 15" RCP CLASS V STORM DRAIN COMPLETE IN PLACE INCLUDING FLARED ENDWALL | L.F. | 70 | ____ | ____ |
| 21. | INSTALL 6" SEWER MAIN COMPLETE IN PLACE | L.F. | 90 | ____ | ____ |
| 22. | INSTALL TYPE "A" SEWER CLEANOUT COMPLETE IN PLACE PER CITY STANDARD | EACH | 1 | ____ | ____ |
| 23. | INSTALL 2" WATER SERVICE COMPLETE IN PLACE | L.F. | 50 | ____ | ____ |
| 24. | INSTALL FIRE HYDRANT COMPLETE IN PLACE | EACH | 1 | ____ | ____ |
| 25. | ADJUST WATER VALVE BOX TO GRADE | EACH | 1 | ____ | ____ |
| 26. | CONSTRUCT ENTRANCE GATE COMPLETE IN PLACE | L.S. | LUMP SUM | ____ | ____ |
| 27. | 4" WIDE WHITE THERMOPLASTIC STRIPING/PAVEMENT MARKINGS | S.F. | 150 | ____ | ____ |
| 28. | INSTALL "HANDICAPPED PARKING SYMBOL" PAVEMENT MARKING COMPLETE IN PLACE | EACH | 1 | ____ | ____ |
| 29. | INSTALL TYPE I (10) ARROW | EACH | 4 | ____ | ____ |
| 30. | RELOCATE EXISTING WATERLINE MARKER POST COMPLETE IN PLACE | EACH | 2 | ____ | ____ |
| 31. | ADJUST/LOWER EXISTING SEWER MANHOLE TO GRADE COMPLETE IN PLACE | EACH | 1 | ____ | ____ |
| 32. | INSTALL R26F SIGN PER CITY STANDARD COMPLETE IN PLACE INCLUDING POSTS | EACH | 7 | ____ | ____ |

| ITEM NO. | DESCRIPTION | UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|---|
| 33. | INSTALL 3" ELECTRICAL CONDUIT WITH 3 NO. 2 AWG COPPER WIRES AND 1/4" NYLON PULL ROPE INSIDE COMPLETE IN PLACE AND READY FOR USE INCLUDING CONNECTION TO PG&E POWER SOURCE | L.F. | 410 | ____ | ____ |
| 34. | INSTALL 2" ELECTRICAL CONDUIT WITH TWO NO. 8 AWG COPPER WIRES COMPLETE IN PLACE | L.F. | 160 | ____ | ____ |
| 35. | INSTALL 1 1/2" SCH. 80 PVC PHONE CONDUIT | L.F. | 420 | ____ | ____ |
| 36. | INSTALL STREET LIGHT COMPLETE IN PLACE AND READY FOR USE | EACH | 2 | ____ | ____ |
| 37. | PULL BOXES W/TRAFFIC LIDS | EACH | 4 | ____ | ____ |
| 38. | "WILDLIFE HABITAT AREA - UNAUTHORIZED VEHICLES PROHIBITED" SIGN INCLUDING POSTS | EACH | 1 | ____ | ____ |
| 39. | INSTALL PARKING TIRE BUMPER COMPLETE IN PLACE | EACH | 20 | ____ | ____ |
| 40. | POTHOLING EXISTING UNDERGROUND FACILITIES | EACH | 2 | ____ | ____ |
| 41. | INSTALL 5-STRAND WIRE FENCE COMPLETE IN PLACE INCLUDING POSTS | L.F. | 30 | ____ | ____ |

| ITEM NO. | DESCRIPTION | UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|---|
| 42. | PROVIDE A C-7 MUD CAT BULLDOZER AND AN OPERATOR TO RESTORE/BUILD UP EXISTING INTERIOR DIKE/MOUND | HOUR | 40 | _____ | _____ |
| 43. | REMOVE AND REPLACE EXISTING 72" C.M.P. RISER, ANTIVORTEX DEVICE AND TRASH RACK COMPLETE IN PLACE | L.S. | LUMP SUM | _____ | _____ |
| 44. | REMOVE AND REPLACE EXISTING FLAP GATE AND ASSEMBLY COMPLETE IN PLACE | L.S. | LUMP SUM | _____ | _____ |

TOTAL BID FOR SCHEDULE "A": $_____
(In Figures)

(F) DENOTES FINAL PAY QUANTITY

## BID SCHEDULE "B"
## (LAKEVILLE HIGHWAY MITIGATION)

| ITEM DESCRIPTION | PAYMENT UNIT | QUANTITY | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|
| • Avoidance of Sensitive Areas | | | | |
| 1. Construction fence wetlands | Lump Sum | Lump Sum | _____ | _____ |
| 2. Silt fence, creek zone | Lump Sum | Lump Sum | _____ | _____ |
| • Mobilization and Staging Area | | | | |
| 3 Mobilize equipment and materials to site | Lump Sum | Lump Sum | _____ | _____ |
| • Access road and Adobe Creek crossing | | | | |
| 4. Improve access road | Lump Sum | Lump Sum | _____ | _____ |
| 5. Temporary creek crossing | Lump Sum | Lump Sum | _____ | _____ |
| • Avoidance of utilities | | | | |
| 6. Field mark location of utilities | Lump Sum | Lump Sum | _____ | _____ |
| • Earthwork/Spoils Disposal | | | | |
| 7. Excavate and Grade Zones A, B and C | Lump Sum | Lump Sum | _____ | _____ |
| 8. Place Marsh Topsoil (3") | Square Yard | 2,100 | _____ | _____ |
| 9. Erosion Control Netting - Tidal Zone | Square Yard | 2,100 | _____ | _____ |
| 10. Streambed excavation | Lump Sum | Lump Sum | _____ | _____ |
| 11. Rough grade spoils disposal area | Lump Sum | Lump Sum | _____ | _____ |
| • Planting | | | | |
| 12. Zone A - | | | | |
| Alkali Bulrush | Lump Sum | Lump Sum | _____ | _____ |
| Cordgrass | Lump Sum | Lump Sum | _____ | _____ |
| Pickleweed squares | Lump Sum | Lump Sum | _____ | _____ |
| Pickleweed rhizomes | Lump Sum | Lump Sum | _____ | _____ |
| | | Subtotal | _____ | _____ |

| ITEM DESCRIPTION | PAYMENT UNIT | QUANTITY | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|
| 13. Zone B - | | | | |
| Jaumea/Frankenia Squares | Lump Sum | Lump Sum | | |
| Saltgrass rhizomes | Lump Sum | Lump Sum | | |
| Gum plant | Lump Sum | Lump Sum | | |
| | | Subtotal | | |
| 14. Zone C - | | | | |
| Arroyo Willow | Lump Sum | Lump Sum | | |
| California rose | Lump Sum | Lump Sum | | |
| | | Subtotal | | |
| 15. Zone D - | | | | |
| Coyote bush | Lump Sum | Lump Sum | | |
| Quail bush | Lump Sum | Lump Sum | | |
| Toyon | Lump Sum | Lump Sum | | |
| California Rose | Lump Sum | Lump Sum | | |
| | | Subtotal | | |
| 16. Zone B - | | | | |
| Blue blossom | Lump Sum | Lump Sum | | |
| Bearberry | Lump Sum | Lump Sum | | |
| Coffeeberry | Lump Sum | Lump Sum | | |
| Lemonade berry | Lump Sum | Lump Sum | | |
| Coyote bush | Lump Sum | Lump Sum | | |
| | | Subtotal | | |
| 17. Joint Planting | Lump Sum | Lump Sum | | |
| 18. Erosion Planting - coir blanket and willow stakes | Lump Sum | Lump Sum | | |
| 19. Boulder Barrier | Lump Sum | Lump Sum | | |
| 20. Loose Rock Drop Structures/ Ramped Gradient Drop and Scour Pool | Per Ton of Rock Placed | 150 tons | | |
| • Fencing | | | | |
| 21. Redwood bollard | Lump Sum | Lump Sum | | |
| 22. Scenic easement | Lump Sum | Lump Sum | | |
| 23. Signage | Lump Sum | Lump Sum | | |
| • Erosion Control | | | | |
| 24. Seed disturbed areas - hydroseed | Lump Sum | Lump Sum | | |

| ITEM DESCRIPTION | PAYMENT UNIT | QUANTITY | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|
| 25. Repair mobilization areas | Lump Sum | Lump Sum | _____ | _____ |
| 26. Seed spoils disposal | Lump Sum | Lump Sum | _____ | _____ |
| • Irrigation | | | | |
| 27. Installation | Lump Sum | Lump Sum | _____ | _____ |
| • Maintenance | | | | |
| 28. Year 1 | Lump Sum | Lump Sum | _____ | _____ |
| 29. Year 2 | Lump Sum | Lump Sum | _____ | _____ |
| 30. Year 3 | Lump Sum | Lump Sum | _____ | _____ |
| | | Subtotal | _____ | _____ |
| | GRAND TOTAL | | _____ | |

## BID SCHEDULE "C"
(CITY OF PETALUMA LANDFILL CLOSURE)

| ITEM NO. | DESCRIPTION | UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|---|
| 1. | SITE HEALTH AND SAFETY PLAN | L.S. | LUMP SUM | _____ | _____ |
| 2. | MOVE IN AND SITE PREPARATION | L.S. | LUMP SUM | _____ | _____ |
| 3. | TEMPORARY AND ENVIRONMENTAL CONTROLS | L.S. | LUMP SUM | _____ | _____ |
| 4. | SOLID WASTE REGRADING COMPLETE IN PLACE | C.Y. | 12,500 | _____ | _____ |
| 5. | FOUNDATION LAYER COMPLETE IN PLACE | C.Y. | 28,800 | _____ | _____ |
| 6. | LOW PERMEABILITY SOIL LAYER COMPLETE IN PLACE | C.Y. | 14,400 | _____ | _____ |
| 7. | VEGETATIVE LAYER FROM BORROW SITE 2 COMPLETE IN PLACE | C.Y. | 14,400 | _____ | _____ |
| 8. | SPREAD AND MIX VEGETATIVE SOIL LAYER STOCKPILED AND DELIVERED TO LANDFILL SITE BY CITY COMPLETE IN PLACE | C.Y. | 3,000 | _____ | _____ |
| 9. | EROSION CONTROL COMPLETE IN PLACE | ACRE | 8.8 | _____ | _____ |
| 10. | REMOVE SECTION OF ADJACENT BERM | C.Y. | 50 | _____ | _____ |
| 11. | REMOVE TRASH IN ADJACENT WETLAND AREA | C.Y. | 20 | _____ | _____ |
| 12. | LEACHATE MONITORING WELL EXTENSIONS COMPLETE IN PLACE | EACH | 2 | _____ | _____ |
| 13. | CHAIN LINK FENCE AND 12-FOOT GATE COMPLETE IN PLACE | L.S. | LUMP SUM | _____ | _____ |
| 14. | DRAINAGE CONTROL SYSTEM COMPLETE IN PLACE | L.S. | LUMP SUM | _____ | _____ |

TOTAL BID FOR SCHEDULE "C": $_____
(In Figures)

SUMMARY:

TOTAL BID FOR SCHEDULE "A" $_____

TOTAL BID FOR SCHEDULE "B" _____

TOTAL BID FOR SCHEDULE "C" _____

TOTAL FOR ALL SCHEDULES "A", "B" AND "C": $_____

## BIDDER'S AFFIDAVIT OF NONCOLLUSION SUBMITTED WITH BID

_____, hereby declares that:
(Contractor)

He or she is _____ of _____
(Title or Position) (Company Name)

the party making the foregoing bid; that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____ _____
Signature

Public Contract Code Section 7106
Code of Civil Procedure Section 2015.5

END OF "BIDDER'S AFFIDAVIT"

## QUESTIONNADRE AND FINANCIAL STATEMENT FORM

The following statements as to experience and financial qualifications of the bidder are submitted in conjunction with the proposal as a part thereof, and the truthfulness and accuracy of the information is guaranteed by the bidder.

The bidder has been engaged in the contracting business under the present business for ____ years. Experience in work of a nature similar to that covered in the proposal extends over a period of ____ years.

The bidder, as a contractor, has never failed to satisfactorily complete a contract awarded to him except as follows: (Name any and all exceptions and reasons thereof).

_____

_____

_____

The following contracts for work of a similar nature have been satisfactorily completed in the last three (3) years for the persons, firm or authority indicated and to whom reference is made: (Name five contracts).

| Year | Type of Work-Size and Length | Location and for Whom Performed |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

## QUESTIONNAIRE AND FINANCIAL STATEMENT FORM (Continued)

Reference is hereby made to the following bank or banks as to the financial responsibility of the bidder:

NAME OF BANK _____ ADDRESS _____

_____

_____

_____

_____

_____

Reference is hereby made to the following surety companies as to the financial responsibility and general reliability of the bidder:

NAME OF SURETY COMPANY:

_____

SIGNATURE OF BIDDER:

_____

END OF
"QUESTIONNAIRE AND FINANCIAL STATEMENT FORM"

## LIST OF SUBCONTRACTORS

In accordance with the provisions of Section 4102 and 4108, inclusive, of the Government Code of the State of California, each bidder shall list below the name and location of place of business of each subcontractor who will perform a portion of the contract work in an amount in excess of one-half of one percent of the total contract price. In each such instance, the nature of extent of the work to be sublet shall be described.

The General Contractor to whom the contract is awarded will not be permitted, without the written consent of the City, to substitute any person as subcontractor in place of the subcontractor designated in the original bid, or to permit any subcontract to be assigned or transferred, or to allow it to be performed by anyone other than the original subcontractor. The City may consent to the substitution of another person as subcontractor, if the original subcontractor, after having reasonable opportunity to do so, shall fail or refuse to execute the written contract presented to him by the General Contractor, when said written contract is based upon the conditions of the general contract and complies with the subcontractor's written bid.

The failure of the General Contractor to specify a subcontractor for any portion of the contract work in excess of one-half of one percent of the total contract price shall be deemed to indicate that the Contractor inteads to perform such portion himself. The subletting or subcontracting of work for which no subcontractor was designated in the original bid and which is in excess of one-half of one percent of the total contract price, will be allowed only with the written consent of the City.

| Name of Subcontractor | Addresss of Office Mill or Shop | Description of Work to be Performed (Also Show Bid Schedule Item Number) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

## LIST OF MATERIALS SUPPLIERS AND MATERIAL GUARANTEE

The bidder is required to name the make and supplier of the material items listed below to be furnished under these specifications. The bidder shall name a manufacturer for each item and the supplier of the item if the supplier is not the manufacturer. The naming of a number of suppliers for a single item or naming a supplier "or equal" will not be acceptable.

Failure to complete this form and submit it with the bid proposal may cause the proposal to be rejected as being incomplete and not responsive to the solicitation.

Item _____ Supplier & Manufacturer _____

Aggregate Base _____

Asphalt Concrete _____

Stabilization Fabric (Geotextile) _____

## MATERIAL GUARANTEE

In addition to completion of the list of material suppliers on the Material Suppliers form, the bidder may be required to furnish prior to award of contract, a complete statement of the origin, composition and manufacturer of any or all materials to be used in the construction of the work, together with samples, which samples may be subjected to test, provided for in these specifications or in the Special Provisions to determine their quality and fitness for the work.

END OF
"LIST OF MATERIAL SUPPLIERS AND MATERIAL GUARANTEE"

## BID BOND

We, _____ as Principal, and _____ as Surety, jointly and severally, bind ourselves, our heirs, representatives, successors and assigns, as set forth herein, to the City of Petaluma (herein called "the Owner") for the payment of the penal sum of _____ dollars ($_____), lawful money of the United States, which is ten (10%) percent of the total amount bid by bidder to the Owner. Principal has submitted the accompanying bid for the construction of the _____ project.

If the Principal is awarded the Contract and enters into a written Contract, in the form prescribed by the Owner, at the price designated by his/her bid, and files two bonds with the Owner, one to guarantee payment for labor and materials and the other to guarantee faithful performance, in the time and manner specified by the Owner, and carries all insurance in type and amount which conforms to the Contract Documents and furnishes required certificates and endorsements thereof, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Forfeiture of this bond, or any deposit made in lieu thereof, shall not preclude the Owner from seeking all other remedies provided by law to cover losses sustained as a result of the Principal's failure to do any of the foregoing.

Principal and Surety agree that if the Owner is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay the Owner's reasonable attorney's fees, witness fees and other costs incurred with or without suit.

Executed on _____, 19___

_____
PRINCIPAL

By: _____
(Signature)

_____
(Title)

Any claims under this bond may be addressed to:

_____
_____
_____
_____
_____

(Name and address of Surety's agent for service of process in California, if different from above)

(Telephone number of Surety's agent in California)

(Attach Acknowledgment)

_____
SURETY

By: _____
(Attorney-in-Fact)

NOTICE:

No substitution or revision to this bond form will be accepted. Be sure that all bonds submitted have a certified copy of the bonding agent's power of attorney attached. Also be sure that Surety is an "Admitted Surety" (i.e., surety qualified to do business in California). Contact County Clerk or Department of Insurance to verify.

END OF
"BID BOND"

SECTION II

# GENERAL PROVISIONS

City of Petaluma
Petaluma, California

# GENERAL PROVISIONS
# PROPOSAL REQUIREMENTS

## SECTION I

A. General Information. The City Council of the City of Petaluma, California, will receive at the Office of the City Clerk, City Hall, in said City, until the hour and day specified in the "Notice to Bidders", sealed proposals for furnishing material, supplies, equipment, and labor for performing the work as specified in these plans and specifications.

B. Proposal Form. All proposals must be made upon blank forms to be obtained from the City Clerk at her office, City Hall, Petaluma, California. All proposals must give the prices proposed, both in writing and figures, and must be signed by the bidder with his address. If the proposal is made by an individual, his name and post office address must be shown. If made by a firm or partnership, the name and post office address of each member of the firm or partnership must be shown. If made by a corporation, the proposal must show the name of the state under the laws of which the corporation was chartered and the names, titles, and business addresses of the president, secretary, and the treasurer.

C. Bidder's Guaranty. All bids shall be presented under sealed cover and shall be accompanied by cash, cashier's check, certified check or bidder's bond, made payable to the City of Petaluma in an amount equal to at least ten (10%) percent of the amount of said bid, and no bid shall be considered unless such cash, cashier's check, certified check, or bidder's bond is enclosed therewith.

D. Return of Bidder's Guaranties. Within ten (10) days after the award of the contract, the City of Petaluma will return the proposal guaranties accompanying such of the proposals which are not to be considered in making the award. All other proposal guaranties will be held until the contract has been finally executed, after which they will be returned to the respective bidders whose proposals they accompanied.

E. Contract Bonds. The successful bidder shall furnish a surety bond or letter of credit in an amount equal to one hundred (100%) percent of the contract price as security for the faithful performance of this contract, and shall furnish a separate surety bond or letter of credit in an amount equal to fifty (50%) percent of the contract price as security for the payment of all persons performing labor and furnishing materials in connection with this contract. The aforesaid bonds or letter of credit shall be satisfactory to or on the forms provided by the City. Sureties shall be duly authorized to transact business under the laws of the State of California as sureties.

All alterations, extensions of time, extra and additional work and other changes authorized by these specifications or any part of the contract may be made without securing the consent of the surety or sureties on the contract bonds or letters of credit.

F. Rejection of Proposals Containing Alterations, Erasures, or Irregularities. Proposals may be rejected if they show any alterations of form, additions not called for, conditional or alternative bids, incomplete bids, erasures, or irregularities of any kind.

The right is reserved to reject any and all proposals.

G. Award of Contract. The award of the contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed. Such award, if made, will be made within forty-five (45) days after the opening of the proposals. If the lowest responsible bidder refuses or fails to execute the contract, the City may award the contract to the second lowest responsible bidder. Such award, if made, will be made within sixty (60) days after the opening of proposals. If the second lowest responsible bidder refuses or fails to execute the contract, the City may award the contract to the third lowest responsible bidder. Such award, if made, will be made within seventy-five (75) days after the opening of the proposals. The periods of time specified above within which the award of contract may be made shall be subject to extension for such further period as may be agreed upon in writing between the City and the bidder concerned.

All bids will be compared on the basis of the Engineer's estimates of the quantities of work to be done whenever applicable.

H. Execution of Contract. The contract shall be signed by the successful bidder and returned, together with the contract bonds, within ten (10) days, not including Sundays, after the bidder has received notice that the contract has been awarded. No proposal shall be considered binding upon the City until the execution of the contract.

I. Failure to Execute Contract. Failure of the lowest responsible bidder, the second lowest responsible bidder, or the third lowest responsible bidder to execute the contract and file acceptable bonds as provided herein within ten (10) days after such bidder has received notice that the contract has been awarded to him shall be just cause for the annulment of the award and the forfeiture of the proposal guaranty. The successful bidder may file with the City a written notice, signed by the bidder or his authorized representative, specifying that the bidder will refuse to execute the contract if presented to him. The filing of such notice shall have the same force and effect as the failure of the bidder to execute the contract and furnish acceptable bonds within the time hereinbefore prescribed.

J. Examination of Plans, Specifications, Contract, and Site of Work. The bidder shall carefully examine the site of the work contemplated, the plans and specifications, and the proposal and contract forms therefor. The submission of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the condition to be encountered, as to the character, quality, and scope of work to be performed, the quantities of materials to be furnished, and as to the requirements of the proposal, plans, specifications, and the contract. Where the City has made investigations of subsurface conditions in areas where work is to be performed under the contract, or in other areas, some of which may constitute possible local material sources, such investigations are made only for the purpose of study and design. Where such investigations have been made, bidders or contractors may, upon written request, inspect the records of the City as to such investigations subject to and upon the conditions hereinafter set forth.

The records of such investigation are not a part of the contract and are shown solely for the convenience of the bidder or contractor. It is expressly understood and agreed that the City assumes no responsibility whatsoever in respect to the sufficiency or accuracy of the investigation thus made, the records thereof, or of the interpretation set forth therein or made by the Department in its use thereof and there is no warranty or guaranty, either expressed or implied, that the conditions indicated by such investigations or records thereof are representative of those existing throughout such area, or any part thereof, or that unlooked-for developments may not occur, or that materials other than, or in proportions different from those indicated, may not be encountered.

When a log of test borings showing a record of the data obtained by the City's investigation of subsurface conditions is included with the contract plans, it is expressly understood and agreed that said log of test borings does not constitute a part of the contract, represents only the opinion of the City as to the character of the materials encountered by it in its test borings, is included in the plans only for the convenience of bidders and its use is subject to all of the conditions and limitations herein set forth.

In some instances the information from such subsurface investigations considered by the City to be of possible interest to bidders or contractors has been compiled as "Materials Information". Said "Materials Information" is not a part of the contract and is furnished solely for the convenience of bidders or contractors. It is understood and agreed that the fact that the City has compiled the information from such investigations as "Materials Information" and has exhibited or furnished to the bidders or contractors such "Materials Information" shall not be construed as a warranty or guaranty, express or implied, as to the completeness or accuracy of such compilations, and the use of such "Materials Information" shall be subject to all of the conditions and limitations herein set forth and in section "Local Materials".

When contour maps were used in the design of the project, the bidders may inspect such maps; and if available, they may obtain copies for their use.

The availability or use of information described in this section is not to be construed in any way as a waiver of the provisions of the first paragraph in this section and a bidder or contractor is cautioned to make such independent investigation and examination as he deems necessary to satisfy himself as to conditions to be encountered in the performance of the work and, with respect to possible local material sources, the quality and quantity of material available from such property and the type and extent of processing that may be required in order to produce material conforming to the requirements of the specifications. No information derived from such inspection of records of investigations or compilation thereof made by the City or from the Engineer, or his assistant, will in any way relieve the bidder or contractor from any risk or from properly fulfilling the terms of the contract.

## SECTION 2
## SCOPE OF WORK

A. Work To Be Done. The work to be done consists of furnishing all labor, materials, methods, and processes, implements, tools, and machinery, except as otherwise specified, which are necessary and required to construct and put in order for use the work embraced in these plans and specifications and designated in the contract, and to leave the grounds in a neat condition.

B. Changes Initiated by the City. The Engineer may change the plans, specifications, character of the work, or quantity of work, provided the total arithmetic dollar value of all such changes both additive and deductive, does not exceed twenty-five (25%) percent of the contract price. Should it become necessary to exceed this limitation, the change shall be by written supplemental agreement between the Contractor and City.

Change orders shall be in writing and state the dollar value of the change or establish method of payment, any adjustment in contract time; and when negotiated prices are involved, shall provide for the Contractor's signature indicating his acceptance.

Payment for changes initiated by the City:

1. Contract Unit Price. If a change is ordered in an item of work covered by a contract unit price and such change does not involve a substantial change in the character of the work from that on which the Contractor bid, an adjustment in payment will be made based upon the increase or decrease in quantity and the contract unit price. In the case of such an increase or decrease in a major bid item, the use of this basis for the adjustment of payment will be limited to the portion of the change which, together with all previous changes to that item, is not in excess of twenty-five (25%) percent of the total cost of such item based on the original quantity and contract unit price.

   Should any contract item be deleted in its entirety, payment will be made only for actual costs incurred prior to notification of such deletion.

2. Stipulated Unit Prices. Stipulated unit prices are those established by the City in the contract documents as distinguished from contract unit prices submitted by the Contractor. Stipulated unit prices may be used for the adjustment of contract changes.

3. Agreed Prices. Adjustments in payments for changes other than those set forth for contract and stipulated unit prices above will be determined by agreement between Contractor and City. If unable to reach agreement, the City may direct the Contractor to proceed on the basis of Extra Work.

C. Changes Requested by the Contractor. Changes in methods of construction may be made at the Contractor's request upon written approval of the Engineer.

Changes in the plans and specifications requested in writing by the Contractor, which do not materially affect the work and which are not detrimental to the work or to the interests of the City, may be granted by the City to facilitate the work when approved in writing by the Engineer.

Payment for changes requested by the Contractor--if such changes are granted they shall be made at reduction in cost or at no additional cost to the City. Nothing herein shall be construed as granting a right to the Contractor to demand acceptance of such changes.

D. Removal of Obstructions. The Contractor shall remove and dispose of all structures, debris, or other obstructions of any character to the performance of the designated work if and as required by the Engineer.

The Contractor shall remove and dispose of all trees designated by the Engineer as obstructions to the property completion of the work.

E. Cleaning Up. The Contractor shall not allow the site of the work to become littered with trash and waste material, but shall maintain the same in a neat and orderly condition throughout the construction period. The Engineer shall have the right to determine what is or is not waste material or rubbish and the place and manner of disposal.

Before final acceptance of the work, the Contractor shall with no extra charge therefor carefully clean up the work and premises, remove all temporary structures built by or for him, remove all surplus construction material and rubbish of all kinds from the grounds which he has occupied and leave them in neat condition acceptable to the Engineer.

## SECTION 3

## CONTROL OF THE WORK

A. Authority of the Engineer. The Engineer shall decide any and all questions which may arise as to the quality or acceptability of materials furnished and work performed, and as to the manner of performance and rate of progress of the work; all questions which arise as to the interpretation of the plans and specifications; all questions as to the acceptable fulfillment of the contract on the part of the Contractor; and all questions as to claim and compensation.

The Engineer's decisions shall be final and he shall have executive authority to enforce and make effective such decisions and orders as the Contractor fails to carry out promptly.

B. Plans. All authorized alterations affecting the requirements and information given on the approved plans shall be in writing. No changes shall be made of any plan or drawing after the same has been approved by the Engineer, except by direction of the Engineer.

Working drawings or plans for any structure not included in the plans furnished by the Engineer shall be approved by the Engineer before any work involving these plans shall be performed, unless approval be waived in writing by the Engineer.

It is mutually agreed, however, that approval by the Engineer of the Contractor's working plans does not relieve the Contractor of any responsibility for accuracy of dimensions and details, and that the Contractor shall be responsible for agreement and conformity of his working plans with the approved plans and specifications.

C. Conformity With Plans and Allowable Deviation. Finished surfaces in all cases shall conform with the lines, grades, cross sections, and dimensions shown on the approved plans. Deviations from the approved plans, as may be required by the exigencies of construction, will be determined in all cases by the Engineer and authorized in writing.

D. Coordination of Plans, Specifications, and Special Provisions. These specifications, the plans, special provisions, and all supplementary documents are essential parts of the contract, and a requirement contained in one is as binding as though contained in all. They are intended to be cooperative, to describe, and to provide for a complete work. Plans shall govern over specifications; special provisions shall govern over both specifications and plans.

E. Interpretation of Plans and Specifications. Should it appear that the work to be done, or any matter relative thereto, is not sufficiently detailed or explained in these specifications, plans and the special provisions, the Contractor shall apply to the Engineer for such further explanations as may be necessary, and shall conform to such explanation or interpretation as part of the contract, so far as may be consistent with the intent of the original specifications. In the event of doubt or question relative to the true meaning of the specifications, reference shall be made to the Engineer, whose decision thereon shall be final.

In the event of any discrepancy between any drawing and the figures written thereon, the figures shall be taken as correct.

F. Excavation and Trenching Safety. The Contractor alone shall be responsible for the safety of his workmen, plant, equipment, and methods.

The Contractor shall comply with all State safety requirements including the provisions of California Labor Code Sections 6422 and 6424.

On any Public Works contract entered into by the City of Petaluma requiring excavation of trenching five (5) feet or more in depth, the Contractor shall, prior to and as a condition of award of the contract, submit to the City of Petaluma all required excavation and/or trenching permits, detailed trench shoring plans, sloping or other provisions to be made for workmen protection from hazard of caving ground, all properly signed and approved by the Department of Industrial Relations, Division of Industrial Safety.

The City of Petaluma SHALL NOT: Issue excavation or trenching permits; review or approve the design of shoring, bracing, sloping systems or methods; inspect excavations or trenches for the safety of workmen from the hazard of caving ground. Apparent violations of the State Construction Safety Orders shall be promptly reported by the City of Petaluma to the Division of Industrial Safety. The adequacy of the Contractor's excavation and trenching systems and methods for the protection of the workmen from the hazard of caving ground shall be determined by the Division of Industrial Safety.

1. Hazardous Waste and Changed Site Conditions: The Contractor and the City shall comply with Public Contract Code 7104. All Public Works contracts which include digging trenches or other excavation that extends deeper than four feet below the surface shall be executed in the following manner:

   (a) That the Contractor shall promptly, and before the conditions are disturbed, notify the City, in writing, of any:

      (1) Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be moved to a Class I, Class II or Class III disposal site in accordance with provisions of existing law.

      (2) Subsurface or latent physical conditions at the site differing from those indicated.

      (3) Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally

recognized as inherent in work of the character provided for in the contract.

(b) That the City shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a change order under the procedures described in the contract.

(c) That, in the event that a dispute arises between the City and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all work to be performed under the contract. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

2. Nothing in the above paragraph (hazardous waste and changed site conditions) shall relieve the Contractor from the requirements of Section 1, Clause J. Examination of Plans, Specifications, Contract, and Site of Work of these General Provisions.

G. Superintendence. The Contractor shall designate in writing before starting work an authorized representative who shall have the authority to represent and act for the Contractor. When the Contractor is comprised of two or more persons, firms, partnerships, or corporations functioning on a joint venture basis, said Contractor shall designate in writing before starting work, the name of one authorized representative who shall have the authority to represent and act for the Contractor.

Said authorized representative shall be present at the site of work at all times while work is actually in progress on the contract. When work is not in progress and during periods when work is suspended, arrangements acceptable to the Engineer shall be made for any emergency work which may be required.

Whenever the Contractor or his authorized representative is not present on any particular part of the work where it may be desired to give directions, orders will be given by the Engineer, which shall be received and obeyed by the superintendent or foreman who may have charge of the particular work in reference to which the orders are given.

Any order given by the Engineer, not otherwise required by the specifications to be in writing will, on request of the Contractor, be given or confirmed by the Engineer in writing.

H. Lines and Grades. Such stakes or marks will be set by the Engineer as he determines to be necessary to establish the lines and grades required for the completion of the work specified in the specifications and the plans.

When the Contractor requires such stakes or marks, he shall notify the Engineer of his requirements, in writing, a reasonable length of time in advance of starting operations that

require such stakes or marks. In no event shall a notice of less than two (2) working days be considered a reasonable length of time.

Stakes and marks set by the Engineer shall be carefully preserved by the Contractor. In case such stakes and marks are destroyed or damaged, they will be replaced at the Engineer's earliest convenience. The Contractor will be charged for the cost of necessary replacement or restoration of stakes and marks which in the judgment of the Engineer were carelessly or willfully destroyed or damaged by the Contractor's operations. This charge will be deducted from any monies due or to become due the Contractor.

I. Inspection. The Engineer shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge respecting the progress, workmanship, and character of materials used and employed in the work.

Whenever the Contractor varies the period during which work is carried on each day, he shall give due notice to the Engineer so that proper inspection may be provided. Any work done in the absence of the Engineer will be subject to rejection.

The inspection of work shall not relieve the Contractor of any of his obligations to fulfill the contract as prescribed. Defective work shall be made good and unsuitable materials may be rejected, notwithstanding the fact that such defective work and unsuitable materials may have been previously overlooked by the Engineer and accepted or estimated for payment.

Projects financed in whole or in part with Federal or State funds shall be subject to inspection at all times by the Federal or State Agency involved.

J. Removal of Defective and Unauthorized Work. All work which is defective in its construction or deficient in any of the requirements of these specifications shall be remedied or removed and replaced by the Contractor in an acceptable manner, and no compensation will be allowed for such correction.

Any work done beyond the lines and grades shown on the plans or established by the Engineer or any extra work done without written authority will be considered as unauthorized and will not be paid for.

Upon failure on the part of the Contractor to comply with any order of the Engineer made under the provisions of this article, the Engineer shall have authority to cause defective work to be remedied or removed and replaced, and unauthorized work to be removed, and to deduct the costs thereof from any monies due or to become due to the Contractor.

K. Final Inspection. Whenever the work provided and contemplated by the contract shall have been satisfactorily completed and the final cleaning up performed, the Engineer will make the final inspections.

///
///
///
///
///
///

## SECTION 4

## CONTROL OF MATERIALS

A. Samples of Tests. At the option of the Engineer, the source of supply of each of the materials shall be approved by the Engineer before delivery is started and before such materials are used in the work. Representative preliminary samples of the character and quality prescribed shall be submitted by the Contractor or producer of all materials to be used in the work for testing or examination as desired by the Engineer.

All tests of materials furnished by the Contractor shall be made in accordance with the commonly recognized standards of national organizations, and such special methods and tests as are prescribed in these specifications.

The Contractor shall furnish such samples of materials as are requested by the Engineer without charge. No material shall be used until it has been approved by the Engineer. Samples will be secured and tested whenever necessary to determine the quality of materials.

B. Trade Names and Alternatives. For convenience in designations on the plans or in the specifications, certain articles or materials to be incorporated in the work may be designated under a trade name or the name of a manufacturer and his catalog information. The use of an alternative article or material which is of equal quality and of the required characteristics for the purpose intended will be permitted subject to the following requirements:

The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and he shall furnish all information necessary as required by the Engineer. The Engineer shall be the sole judge as to the quality and suitability of alternative articles or materials and his decision shall be final.

Whenever the specifications permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material will be made until the request for substitution is made in writing by the Contractor accompanied by complete data as to the equality of the material or article proposed. Such request shall be made in ample time to permit approval without delaying the work, but need not be made in less than thirty-five (35) days after award of the contract.

C. Defective Materials. All materials which the Engineer has determined do not conform to the requirements of the plans and specifications will be rejected whether in place or not. They shall be removed immediately from the site of work, unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used in the work, unless approval in writing has been given by the Engineer. Upon failure of the Contractor to comply promptly with any order of the Engineer made under the provisions in this section, the Engineer shall have authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any monies due or to become due the Contractor.

If any portion of work done or material furnished under this contract shall prove defective and not in accordance with the specifications and drawings, and if the imperfection in the same shall not be of sufficient magnitude or importance to make the work dangerous or undesirable, the Engineer shall have the right and authority to retain such work instead of

requiring the imperfect work to be removed and reconstructed, but he may make such deduction therefor in the payments due or to become due the Contractor as may be just and reasonable.

## SECTION 5

## LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

A. Laws To Be Observed. The Contractor shall keep himself fully informed of all existing and future State and Federal laws and all municipal ordinances and regulations of the City of Petaluma which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such laws, ordinances, orders, and decrees of bodies of tribunals having any jurisdiction or authority over the same.

The Contractor shall also be required to comply with the provisions of Section 8350 et seq. of the Government Code known as the "Drug-Free Workplace Act" of 1990. By signing the bid proposal, the Contractor certifies that he or she shall provide and maintain a drug-free workplace; publish a drug-free workplace policy; establish drug-free awareness programs; and distribute policy to employees.

B. Blank.

C. Hours of Labor. Eight (8) hours shall constitute a legal day's work under this contract, and the Contractor and subcontractor shall keep an accurate record showing the name of and actual hours worked by each workman employed by him on said work as provided by Section 1812 of the Labor Code and said Contractor shall forfeit, as penalty to the City of Petaluma, Twenty-Five Dollars ($25.00) for each laborer, workman, or mechanic employed in the execution of the contract by him or by any subcontractor under him, upon any of the work hereinbefore mentioned, for each calendar day during which said laborer, workman, or mechanic is required or permitted to labor more than eight (8) hours in violation of the provisions of the Labor Code; and in particular, Sections 1810 to 1815 thereof, inclusive, except that work performed by employees of Contractors in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay as provided in said Section 1815.

D. Labor Discrimination. No discrimination shall be made in the employment of persons upon public works because of the race, color, national origin, age, physical handicap, mental handicap, medical condition, marital status, sex or religion of such persons except as provided in Section 12940 of the Government Code, and every contractor for public works violating this section is subject to all the penalties imposed for a violation of Chapter 1 of Part VII in accordance with the provisions of Section 1735 of the Labor Code.

E. Prevailing Wage. The Contractor shall forfeit as penalty to the City of Petaluma Twenty-Five Dollars ($25.00) for each laborer, workman, or mechanic employed for each calendar day or portion thereof, such laborer, workman, or mechanic is paid less than the general prevailing rate of wages hereinafter stipulated for any work done under the attached contract by him or by any subcontractor under Section 1770 to 1780 thereof, inclusive.

The City Council of the City of Petaluma has ascertained the general prevailing rate of wages applicable to the work to be done and is as set forth in the "Notice of Bidders", which is hereto attached.

F. Registration of Contractors. Before submitting bids, contractors shall be licensed in accordance with the provisions of Chapter 9 of Division III of the Business and Professions Code.

G. Permits and Licenses. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work.

H. Patents. The Contractor shall assume all responsibilities arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work.

I. Public Convenience and Safety. The Contractor shall so conduct his operations as to cause the least possible obstruction and inconvenience to public traffic. Unless other existing streets are stipulated in the special provisions to be used as detours, all traffic shall be permitted to pass through the work.

Residents along the road or street shall be provided passage as far as practicable. Convenient access to driveways, houses, and buildings along the road or street shall be maintained and temporary crossings shall be provided and maintained in good condition. Not more than one cross or intersecting street or road shall be closed at any one time without the approval of the Engineer.

The Contractor shall furnish, erect, and maintain such fences, barriers, lights, and signs as are necessary to give adequate warning to the public at all times that the road or street is under construction and of any dangerous conditions to be encountered as a result thereof, and he shall also erect and maintain such warning and directional signs as may be furnished by the City. The Contractor shall comply with Section 7-1.09 Public Safety of the State of California Standard Specifications, except that Section 7-1.095 shall be deleted. The Contractor shall be responsible for all costs involved in furnishing all flagmen and guards necessary to provide for the passage of public traffic and pedestrians through the work under this section, "Public Convenience and Safety".

Should the Contractor appear to be neglectful or negligent in furnishing warning and protective measures as above provided, the Engineer may direct attention to the existence of a hazard and the necessary warning and protective measures shall be furnished and installed by the Contractor at his expense. Should the Engineer point out the inadequacy of warning and protective measures, such action on the part of the Engineer shall not relieve the Contractor from responsibility for public safety or abrogate his obligation to furnish and pay for these devices.

J. Disposal of Material Outside the Highway Right-of-Way. The Contractor shall make his own arrangements for disposing of materials outside the City premises or right-of-way and he shall pay all costs involved.

When any material is to be disposed of outside City premises or right-of-way, the Contractor shall first obtain a written permit from the property owner on whose property the disposal is to be made and he shall file with the Engineer said permit or a certified copy thereof together with a written release from the property owner absolving the City from

any and all responsibility in connection with the disposal of material on said property, and before any material is disposed of on said property, the Contractor shall obtain written permission from the Engineer to dispose of the material at the location designated in said permit.

When material is disposed of as above provided and the disposal location is visible from a highway, the Contractor shall dispose of the material in a neat and uniform manner to the satisfaction of the Engineer.

Unless otherwise provided in the special provisions, full compensation for all costs involved in disposing of materials as specified in this Section, including all costs of hauling, shall be considered as included in the price paid for the contract item of work involving such materials and no additional compensation will be allowed therefor.

K. Responsibility for Damage. The Contractor shall indemnify, hold harmless, release and defend the City of Petaluma, its officers, officials, employees and agents from and against any and all liability, loss, damage, expense, costs (including without limitation costs and fees of litigation) of every nature arising out of or in connection with the construction of the project, except such loss or damage which was caused by the sole negligence or willful misconduct of the City or its employees. The City Council may retain so much of the money due the Contractor as shall be considered necessary, until disposition has been made of claims or suits for damages as aforesaid.

L. Insurance. Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

1. Minimum Scope of Insurance. Coverage shall be at least as broad as:

   a. Insurance Services Office Commercial General Liability coverage (occurrence from CG 0001).

   b. Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 (any auto).

   c. Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.

2 Minimum Limits of Insurance. Contractor shall maintain limits no less than:

   a General Liability: $1,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate liability is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

   b. Automobile Liability: $1,000,000 per accident for bodily injury and property damage.

   c. Employer's Liability. $1,000,000 per accident for bodily injury or disease.

3. Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees, and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

4. Other Insurance Provisions. The general liability and automobile policies are to contain, or be endorsed to contain, the following provisions:

   a. The City, its officers, officials, employees, agents and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the City, its officers, officials, employees, agents or volunteers.

   b. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees, agents or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

   c. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the City, its officers, officials, employees, agents or volunteers.

   d. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought except, with respect to the limits of the insurer's liability.

   e. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days' prior to written notice by certified mail, return receipt requested, has been given to the City.

5. Acceptability of Insurers Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A:VII.

6. Verification of Coverage. Contractor shall furnish the City with original endorsements effecting coverage required by this clause. The endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements are to be on forms provided by the City. All endorsements are to be received and approved by the City before work commences. As an alternative to the City's forms, the Contractor's insurer may provide complete, certified copies of all required insurance policies, including endorsements effecting the coverage required by these specifications.

7. Subcontractors. Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each

subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

M. Use of Explosives. When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property.

In advance of doing any blasting work within two hundred (200) feet of any railroad tracks or structures, the Contractor shall notify the railroad of the location, date, time, and approximate duration of such blasting operations.

N. Contractor's Responsibility for Work. Except as provided above, until the formal acceptance of the work by the City Engineer, the Contractor shall have the charge and care thereof and shall bear the risk of injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof, except such injuries or damages occasioned by acts of the federal government or the public enemy.

O. Relief From Maintenance and Responsibility. Upon the request of the Contractor, the City may relieve him of the duty of maintaining and protecting certain portions of the work as described below, which have been completed in all respects in accordance with the requirements of the contract and to the satisfaction of the Engineer, and thereafter, except with his consent, the Contractor will not be required to do further work thereon. In addition, such action by the City will relieve the Contractor of responsibility for injury or damage to said completed portions of the work resulting from use by public traffic or from the action of the elements or from any other cause, but not from injury or damage resulting from the Contractor's own operations or from his negligence.

However, nothing in this section providing for relief from maintenance and responsibility will be construed as relieving the Contractor of full responsibility for making good defective work or materials found at any time before the formal written acceptance of the entire contract by the City.

P. No Personal Liability. Neither the City Council, the Engineer, nor any office or authorized assistant or agent shall be personally responsible for any liability arising under the contract.

Q. Responsibility of City. The City of Petaluma or the City Council shall not be held responsible for the care or protection of any material or parts of the work prior to final acceptance, except as expressly provided in these specifications.

R. Air Pollution Control. The Contractor shall comply with all air pollution control rules, regulations, ordinances, and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances, and statutes, specified in Section 11017 of the Government Code, and all regulations of the Bay Area Air Pollution Control District as amended to date.

S. Water Pollution Control. The Contractor shall protect storm drain systems and natural water courses from pollution from fuels, oils, bitumens, calcium chloride, and other harmful materials. The Contractor shall comply with all regulations of the California Regional Water Quality Control Board, San Francisco Bay Region

T. Responsibility for Compliance With Cal/OSHA. All work, materials, work safety procedures and equipment shall be in full accordance with the latest Cal/OSHA rules and regulations.

Contractor warrants that he and each of his subcontractors shall, in performance of this contract, comply with each and every compliance order issued pursuant to Cal/OSHA. The Contractor assumes full and total responsibility for compliance with Cal/OSHA standards by his subcontractors as well as himself. The cost of complying with any compliance order and/or payment of any penalty assessed pursuant to Cal/OSHA shall be borne by the Contractor. Contractor shall save, keep and hold harmless the owner, and all officers, employees, and agents thereof, from all liabilities, costs, or expenses, in law or in equity, that may at any time arise or be set up because of Contractor's or a subcontractor's non-compliance or alleged non-compliance with Cal/OSHA requirements. Nothing contained herein shall be deemed to prevent the Contractor and his subcontractors from otherwise allocating between themselves responsibility for compliance with Cal/OSHA requirements; provided, however, that the Contractor shall not thereby be, in any manner whatsoever, relieved of his responsibility to the owner as hereinabove set forth.

U. Attorney's Fees. If either party becomes involved in litigation arising out of this contract or the performance thereof, the court in such litigation, or in a separate suit, shall award reasonable costs and expenses, including attorney's fees, to the party justly entitled thereto. In awarding attorney's fees, the court will not be bound by any court fee schedule, but shall, if it is in the interest of justice to do so, award the full amount of costs, expenses, and attorney fees paid or incurred in good faith.

V. Individual Responsibility. If the Contractor is a corporation, the individual or individuals who sign this contract on behalf of the corporation guarantee that the Contractor will perform this contract.

W. Bankruptcy. If the Contractor becomes bankrupt, or makes an assignment for the benefit of creditors, the City has the right to cancel this contract.

## SECTION 6

## PROSECUTION AND PROGRESS

A. Subletting and Assignment. The Contractor shall give his personal attention to the fulfillment of the contract and shall keep the work under his control.

Subcontractors will not be recognized as such, and all persons engaged in the work of construction will be considered as employees of the Contractor, and their work shall be subject to the provisions of the contract and specifications.

Where a portion of the work sublet by the Contractor is not being prosecuted in a manner satisfactory to the City Engineer, the subcontractor shall be removed immediately on the requisition of the City Engineer and shall not again be employed on the work.

The Contractor may not assign this contract or payment due under the contract to any other party without the written consent of the City.

B. Progress of the Work and Time for Completion. The Contractor shall begin work within fifteen (15) days after receiving notice that the contract has been approved by the City Council, and he shall diligently prosecute the same to completion before the expiration of * calendar days, measured from the date of starting work.

* SEE SPECIAL PROVISIONS

C. Character of Workman. If any subcontractor or person employed by the Contractor shall fail or refuse to carry out the directions of the Engineer or shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, he shall be discharged immediately on the requisition of the Engineer, and such person shall not again be employed on the work.

D. Temporary Suspension of Work. The Engineer shall have the authority to suspend the work wholly or in part, for such period as he may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as he may deem necessary, due to the failure on the part of the Contractor to carry out orders given, or to perform any provisions of the work. The Contractor shall immediately obey such order of the Engineer and shall not resume the work until ordered in writing by the Engineer.

E. Time of Completion and Liquidated Damages. It is agreed by the parties to the contract that in case all the work called for under this contract is not completed before or upon the expiration of the time limit as set forth in these specifications, damages will be sustained by the City, and that as it is difficult and extremely impractical to fix the exact amount of damages and that as the parties hereto have in good faith attempted to ascertain the extent of damages that would be suffered by delay in completing the work of improvements herein, that it is agreed that the City will be damaged in the sum of One Hundred Fifty ($150.00) Dollars per day for each and every day's delay beyond the time prescribed to complete the work. The Contractor agrees to pay such liquidated damages as herein provided, and in case the same are not paid, agrees that the City may deduct the amount thereof from any money due or that may become due the Contractor under the contract.

It is further agreed that in case the work called for under the contract is not finished and completed in all parts and requirements within the time specified, the City Council shall have the right to extend the time for completion or not, as may seem best to serve the interest of the City; and if it decides to extend the time limit for the completion of the contract, it shall further have the right to charge the Contractor, his heirs, assigns or sureties, and to deduct from the final payment for the work, all or any part, as it may deem proper, of the actual cost of engineering, inspection, superintendence, or other overhead expenses which are directly chargeable to the contract, and which accrue during the period of such extension, except that the cost of final surveys and preparation of final estimate shall not be included in such charges.

The Contractor shall not be assessed with liquidated damages nor the cost of engineering and inspection during any delay in the completion of the work caused by acts of God or of the public enemy, acts of the City, fire, floods, epidemics, quarantine restrictions, freight embargoes, and unusual severe weather or delays of subcontractors due to such causes; provided, that the Contractor shall within ten (10) days from the beginning of any such delay notify the Engineer in writing of the causes of delay, and his findings of the facts thereon shall be final and conclusive.

F. Suspension of Contract. Time is of the essence of this agreement. If the Contractor should fail to supply sufficient men, materials, supplies and equipment, the City, by written

notice from the City Engineer shall give written notice to the Contractor, which notice shall require that the Contractor supply sufficient men, supplies, materials, and equipment to diligently prosecute the project. If the Contractor fails to resume diligent prosecution of the work within 48 hours after such notice is delivered, the City may eject the Contractor from the job, take over all supplies, equipment, and materials of the Contractor on the job site, and either obtain another contractor to finish the project or finish with its own forces. In such an event, the Contractor shall be liable to the City for damages, including but not limited to the full cost of completing the project.

In the event of such termination, all money due the Contractor shall be forfeited to the City, forfeiture will not release the Contractor or his surety from liability for failure to fulfill the contract. The Contractor and his surety will be credited with the amount of money so forfeited toward the cost of completion of the contract.

In the determination of the question whether there has been any such non-compliance with the contract as to warrant the suspension or annulment thereof, the decision of the City Council shall be binding on all parties to the contract.

G. Right-of-Way. The right-of-way for the work to be constructed will be provided by the City. The Contractor shall make his own arrangements, and pay all expenses for additional area required by him outside of the limits of right-of-way, unless otherwise provided in Special Provisions.

## SECTION 7

## MEASUREMENT AND PAYMENT

A. Extra and Force Account Work. Extra work as herein defined, when ordered and accepted, shall be paid for under a written work order in accordance with the terms therein provided. Payment for extra work will be made at the unit price or lump sum previously agreed upon by the Contractor and the Engineer; or by force account.

If the work is done on force account, the Contractor shall be compensated for his actual cost expended as follows:

1. Labor - Direct payroll cost, including but not necessarily limited to such things as welfare contributions, social security, workmen's compensation and the like, paid for by the Contractor in accordance with his prevailing wage rate scale as approved in writing by the City Engineer.

2. Material - Actual cost, including tax, supported by paid vouchers.

3. Equipment - At the current rental schedule common to the local industry and approved in writing by the City Engineer.

To the total of the above labor cost incurred, thirty-three (33%) percent shall be added thereto for overhead and profit. To the total of material cost and to the total of equipment cost incurred, fifteen (15%) percent shall be added thereto for overhead and profit. When extra work paid for on a force account basis is performed by forces other than the Contractor's organization, the Contractor shall reach agreement with such other forces as

to the distribution of the payment made by the City for such work. No additional payment therefor will be made by the City by reason of the performance of the work by a subcontractor or other forces. No additional compensation will be provided for other than under this formula. The City reserves the right whenever any force account work is to be ordered to furnish such materials as it deems expedient, and the Contractor shall have no claim for profit and overhead on the cost of such materials furnished.

All extra work and force account shall be adjusted daily upon report sheets, prepared by the Engineer, furnished to the Contractor and signed by both parties, which daily reports shall thereafter be considered the true record of extra work for force account work done.

Non-direct labor costs, including superintendence, shall be considered part of the markup for overhead and profit, and no additional payment will be allowed therefor.

B. Progress Payments. The City shall, once in each month, unless otherwise specified, cause an estimate in writing to be done and the acceptable materials furnished and delivered by the Contractor on the ground and not used to the time of such estimate, and the value thereof.

The City of Petaluma shall retain ten (10%) percent of such estimated value of the work done and ten (10%) percent of the value of the materials so estimated to have been furnished and delivered and unused as aforesaid as part security for the fulfillment of the contract by the Contractor and shall monthly pay to the aforesaid after deducting therefrom all previous payments, and all sums to be kept or retained under the provisions of the contract. No such estimate or payment shall be required to be made, when, in the judgment of the City Engineer, the work is not proceeding in accordance with the provisions of the contract, or when in his judgment the total value of the work done since the last estimate amounts to less than Three Hundred Dollars ($300.00).

Substitution of Securities. Contractor at his expense, shall have the right to deposit with the City, or with a state or federally chartered bank as escrow agent, security equal to the amount withheld by the City. Upon the substitution of acceptable security, the City shall pay to the Contractor the money withheld equivalent to the amount of posted security. The provisions of Public Contract Code Section 22300 are set forth in part in this provision and otherwise are incorporated as if set forth in full herein

Eligible securities shall be those enumerated in California Government Code Section 16430 or bank and savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the City

The Contractor shall be entitled to receive any interest accrued on said securities.

Any escrow agreement entered into pursuant to Part C shall contain:

a) The amount of securities to be deposited;

b) The terms and conditions of conversion to cash in case of default of the Contractor;

c) The termination of the escrow upon completion of the contract.

Further, the escrow agreement shall be substantially similar to that contained in Public Contract Code Section 22300(e).

D. Final Payment. The City Engineer shall, after the completion of the contract, make a final estimate of the amount of work done thereunder, and the value of such work, and the City of Petaluma shall pay the entire sum so found to be due after deducting therefrom all previous payments and all amounts to be kept and all amounts to be retained under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment. The final payment shall not be due and payable until the expiration of thirty-five (35) days from the date of recordation of Certification of Completion by the City Engineer which has been accepted and approved by the City Council.

It is mutually agreed between the parties to the contract that no certificate given or payments made under the contract, except the final certificate or final payment, shall be conclusive evidence of the performance of the contract, either wholly or in part, against any claim of the party of the first part, and no payment shall be construed to be an acceptance of any defective work or improper materials.

E. Public Works Claims. Any public work claim of $375,000 or less arising and between Contractor and the City shall be subject to Article 1.5 (Resolution of Construction Claims) of the Public Contract Code. Any claim subject to said article requires that the claim be in writing and include the documents necessary to substantiate the claim and must be filed on or before the date of final payment. Should Contractor dispute the City's written response or the City fails to respond within the appropriate time, the Contractor may, pursuant to the procedures set forth in Article 1.5 of the Public Contract Code, demand, and the City shall schedule a meet-and-confer conference for the settlement of the dispute. Following the meet-and-confer conference, if the claim or any portion remains in dispute, the Contractor may file a claim pursuant to Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. Should any civil claims be filed to resolve claims subject to Article 1.5 of the Public Contract Code, the court within the designated time periods shall submit the matter to non-binding mediation unless waived by mutual stipulation of the City and the Contractor. If the matter remains in dispute after the mediation, the case shall be submitted to judicial arbitration.

This section shall only apply to public work claims for which Article 1.5 of the Public Contract Code applies.

## SECTION 8

## MAINTENANCE

The Contractor shall at his own expense make all necessary repairs and replacements to remedy in a satisfactory manner any and all defects due to faulty materials or workmanship in the work, or due to disturbance of or damage to City improvements by the Contractor's operations under the contract and contrary to the specifications, or due to other failure to comply with the specifications, when such defects occur:

A. In any part of the work done under the contract, or in surface improvements of the City such as pavement, curbs, walks, tracts, poles, wires, walls, stairways, or other surface structures provided that such defect or defects be detected within one year following the date of acceptance of work.

B. In subsurface improvements of the City, not included in the work under the contract, such as sewers, side sewers, culverts, or other drainage structures, pipes, valves, conduits, conductors, or other subsurface structures, provided that such disturbance of or damage to said properties be detected within two (2) years following the date of acceptance of the work.

Should the Contractor, after written notification by the Engineer, fail to remedy promptly any such defect occurring as set forth above under (A) or (B) or should the best interest of the City require an immediate remedy without the delay incident to such notification, the Engineer may cause such repairs, replacements or other remedy to be made, and the expense so incurred, limited in case (B) as provided below, shall be charged to, and shall be paid by the Contractor. Provided that such expense so incurred by the Contractor, or incurred by the City and paid by the Contractor, on account of disturbance of or damage to City improvements occurring as set forth under (B) next above shall not exceed an amount equal to ten (10%) percent of the contract cost of all work to be done under the terms of the Specifications or such other amount as may be set forth in the Special Provisions, and further provided that the liability of the surety on the faithful performance bond on account of such disturbance of or damage to City improvements occurring as set forth under (B) next above shall likewise not exceed ten (10%) percent of the contract cost of all work to be done under the terms of the Specifications, or such other amount as may be set forth in the Special Provisions.

Nothing in this subdivision shall be construed as a waiver, or impairment of any of the City's rights under the contract, or of any other recourse provided by law.

## SECTION 9

## DEFINITIONS AND TERMS

Whenever, in the contract documents, the following terms are used, they shall be understood to mean and refer to the following:

City - The City of Petaluma, California.

City Council - The City Council of the City of Petaluma

Standard Plans - The Standard Plans of the State of California, Department of Transportation (Caltrans), 1992 edition or current edition, whichever is later.

Standard Specifications - The Standard Specifications of the State of California, Department of Transportation (Caltrans), 1992 edition or current edition, whichever is later.

Where the Standard Specifications refer to the "State of California", substitute "City of Petaluma".

Detail Specifications - The Detail Specifications for the Engineering Department, City of Petaluma: Water #11, Sanitary #21, Storm Sewer #31 and Street #41.

Construction Standards - The Construction Standards for Water Services of the Division of Water, City of Petaluma, dated August 1962, or current revision.

Standard Detail Plans - The Standard Plans as prepared by the City of Petaluma, Department of Public Works and filed in the Office of the City Engineer. The plans are entitled: Standard Street Details, Standard Details for Water Mains, Standard Storm Drain Details, and Standard Sewer Details.

Department of Public Works or Division of Highways - The City of Petaluma Department of Public Works.

Director of Public Works - The Director and Engineer, Department of Public Works, City of Petaluma.

Engineer or City Engineer - The Director of Engineering Department of the City of Petaluma or his authorized agent acting within the scope of his authority, who shall act as the representative of the City during the term of the contract

Laboratory - The designated laboratory authorized by the City of Petaluma to test material and work involved in the contract.

Directed - Whenever the words "directed", "required", "permitted", "ordered", "instructed", "designated", "considered necessary", "prescribed", or words of the like import are used, it shall be understood that the directions, requirements, permission, order, instruction, designation, or prescription, etc. of the Engineer are intended; and, similarly, the words "approved", "acceptable", "satisfactory" or words of like import, shall mean approved by or acceptable or satisfactory to the Engineer, unless otherwise stated

Inspector - The word "inspector" shall mean the authorized agent of the Engineer acting within the jurisdiction entrusted to him by the Engineer.

Materials - The word "materials" shall mean, in addition to materials incorporated in, used or to be used, in the project and the operation thereof, equipment or other materials used and/or consumed in the performance of the work.

Other terms appearing in the Standard Specifications, Special Provisions, and these General Provisions, shall have the intent and meaning specified in Section 1, Definitions and Terms of the Standard Specifications.

In case of conflict between the Standard Specifications and the Special Provisions, the Special Provisions shall take precedence over and be used in lieu of such conflicting portions.

a:\genprovs.doc
ent. 12/91 (fmk)
rev. 6/92,3/93,11/93,12/91,2/95 (fmk)

SECTION III

# SPECIAL PROVISIONS

## GENERAL

The Petaluma Marsh Enhancement Phase I project includes the following three project components:

* Shollenberger Park Project.
* Lakeville Highway Mitigation Project.
* Landfill Closure Project.

The work shown on the plans and described in these special provisions has been divided into the three separate project components.

### A. PERMIT CONDITIONS

The Contractor shall comply with all permit conditions and requirements for this project including:

* U.S. Army Corps of Engineers Section 404 and Section 10 Permit.
* California Department of Fish and Game, Streambed Alteration Agreement (1601).

Copies of these permits and requirements are included at the end of Section IV, "City of Petaluma Detail Specifications". The Contractor shall sign these permits following the award of the contract.

Prior to beginning construction, the Contractor shall be responsible for compliance with the permit requirements as specified below:

* NPDES Storm Water Construction Activity Permit.

  The Contractor shall be responsible for compliance with the General Conditions for State Water Resources Control Board, Construction Activity Storm Water Permit under the National Pollution Discharge Elimination System (NPDES).

  The Contractor shall eliminate non-storm water discharges to waters, drainages, streams, wetlands or storm sewer systems; develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and perform inspections prior to and after storm events to ensure prevention measures and control practices are properly implemented.

  The Contractor shall retain the SWPPP at the construction site and shall submit a copy of the SWPPP to the Engineer and the Building Department for a grading permit. The SWPPP shall identify potential sources of sediment and other pollutants and must describe best management practices to reduce sediment and other pollutants. Erosion and sedimentation control procedures may include measures such as temporary earthen berms, hay bales and silt fences as necessary to prevent sedimentation.

  The Contractor shall file the required Notice of Intent and appropriate fee with the State Water Resources Control Board prior to beginning construction.

* Prior to beginning construction, the Contractor shall be responsible for obtaining a grading permit from the City of Petaluma Building Department (fees shall be waived for the grading permit). The grading permit requires submittal of an Erosion Control Plan as specified under Ordinance No. 1576 of the Municipal Code. (The SWPPP required above may be submitted).

All costs involved in meeting the permit requirements, limitations or conditions shall be included in the various contract items of work and no separate payments will be allowed.

Construction work in Adobe Creek and drainage ditches shall only be allowed between June 1st and October 15th.

The Contractor shall not permit any materials to spill on the "river/creek side" of the dikes.

The Contractor's attention is directed to the Plans and special provisions which identify appropriate construction staging area(s), creek protection and environmentally sensitive areas. These creek protection and environmentally sensitive areas shall not be disturbed by construction activities at any time. The Contractor shall be penalized $1,000 for each violation of this requirement and shall be required to restore, repair or replace any damage. Contractor shall be responsible for all fines resulting from noncompliance with these provisions and any permit conditions as specified herein.

B. RESTORATION OF EXISTING FACILITIES

Whenever existing facilities/improvements such as roads, curbs, gutters, sidewalks, sewers, laterals, landscape, etc., have been damaged by the Contractor's operation, they shall be restored to their original condition.

All costs involved in restoring existing facilities/improvements shall be included in the various contract items of work and no separate payments will be allowed therefor.

All damages caused by the Contractor to existing dikes shall be repaired by the Contractor at his/her expense. The Contractor shall not operate earth moving equipment on top of existing dikes, except to strip grass, grade, deposit materials, water condition and compact materials for new dike construction. The existing dikes shall not be permitted to be used as haul routes.

C. PROGRESS SCHEDULE

The Contractor shall submit a schedule which includes all major tasks and milestones to the City of Petaluma, Engineering Department for review at least ten (10) working days prior to start of work.

After beginning of work, updated schedules shall be submitted monthly with requests for payment. No progress payments will be processed without an approved updated schedule.

Payment for the original schedule and updated, monthly schedules shall be considered to be included in the various items of work and no additional compensation will be allowed therefor.

D. SUPERINTENDENCE

The Contractor shall designate in writing before starting work, an authorized representative who shall have the authority to represent and act for the Contractor.

When the Contractor is comprised of 2 or more persons, firms, partnerships or corporations functioning on a joint venture basis, said Contractor shall designate in writing before starting work, the name of one authorized representative who shall have the authority to represent and act for the Contractor.

Said authorized representative shall be present at the site of work at all times while work is actually in progress on the contract. When work is not in progress and during periods when work is suspended, arrangements acceptable to the Engineer shall be made for any emergency work which may be required. Once designated, no change in superintendence shall be allowed without prior Engineer's approval.

If work is in progress and the authorized representative is not on site, the City reserves the right to stop the work at no cost to the City.

Once the work begins, the Superintendent shall keep the Engineer informed of the Contractor's schedule. The Engineer shall have at least 24 hour advance notice of all work, on a daily basis, including subcontractor's work. If the Contractor fails to notify the Engineer, the Engineer reserves the right to stop the work at no cost to the City.

In the case of urgency or emergency where the Contractor's authorized representative is not present on any particular part of the work and where the Engineer wishes to give notification or direction, it will be given to and be obeyed by the superintendent or foreperson who may have charge of the particular work or it will be given to and be obeyed by any worker in the area should the superintendent or foreperson not be immediately available.

All costs involved shall be included in the various contract items of work.

E. SAFETY REQUIREMENT

The Contractor shall comply with all CAL/OSHA safety requirements. It shall be the Contractor's sole responsibility for making sure these safety requirements are met and the Contractor shall fully assume all liabilities for any damages and/or injuries resulting from his or her failure to comply with the safety requirements. Failure on the City's part to stop unsafe practices shall, in no way, relieve the Contractor of his/her responsibility.

F. PROJECT APPEARANCE

Contractor shall maintain a neat appearance to the work.

When practicable, debris developed during construction shall be disposed of concurrently with its removal. If stockpiling is necessary, the material shall be removed or disposed of daily.

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

G. RESPONSIBILITY FOR DAMAGE

The Contractor shall indemnify, hold harmless, release and defend the City of Petaluma, its officers, officials, employees and agents from and against any and all liabilities, claims, demands, losses, damages, expenses, costs (including without limitation costs and fees of litigation) of every nature arising out of or in connection with the activities of the

Contractor, his/her subcontractors, employees and agents, except such loss or damage which was caused by the sole negligence or willful misconduct of the City, its employees or agents. The City may retain so much of the money due the Contractor as shall be considered necessary, until disposition has been made of claims or suits for damages as aforesaid.

H. GUARANTEE OF WORK

Neither the final certificate of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this contract by the City or the public shall constitute an acceptance of work not done in accordance with the contract or relieve the Contractor of liability in respect to any warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and materials and pay for the costs of any damages resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The City will give notice of defective materials and work with the reasonable promptness. Before requesting acceptance of the project, the Contractor shall execute a certificate of guaranty that all work shall be free from defects in material and workmanship for a period of at least one year after acceptance of the work.

I. MODIFICATIONS TO THE GENERAL PROVISIONS

Attention is directed to the provisions in Section 6, "Prosecution and Progress", of the General Provisions and these special provisions.

The Contractor shall begin work within 10 working days after the date of the Notice to Proceed and shall diligently prosecute the same to completion before June 30, 1996.

The Contractor shall pay to the City of Petaluma the sum of $500 per day for each and every calendar day's delay in finishing the work in excess of the number of days prescribed above and/or in excess of the number of days prescribed for any scheduled operations or works described in the Special Provisions.

The second sentence of Section 1A, "Proposal Form", of the General Provisions, is amended to read: "All proposals must give the prices proposed in figures, and must be signed by the bidder with his address."

J. CONSTRUCTION STAKING

This work shall consist of furnishing and setting construction stakes and marks by the Contractor to establish the lines and grades required for the completion of the work as shown on the plans and as specified in the Standard Specifications and these special provisions.

The City will furnish one set of stakes. Any re-staking or additional staking beyond the first set will be at the Contractor's expense.

Construction staking shall be performed by the City as necessary to control the work. Construction stakes and marks shall be furnished and set with accuracy adequate to assure that the completed work conforms to the lines, grades, and sections shown on the plans.

All computations necessary to establish the exact position of the work from control points shall be made by the Contractor.

Construction stakes shall be removed from the site of the work when no longer needed.

K. RECORD ("AS-BUILT") DRAWINGS

Contractor shall furnish Record Drawings of the complete project. Procure from the City Engineer full sized sepias of Contract Drawings. Construction drawings shall be on the construction site at all times while the work is in progress. Drawings shall show approved substitutions, if any, of material including manufacturer's name and catalog number. The Drawings shall be to scale and all indications shall be neat. All information noted on the Contractor's job-site print shall be transferred to the Record Drawings by Contractor and all indications shall be recorded in a neat, orderly way. The Record Drawings shall be signed by the Contractor and turned over to the City Engineer before the Final Acceptance of the project.

L. ORDER OF WORK

Landfill Closure Project -- The Contractor shall start the landfill closure project within ten (10) working days after receiving the Notice to Proceed. Said work shall be diligently and continuously prosecuted to completion.

The Lakeville Highway Mitigation Project -- The Contractor shall complete at least all grading and irrigation systems prior to October 30, 1995.

9788

SECTION 3-1

# SPECIAL PROVISIONS

for
Shollenberger
Park

SECTION 3-1

SPECIAL PROVISIONS
FOR
SHOLLENBERGER PARK

3-1.1 DESCRIPTION OF WORK -- The work to be done consists, in general, of placing asphalt concrete, aggregate base and stabilization fabric; installing storm drain systems, water and sewer services; resurfacing trench; traffic control; and doing other work specified in these special provisions and as shown on the plans.

3-1.2 PLANS AND SPECIFICATIONS -- In the event of conflict between the Standard Specifications, the Special Provisions and other contract documents, the document of precedence shall be determined in the following order, highest to lowest:

- Special Provisions
- General Provisions
- Improvement Plans
- Detail Specifications and Standard Details (City of Petaluma)
- Caltrans Standard Specifications and Standard Plans (1992 Edition)

3-1.3 COOPERATION -- Attention is directed to Sections 7-1.14, "Cooperation", and 8-1.10, "Utility and Non-Highway Facilities", of the Standard Specifications and these special provisions.

3-1.4 OBSTRUCTIONS -- Attention is directed to Sections 8-1.10, "Utility and Non-Highway Facilities", and 15, "Existing Highway Facilities", of the Standard Specifications and these special provisions.

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workmen and of the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine and toxic or flammable gases; natural gas in pipelines greater than 6 inches in diameter or pipelines operating at pressures greater than 60 psi (gage); underground electric supply system conductors or cables either directly buried or in duct or conduit which do not have concentric neutral conductors or other effectively grounded metal shields or sheaths; and underground electrical conductors with potential to ground of more than 300 volts.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least three (3) working days prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure. Regional notification centers include but are not limited to the following:

Underground Service Alert
Northern California (USA)
Telephone: 1 (800) 642-2444

3-1.5 CONSTRUCTION AREA SIGNS - Construction area signs shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions in Section 12, "Construction Area Traffic Control Devices", of the Standard Specifications.

All costs involved shall be considered as included in the prices paid for construction area signs and no additional payment will be made therefore.

Construction area signs will be installed prior to start of construction and maintained in place for the duration of the project by the Contractor. Signs shall be repaired or replaced at no cost to the City of Petaluma, if damaged or stolen. The Contractor shall remove the signs and posts at the completion of the project and with prior approval of the Engineer.

3-1.6 MAINTAINING TRAFFIC -- Attention is directed to Sections 7-1.08, "Public Convenience", 7-1.09, "Public Safety", and 12, "Construction Area Traffic Control Devices", of the Standard Specifications and to the Section entitled, "Public Safety" elsewhere in these special provisions, and these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from his/her responsibility as provided in said Section 7-1.09.

Lane closures shall conform to the provisions in the section of these special provisions entitled, "Traffic Control System for Lane Closure".

At least 48 hours prior to beginning of each phase of construction (i.e., paving, pavement repair, concrete construction, etc.), the Contractor shall:

A. Notify all adjacent residents, businesses, City of Petaluma Police and Fire Departments, and Petaluma Transit by written notices detailing the type, limits and the hours of work.

B. Where required, post streets with temporary "No Parking/Tow Away" signs at 100 foot intervals at least 48 hours in advance. These signs shall be furnished by the Contractor and shall state the date, day of week and hour parking is prohibited.

The table following the subparagraph of the fifth paragraph of Section 12-3.04, "Portable Delineators", is amended to read:

| Divergence Angle (Degrees) | Incidence Angle (Degrees) | Dry Reflectance Value |
|---|---|---|
| 0.2 | -4 | 250 |
| 0.2 | 30 | 95 |
| 0.5 | -4 | 95 |
| 0.5 | 30 | 65 |

Illuminated traffic cones when used during the hours of darkness shall be affixed or covered with reflective cone sleeves as specified in Section 12-3.10, "Traffic Cones", of the Standard Specifications, except the sleeves shall be 7 inches long.

Full compensation for temporary delineation shall be considered as included in the prices paid for the contract in terms of work which obliterated the existing delineation and no separate payment will be made therefor.

When working in or blocking any intersection, the Contractor shall provide a flag person to direct traffic at that intersection. This is in addition to other required flag persons.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way, including any section closed to public traffic. The Contractor, at all times, shall provide flag person(s) to direct delivery trucks and Contractor's vehicles entering or leaving the pubic traffic.

The Contractor shall notify the City of Petaluma, Engineering Department of his/her intent to begin work at least 5 days before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make his/her own arrangements relative to keeping the working area clear of parked vehicles.

Whenever vehicles or equipment are parked on the shoulder within 6 feet of a traffic lane, the shoulder area shall be closed with fluorescent traffic cones or portable delineators placed on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. A minimum of 9 cones or portable delineators shall be used for the taper. A C23 (Road Work Ahead) or C24 (Shoulder Work Ahead) sign shall be mounted on a telescoping flag tree with flags. The flag tree shall be placed where directed by the Engineer.

A minimum of one (paved) traffic lane, not less than 10 feet wide, shall be open for use by public traffic in each direction of travel.

No work that interferes with public traffic shall be performed between 12:01 a.m. and 7:00 a.m. nor between 5 p.m. and 11:59 p.m. except work required under said Sections 7-1.08 and 7-1.09 or specified elsewhere in the special provisions.

Except as otherwise provided, the full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, and designated legal holidays; and when construction operations are not actively in progress.

Designated legal holidays are: January 1st, the third Monday in January, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, the second Monday in October, November 11th, Thanksgiving Day, the day after Thanksgiving and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if in the opinion of the Engineer public traffic will be better served and the work expedited. Such deviations shall not be adopted until the Engineer has indicated his/her written approval. All other modifications will be made by contract change order.

The Contractor shall submit to the Engineer at least five (5) working days prior to start of work, for approval, a traffic control plan (drawing) which shall include, but not limited to signing, access through and from the work and all desired detours for each phase of construction (i.e. cold planing, paving, pavement replacement, paving, raising utility covers, etc.). Traffic shall not be detoured without written approval by the Engineer. All accesses for local businesses and residents shall be maintained at all times. Approval of the Engineer shall be required for any changes from the previously approved traffic control plans.

The City Standard Work Traffic Control Plans shown elsewhere in these specifications are supplementals only. The Contractor is not relieved from his/her responsibility for submitting his/her own traffic control plan.

The Contractor's failure to comply with the requirements of this section will be sufficient cause for the Engineer to suspend work at no costs to the City.

All costs involved shall be considered to be included in the contract price paid for traffic control system and no additional compensation shall be allowed therefor.

3-1.7 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE -- A traffic control system shall consist of closing traffic lanes and ramps in accordance with the details shown on the plans, the provisions of Section 12, "Construction Area Traffic Control Devices", of the Standard Specifications, the provisions under "Maintaining Traffic" elsewhere in these special provisions, and these special provisions.

The provisions in this section will not relieve the Contractor from his/her responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety", of the Standard Specifications.

During the hours of darkness, as defined in Division 1, Section 280, of the Vehicle Code, portable signs shown on the plans to be illuminated shall be, at the option of the Contractor, either; illuminated signs in conformance with the provisions in Section 12-3.06B, "Portable Signs", of the Standard Specifications; or Reflexite vinyl microprism reflective sheeting signs; or 3M high intensity reflectorized sheeting on aluminum substrate signs or Seibulite Brand Ultralite Grade Series, encapsulated lens retroreflective sheeting signs; or equal.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining, or removing said components. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on the vehicles which are doing the placing, maintaining and removing of components of a traffic control system, and shall be in place before a lane closure requiring its use is completed.

If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair said component to its original condition or replace said component and shall restore the component to its original location.

When lane closures are made for work periods only, at the end of each work period, all components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, said components may be stored at selected central locations, approved by the Engineer, within the limits of the highway right-of-way.

When traffic is shifted across the centerline, the Contractor shall provide W37 signs at 300 foot intervals and on both sides of intersections to direct traffic in proper lanes.

The contract lump sum price paid for traffic control system shall include full compensation for furnishing all labor (including flagging costs), materials (including signs), tools, equipment and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing and disposing of the components of the traffic control system as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The adjustment provisions in Section 4-1.03, "Changes", of the Standard Specifications, shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. Such adjustment will be made on a force account basis as provided in Section 9-1.03,

"Force Account Payment", of the Standard Specifications for increased work, and estimated on the same basis in the case of decreased work.

Traffic control system required by work which is classed as extra work, as provided in Section 4-1.03D of the Standard Specifications, will be paid for as a part of said extra work.

3-1.8 CLEARING, GRUBBING, AND MOBILIZATION/DEMOBILIZATION -- Clearing and grubbing shall conform to the provisions in Section 4102.1, "Clearing and Grubbing and Concrete Removal", of the Street Construction Detail Specification No. 41 and these special provisions.

Mobilization/Demobilization shall conform to Section 11, "Mobilization", of the Standard Specifications. Removal of existing fences and entrance gate shall be included in clearing and grubbing.

Full compensation for this item of work shall be considered as included in the prices paid for clearing and grubbing and no additional compensation will be allowed therefor.

3-1.9 WATERING -- Watering shall conform to the provisions in Section 17, "Watering", of the Standard Specifications except that full compensation for developing water supply shall be considered as included in the prices paid for various contract items for work involved the use of water and no separate payment will be made therefor. The application of water for dust control will not be considered as extra work under any circumstances. Water is available from the City at $1.08 per 100 cubic feet provided that the Contractor meters the water so used with a City furnished meter (deposit will be required) and a Contractor furnished valve assembly.

3-1.10 EARTHWORK AND SUBGRADE PREPARATION FOR ROADBED -- Earthwork and Subgrade Preparation for Roadbed shall conform to the provisions in Section 4102.2, "Earthwork and Subgrade Preparation for Roadbed", of the Street Construction Detail Specification No. 41 and these special provisions.

Subgrade shall be scarified to a depth of at least 6 inches, moisture conditioned to 4 percent above optimum moisture content and compacted to at least 93 percent relative compaction. Subgrade shall be maintained in its moist condition until covered with the complete pavement section.

Soil obtained from on-site excavations may be used as fill material, if it is free of vegetation and deleterious substances and is broken into particles no larger than 3 inches in size. Excess soil generated by excavation of the existing dike may be deposited in the dredging disposal pond if it is not contaminated with hazardous materials.

The Contractor shall remove the existing asphaltic concrete pavement (2-inch +/- thickness) from station 2+50 to 5+50 approximately.

Full compensation for this item of work shall be considered to be included in the contract prices paid for earthwork and subgrade preparation and no additional compensation will be allowed therefor.

The estimated quantities for earthwork shown in the bid schedule shall be the final quantities for which payments will be made.

Plans of existing cross-sections of access and dike roads are on file at the Department of Engineering and will be available for inspections upon request.

Determination of locations of excavation and fill shall be Contractor's responsibility. The plans indicate finished grades.

3-1.11 ASPHALT CONCRETE -- Asphalt concrete shall be Type A, 1/2-inch maximum, medium and shall conform to the provisions in Section 39, "Asphalt Concrete", of the Standard Specifications and these special provisions.

The Contractor shall submit the asphalt concrete mix design for the Engineer's approval not less than ten (10) working days prior to commencing paving operations. Asphalt windrow pickup machines are not allowed to be used for paving. The amount of asphalt binder to be mixed with the aggregate shall be approximately 5.6 percent by weight of the dry aggregate. Exact rate shall be determined by the Engineer.

Tack coat of SS-1 shall be furnished and applied uniformly to a pavement to be surfaced and to contact surfaces of all cold pavement joints, curbs, gutters and to other surfaces designated by the Engineer.

Tack coat will not be measured for payment and full compensation therefore will be considered as included in the prices for the various contract items of work.

> Relative compaction will be determined by California Test 375. Laboratory specimens will be compacted in conformance with California Test 304. Lots will be established for asphalt concrete areas to be tested, as specified in California Test 375.

If the test results for any lot of asphalt concrete indicate that the relative compaction is less than 93.0%, the asphalt concrete represented by that lot shall be removed and replaced at Contractor's expense. Asphalt concrete spreading operations shall not continue until the Contractor makes significant adjustments to his/her materials or procedures or both in order to meet the required compaction. The adjustments shall be as agreed to by the Engineer.

A Certificate of Compliance shall be furnished to the Engineer in accordance with the provisions in Section 6-1.07, "Certificate of Compliance", of the Standard Specifications.

All costs involved in placing asphalt concrete complete in place shall be included in the contract prices paid for placing asphalt concrete and no additional compensation will be allowed therefore.

3-1.12 AGGREGATE BASE -- Aggregate base shall be Class 2, 3/4-inch maximum, and shall conform to the provisions in Section 26, "Aggregate Bases", of the Standard Specifications and these special provisions.

All costs involved in placing aggregate base used for trench backfill shall be included in the contract prices paid for storm drain, sewer and water work and no separate payments will be allowed therefor.

All costs involved in placing aggregate base complete in place shall be included in the contract prices paid for placing aggregate base and no additional compensation will be allowed therefor.

3-1.13 WATER MAIN/SERVICE -- The work shall conform to the plans, the City of Petaluma's Water Main Installation Detail Specification No. 11, City Standard Details for Water Mains, City Water Construction Standard for Water Services and these Special Provisions.

All gate valves and dresser or mechanical joint bolts shall require corrosion protection. All bolts, nuts, washers and tie backs shall be stainless steel conforming to ASTM A320, Type 304. All fittings and valves shall be polybagged and taped with 10 mil. minimum thick polyethylene.

All shutdowns and valve turning operations shall be performed by City Water Utility personnel only. All water main tie-ins shall be made under the inspection of City Water Utility personnel. The Contractor shall give the City a minimum of 72 hours notice of a request for shutdown of the City water system in order to make connections or for doing hot taps to the main. Contact Louis Hodge, City Water Supervisor, at (707) 778-4392.

All "Hot Taps" to existing water mains larger than 2 inches shall be made by the City Water Department at Contractor's expense. The Contractor shall contact City Water Department for "Hot Tap" fee schedules. The Contractor shall, at his/her expense, furnish and install the tapping valves, sleeves and valve boxes.

All fittings 3 inches and larger shall be cement lined ductile iron as specified in City Detail Specification No. 11. Water line up to and including 2 inches shall be polyethylene Class 200 psi, SDR 9, as specified in the City Department of Water Construction Standards - Water Services.

Tapping Valves. Tapping valves shall be resilient seated with stainless steel stems and shall conform with the requirements of "Gate Valves" in Paragraph 1102.4 of City Detail Specification No. 11. Inlet ends of the tapping valve shall be flanged with a raised machine projection on the flange that mates with the machined recess in the tapping sleeve outlet flange. Tapping valves shall fit the new pipe being installed.

Tapping Sleeves. Tapping sleeves shall be constructed of all stainless steel with separate stainless steel bolt sets as manufactured by ICM 432, Power Seal, Ford FTSS Stainless Steel, or equal.

Blow Offs. The Contractor shall furnish and install automatic air relief valves and blow-offs at high points and sag points respectively on the water main as designated in the field by the Engineer.

Unless otherwise shown on the Plans, the depth of the cover over the new water service shall be a minimum of 3 feet from finished grade. In case of vertical conflict between the proposed water mains and existing or proposed utilities, the existing or proposed utilities shall not be relocated and the proposed water services shall be installed to clear the utilities by *a minimum of 12 inches vertically*, and still maintain 3 feet minimum cover. No additional payment for "over-excavation or backfill" will be made.

Fire Hydrants. Fire hydrant shall be as shown on the Plans and in accordance with the City Detail Specification No. 11 and City Standard Details.

A blue fire hydrant marker of Stimsonite 88 or equal shall be installed in the street, marking the location of each hydrant (both existing and newly installed ) three (3) inches from the centerline on the hydrant side of the centerline. Immediately after application of the adhesive, pavement markers shall be placed in position and pressure applied until firm contact is made with the pavement.

The existing pavement shall be saw cut a minimum of 3 inches deep and removed to at least 6 inches outside each side line of the trench to permit properly keying in the restored pavement.

At times between the hours of 4:30 p.m. and 8:00 a.m., the tapping pit shall be bridged in such a manner so as to safely accommodate vehicle traffic. Tapping pits shall not remain in excess of 48 hours. In cases where the work is not completed within the 48 hour time limit, the Contractor shall temporarily backfill or bridge the pit when work is not being done, place temporary paving, and open to traffic. All covered valve boxes shall be brought to grade within 24 hours.

Tie-in connections between the new water services and existing water mains shall be according to the Plans and field conditions, and shall comply with the City Detail Specification No. 11.

The Contractor shall perform all work so as to cause minimum inconvenience to customers of the City Water Utility and in no event will the Contractor be permitted to shut off water service to customers for a period greater than five (5) hours. Forty-eight (48) hours prior to any discontinuance of service due to performance of the work, the Contractor shall notify the customer or customers to be so inconvenienced in writing. The hours of shutdown shall first be approved by the City.

Before each connection is made, the Contractor shall secure approval from the City Inspector and show that all necessary labor, equipment, and materials (especially pipe and fittings, nuts, bolts, gaskets, etc.) are on the job site prior to making the connections.

Connection pits or connection trenches shall not remain in excess of 48 hours. No excavated pit or trench shall remain open when work is not in progress at that site. It shall be either safely bridged and barricaded as approved by the Engineer, or backfilled (temporarily paved in the "traveled way".)

In case the work is not completed within the 48 hour limit, the Contractor shall temporarily backfill or properly bridge the excavation when work is not being done, place temporary paving, and open to traffic.

Backfill shall be consolidated to 95 percent relative compaction at optimum moisture in the top 2-1/2 feet of the trench and to 90 percent relative compaction at optimum moisture in the remainder of the trench. Backfill shall be State Specification Class 2 aggregate base 3/4 inch maximum for all backfill, including top 12 inches in the street. Backfill shall be spread and compacted in an 8 inch maximum layer. Backfill and compaction for services shall be the same as for main line water pipe trenches. The wearing surface for permanent surfacing shall be a minimum of 3 inch thick Type A, 1/2 inch maximum, medium grading conforming to Section 3.11 of the special provisions except for payment and shall be placed no later than seven (7) calendar days after completion of backfill.

During the work, the Contractor shall exercise all necessary precautions to prevent the entrance of trench water or any other foreign material into the water main and shall conduct all operations in accordance with the most stringent sanitation practices. The interior of all appurtenances being installed shall be thoroughly swabbed with a strong HTH solution prior to installation.

Although no shutdown is wanted, a maximum to be five (5) hours will be allowed with the Engineer's approval. "Door" notices are to be delivered to all customers to be affected by the shutdown a minimum of 48 hours prior to the shutdown. Door hangers will be provided by the City Water Department.

The contract unit price paid for water service shall include, but not limited to, full compensation for furnishing all labor, materials, tools, equipment, incidentals and for doing all the work involved in installing the water pipe, complete in place and ready for use, including testing, excavation, backfill, trench resurfacing, trench shoring, connecting new pipe to existing water main, potholing existing mains, fittings, reducers, other required appurtenances, restoring existing landscaping and other facilities, as shown on the plans, as specified in these specifications and special provisions, and as directed by the Engineer.

3-1.14 GEOTEXTILES -- Geotextiles shall be Amoco 2006, Exxon GTF-300, or equal and shall be woven. Geotextiles shall be installed per manufacturer's recommendations.

Geotextiles shall meet the following physical properties (minimum roll average in the weakest principal direction):

| Property | Test Reference | |
|---|---|---|
| Grab Strength lbs., Min. | ASTM D 4632 | 250 |
| Elongation, Minimum (at peak load) % Min. | ASTM D 4632 | 15 |
| Puncture Strength, lbs., Min. | ASTM D 3787 | 120 |
| Permitivity, $Sec^{-1}$, Min. | ASTM D 4491 | 0.01 |
| Burst Strength, Psi, Min. | ASTM D 3786 | 600 |
| Toughness, lbs., Min. | % Elongation x Grab Strength | 4,125 |
| Ultraviolet Resist. % Strength Retained @ 500 Weatherometer Hours | ASTM D 4355 | 70 |

The contract price paid for geotextiles shall include, but not limited to, full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing the geotextiles (including overlap), complete in place, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

3-1.15 STORM DRAIN PIPE.- The work shall conform to the plans, the City of Petaluma's Storm Drain Installation Detail Specifications No. 31, City Standard Details for Storm Drains and these Special Provisions, except that asbestos cement pipe and corrugated metal pipe shall not be allowed.

Reinforced concrete pipe, if used, shall be Class V.

Backfill material shall be Class 2 aggregate base 3/4 inch maximum conforming to Section 26 of the Standard Specifications except for payment. The wearing surface for permanent surfacing shall be 3 inch thick asphalt concrete conforming to Section 3.11 of the Special Provisions, except for payment and shall be placed no later than seven (7) calendar days after completion of the backfill.

The locations of the existing underground facilities shown on the plans are approximate only. The Contractor shall verify the exact locations of those facilities in the field by potholing, probing, or other means which will locate and identify the facility prior to the construction of the new storm drain facilities. No compensation for right-of-way delay other than time extension shall be given.

Full compensation for potholing the existing underground facilities including backfill and trench restoration, shall be considered as included in the contract prices paid for potholing existing underground facility and no additional compensation will be allowed therefore.

At times between the hours of 4:30 p.m. and 8:00 a.m., or when construction operations are not actively in progress, all excavated pits and trenches shall be either safely covered with steel plates, or backfilled and temporarily paved if in the "travel way".

The Contractor shall at all items have on hand sufficient pumping equipment and machinery in good working condition for all ordinary emergencies and shall have available at all times competent mechanics for the operation of all pumping equipment. During pipe laying and pouring of concrete and until concrete has set hard, excavations shall be kept free of water.

The contract price paid per linear foot for storm drain pipe shall include, but not be limited to, full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing the storm drain pipe, complete in place and ready for use including excavation and backfill, trench resurfacing, trench shoring, connecting new pipe to existing facilities, cofferdams (if required for the installation of storm drain pipes), pumping, fittings, other required appurtenances and restoring existing facilities, as shown on the plans, as specified in these specifications and special provisions, and as directed by the Engineer.

3-1.16 STORM DRAIN INLETS/CATCH BASINS -- Storm drain inlets/catch basins shall conform to the Storm Sewer Installation Detail Specifications No. 31, City Standard Plans for Storm Drains and these special provisions.

The contract unit prices paid for storm drain inlets/catch basins shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing the inlets/catch basins complete in place, including excavation, backfill, inlet galleries if required by the plans and connecting the inlets/catch basins to existing or new pipes.

3-1.17 SANITARY SEWER -- Sanitary sewer installation shall conform to the provisions of the City of Petaluma Sanitary Sewer Installation Detail Specifications No. 21.

Sewer pipe shall be ductile iron pipe Class 50 or PVC-SDR 35.

Backfill material shall be Class 2 aggregate base 3/4 inch maximum conforming to Section 26 of the Standard Specifications except for payment. The wearing surface for permanent surfacing shall be 3 inch thick Type A asphalt concrete.

The locations of the existing underground facilities shown on the plans are approximate only. The Contractor shall verify the exact locations of those facilities in the field by potholing, probing, or other means which will locate and identify the facility prior to the construction of the new sewer facilities. No compensation for right-of-way delay other than time extension shall be given.

Full compensation for potholing or probing the existing facilities shall be considered as included in the contract prices paid for the sewer pipe and no additional compensation will be allowed therefor.

The contract price paid per linear foot for installing sanitary sewer shall include, but not limited to, full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in placing the sewer pipe, complete in place, including trench resurfacing, excavation and backfill, connecting to existing facilities, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

3-1.18 MAINTAINING EXISTING STORM DRAIN AND SANITARY SEWER FACILITIES -- All storm drain and sanitary sewer facilities shall be kept functional at all items by the Contractor. Full compensation for maintaining these facilities including bypass pumping shall be considered to be included in the contract price paid for various items of work and no additional payment will be allowed therefor.

3-1.19 CONCRETE STRUCTURES -- Concrete structures shall conform to Section 51, "Concrete Structures", of the Caltrans Standard Specifications and these special provisions.

Portland cement concrete shall be Class A (6 sack P.C.C.). Steel reinforcement shall conform to Section 52, "Reinforcement", of the Caltrans' Standard Specifications. No. 4 steel dowels shall be installed between new and old concrete at 24 inch o.c.

A non-chloride accelerator may be used with prior approval of the Engineer.

All costs involved shall be considered to be included in the contract prices paid for various concrete structures and no additional payment shall be allowed.

3-1.20 FENCES -- Fences shall be 5-strand wire type and shall conform to the details shown on the plans, the applicable provisions of Section 80, "Fences", of the Standard Specifications and these special provisions.

End and corner post and pull post assemblies shall be as shown on Caltrans Standard Plan A-86. Staples used to fastened wire to wood post shall not be less than 1 3/4-inch long and shall be fabricated from 9-gage galvanized wire.

The fence wires shall be grounded. The grounding device shall consist of a metal fence post which shall be substituted for a regular fence post at intervals not to exceed 500 feet with not less than one metal post in any length of fence over 200 feet between openings. Each line of wire shall be tightly fastened to the metal post with 11-gage, or heavier, galvanized steel wire.

3-1.21 ENTRANCE GATE -- Entrance gate shall conform to the details shown on the plans and these special provisions.

All costs involved in installing the gate, including W21 sign, complete in place and ready for use shall be considered to be included in the lump sum contract price paid for entrance gate.

3-1.22 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS -- Thermoplastic traffic stripes (traffic lines) and pavement markings shall conform to the provisions in Sections 84-1, "General," and 84-2, "Thermoplastic Traffic Stripes and Pavement Markings," of the Standard Specifications and these special provisions.

The State specification number for glass beads in Section 84-2.02, "Materials," of the Standard Specifications is amended to read "8010-21C-22 (Type II)."

Thermoplastic material for traffic stripes shall be applied at a minimum thickness of 0.125-inch.

3-1.23 ABANDON CULVERTS -- Existing culverts, where shown on the plans to be abandoned, shall be abandoned in place or at the option of the Contractor, the culverts shall be removed and disposed of. All resulting openings into exiting structures, that are to remain in place, shall be plugged with commercial quality concrete containing not less than 470 pounds of cement per cubic yard.

Abandoning culverts in place shall conform to the following:

Culverts shall be filled with 3-sack cement slurry by any method, acceptable to the Engineer, which completely fills the pipe.

The ends of culverts and pipe lines shall be securely closed by a 0.5-foot thick tight fitting plug or wall of commercial quality concrete.

Culverts and pipe lines shall not be abandoned until their use is no longer required. The Contractor shall notify the Engineer in advance of any intended culvert or pipe abandonment.

Full compensation for plugs, pipe removal, structure excavation, and backfill (including sand backfill), shall be considered as included in the contract unit price paid for abandon culvert and pipe line, and no additional compensation will be allowed therefor.

3-1.24 ADJUST EXISTING SEWER MANHOLE AND WATER VALVE BOX TO GRADE -- Adjusting existing manhole and water valve box shall conform to Section 4102.14 of the City Street Construction Detail Specification No. 41 and these special provisions.

All costs involved shall be included in the contract prices paid for adjusting existing sewer manholes and no additional compensation will be allowed therefore.

3-1.25 FINAL PAY QUANTITIES -- When the estimated quantity for specific portion of the work is designated in the bid schedule as a final pay quantity, the estimated quantity shall be the final quantity for which payment for the specific portion of the work will be made, unless the dimensions of the portion of the work shown on the plans are revised by the Engineer, or unless the portion of the work is eliminated. If the dimensions of the specific portion of the work are revised, and the revisions result in an increase or decrease in the estimated quantity of the portion of the work, the final quantity for payment will be revised in the amount represented by the changes in the dimensions. If the specific portion of the work is eliminated, the final pay quantity designated for the specific portion of the work will be eliminated.

The estimated quantity for each specific portion of the work designated in the bid schedule as a final pay quantity shall be considered as approximate only and no guarantee is made that the quantities which can be determined by computations, based on the details and dimensions shown on the plans, will equal the estimated quantities. No allowance will be made in the event that the quantities based on computations do not equal the estimated quantities.

When portions of an item have been designated in the bid schedule as final pay quantities, portions not so designated will be measured and paid for in accordance with the applicable provisions of these specifications and the special provisions.

3-1.26 INSTALL ROAD SIGNS -- Road signs shall conform to Section 4102.12 of the City Street Construction Detail Specification No. 41 and these special provisions and shall be placed in a concrete foundation in a fashion as shown on the City Standard Street Detail Plans. Foundation concrete shall be Class A. The sign fastening hardware shall be adjustable stainless steel straps.

Each multipost sign or a single post sign with one or more sign panels mounted on the post shall be considered a single unit.

All costs involved in installing the signs complete in place shall be considered to be included in the unit contract price paid for sign installation.

3-1.27 SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS -- Installation of traffic signals and lighting shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," of the Standard Specifications and these special provisions.

Conduit

Conduit shall conform to the provisions in Section 86-2.05, "Conduit," of the Standard Specifications and these special provisions.

Conduit to be installed underground shall be PVC coating rigid galvanized steel or schedule 80 PVC unless otherwise specified. Detector termination conduits may be the rigid non-metallic type.

When a standard coupling cannot be used for coupling metal type conduit, a UL list threaded union coupling, as specified in the third paragraph in Section 86-2.05C, "Installation," of the Standard Specifications shall be used.

When rigid non-metallic conduit is placed in a trench (neither in pavement nor under PCC sidewalk), after the bedding material is placed and conduit installed, the trench shall be backfilled with commercial quality concrete, containing not less than 376 pounds of cement per cubic yard, to not less than 4-inches above the conduit before additional backfill material is placed.

After conductors have been installed, the ends of conduits terminating in pull boxes, and in service and controller cabinets shall be sealed with an approved type of sealing compound.

Excavating And Backfill

Backfill and surfacing for trenches more than 18-inches wide shall consist of a section of 3-inch asphalt concrete installed in two lifts over 18-inches of Class 2 aggregate base. The outline of all areas of pavement to be removed shall be cut to a minimum of 3-inches with a rock cutting excavator specially designed for this purpose.

Trenches less than 18-inches wide shall be backfilled with 5-sack sand/cement slurry and 0.17-foot Type A asphalt concrete.

The Contractor shall provide compaction of backfill and base material as the job progresses each day. Temporary paving (0.17-foot minimum) shall be placed over the work each day leaving not more than 25-feet unpaved. The balance of the trench shall be covered with steel plates capable of sustaining normal traffic loads. Temporary asphalt concrete paving shall be used around all edges of steel plates.

All trenches shall be final paved within five (5) calendar days of the date that the trench work is begun.

The Contractor is cautioned that when the trench is finally resurfaced and traffic has been allowed to pass over the trench for an amount of time specified by the Engineer, there shall be no significant deviation from existing pavement when a 10-foot straight edge is laid across the surfaced trench. If there is significant deviation, then the Contractor shall repair the trench to the satisfaction of the Engineer at no additional expense to the City.

Conduit installed parallel and adjacent to existing gutter lip shall be placed under existing pavement in a trench approximately 2-inches wider than the outside diameter of the conduit to be installed and the trench shall not exceed 6-inches in width. Conduit depth shall not exceed 14-inches or conduit trade-diameter plus 12-inches, whichever is greater, except that at pull boxes, the trench may be hand dug to required depth. The top of the installed conduit shall be a minimum of 9-inches below finish grade.

The outline of all areas of pavement to be removed shall be cut to a minimum depth of 3-inches with an abrasive-type saw or with a rock cutting excavator specifically designed for this purpose.

Cuts shall be neat and true with no shatter outside the removal area. Equipment used shall be capable of placing the trench next to the lip of gutter when shown on the plans.

The conduit shall be placed in the bottom of the trench and the trench shall be backfilled with two-sack sand/cement slurry to not less than 0.17 foot below the pavement surface. The top 0.17 foot shall be backfilled with asphalt concrete produced from commercial quality paving asphalt and aggregates. Contractor shall pothole existing utilities prior to any trenching. Where 24-inch cover cannot be obtained, conduit must go under existing utilities.

Spreading and compacting of asphalt concrete shall be performed by any method which will produce an asphalt concrete surfacing of uniform smoothness, texture, and density. Tack coat of SS-1 shall be applied to contact surfaces of all cold pavement joints.

Foundations For Street Lights

The Contractor shall construct foundations for street lights at the locations shown on the plans per City of Petaluma Standard No. 604 and the applicable provisions of Section 86-2.03 - Foundations of the State Standard Specifications and these special provisions.

Minor Portland cement concrete shall be produced from commercial quality aggregates and cement and shall contain not less than six (6) sacks of cement per cubic yard and with a minimum 28-day compressive strength of 3,000 psi. Contractor may have to hand dig behind face of curb to avoid utilities (at no additional expense).

Standards, Steel Pedestals, And Posts

Street light standards, luminaire arms, and related appurtenances shall be installed per City of Petaluma Standard No. 600 and other applicable standard plans, as noted on the plans and as specified herein.

The chased outlet shown on the State Standard Plans in the mast arm mounting plate shall be 1-1/2-inch minimum diameter and shall be smoothed after galvanizing to facilitate installation of conductors without damaging the insulation. Installation of a chase nipple will not be required.

Each standard shall be provided with one 3-inch by 5-inch hand hole for wiring, located on the same side of the standards as the mast arm.

Poles shall conform to the details shown on City of Petaluma Standard No. 600, 601, 604, 605, 606 and 607.

Pull Rope

The Contractor shall install a 1/4-inch nylon pull rope with a minimum tensile strength of 500 pounds in all empty conduits or as shown on the plans. At least two (2) feet of pull rope shall be doubled back into the conduit at each termination.

After conduits and rope have been installed, the ends of all conduits terminating in pull boxes shall be sealed with an approved type of sealing compound.

PVC conduit shall conform to the provision in the City of Petaluma Standard No. 600 and these special provisions.

Pull Boxes

Pull boxes shall conform to the provisions in Section 86-2.06 - Pull Boxes of the Standard Specifications and these special provisions.

Pull boxes shall be No. 5(T) with traffic lids and conform to Caltrans Standard Plan ES-8. Pull boxes shall be installed at maximum spacing of 200 feet.

The third paragraph of Section 86-2.06C, "Installation and Use," of the Standard Specifications is amended to read: "Where the sump of the existing pull box is disturbed by the Contractor's operations, the sump shall be reconstructed."

Bottoms of pull boxes shall be grouted prior to the installation of conductors. A layer of roofing paper shall be placed between the grout and the crushed rock sump. A 1-inch drain hole shall be provided in the center of the pull box through the grout and the roofing paper.

Conductors

All conductors for street lighting and electrical systems shall conform to Section 86 of the Standard Specifications, as shown on the plans or as specified herein.

The Contractor shall supply and install two #8 AWG copper wires, one #8 AWG copper ground wire, and one 20-AMP fuse for each street light per City of Petaluma Standard No. 606 (copy attached). Lighting conductors between each luminaire and the adjacent pull boxes shall be #8 or as shown on the plans. Contractor's attention is directed to City of Petaluma Standard Plan Drawing No. 606, "Street Light Wiring Diagram," for wiring details.

All conductors shall be copper and be rated for 600-volt operations. Insulation types shall be THWN for No. 8 and smaller; and XHHW for No. 6 and larger.

Color code all wiring as follows:

| | 120/208 V | 480 V |
|---|---|---|
| Phase 1 | Black | Brown |
| Phase 2 | Red | Orange |
| Phase 3 | Blue | Yellow |
| Neutrals | White | White |
| Ground | Green | Green |

All conductors shall be pulled by hand and shall be installed in conduit runs in one operation. The use of winches or other power-actuated equipment will not be permitted.

All conductors shall conform to the latest requirements of the National Electric Code and be labeled by Underwriter's Laboratories, Inc.

All buried conductors shall have plastic warning tape installed a minimum of 12 inches above the top of the conductors for the entire length of the conductors. The tape shall be four inches wide and shall be yellow with black lettering with the legend "CAUTION - ELECTRICAL CABLE BELOW" in three inch lettering printed at a maximum of three foot intervals.

Wiring

Splices shall be insulated in conformance with Method "B" as shown on the State Standard Plan ES-13. Tap splice in street light neutral and multiple lighting conductors shall be Type "C" as shown on the State Standard Plans. Splices shall only be allowed at pull boxes.

The epoxy insulated spring connector-type splice and splice insulation specified in Section 86-2.09D - Splicing of the Standard Specifications shall not be used on this project.

The use of proper size split bolt connectors will be permitted.

Bonding And Grounding

Bonding and grounding shall conform to the provisions in Section 86-2.10 - Bonding and Grounding of the Standard Specifications and these special provisions.

Grounding jumper shall be attached by a 3/16-inch or larger brass bolt in the standard and shall be run to the ground as shown on City of Petaluma Standard No. 604 (copy attached). Grounding jumper shall be visible after cap has been poured on foundation.

Service

Electrical service shall conform to Section 86-2.11, "Service", of the Standard Specifications and these special provisions.

The Contractor, where applicable, shall furnish and install a service riser and furnish conductors of a sufficient length to allow the utility company to connect to their facility. The Contractor shall make arrangements with the utility company to complete service connections and to determine the location(s) of the service point(s) and pay all costs and fees required by utility company.

Functional Testing

The functional test for each lighting system shall consist of not less than 48-hours of continuous, satisfactory operation. If unsatisfactory performance of the system develops, the conditions shall be corrected and the test shall be repeated until the 48-hours of continuous, satisfactory operation is obtained.

Painting

Numbers for luminaires shall be painted and located on the pole as directed by the Engineer.

Paint for application in the field will be furnished by the Contractor.

Painted numbers shall be stenciled using sheet metal stencils and two coats of reflective white paint.

High Pressure Sodium Vapor Luminaires

The Contractor shall supply and install High-Pressure Sodium Vapor Luminaires with 120-volt built-in ballast, individual photo cell control as shown on the plans and at the location(s) and with the wattage as shown on the plans. High pressure sodium luminaires shall conform to the provision in the Standard Specifications. Street light luminar shall be 70 watt.

The Contractor shall submit to the Engineer for his/her approval the type of luminaire he/she proposes before he/she orders the luminaire.

Photoelectric Control

Multi-voltage photoelectric control shall conform to the provision in Section 86-6.07, - Photoelectric Controls of the California Standard Specifications and these special provisions.

Photoelectric control shall be Type IV.

Ballasts

Ballasts shall conform to the provisions in Section 86-6.10 - Ballasts of the California Standard Specifications and these special provisions. The ballasts shall be integral type.

Payment

The unit contract price paid for street light(s) or electrical conduit shall include, but not limited to, full compensation for furnishing all labor, materials, tools, equipment, and doing all the work involved in installing the street light complete in place and ready for use as shown on the plans and as specified in the special provisions, including conduits, pull ropes, pull boxes, wires, conductors, excavation and backfill, concrete work, connecting to power source, PG&E connection and/or permit fees, poles, relocating existing pull box, etc., and no additional allowance will be made therefor.

3-1.28 PROVIDE A MUD CAT BULLDOZER AND AN OPERATOR TO RESTORE/BUILD UP THE EXISTING INTERIOR DIKE/MOUND -- The work to be done consists of providing an operator and a bulldozer to build up/restore existing 2500'+/- dike/mound using previous dredging materials from the bottom of the pond as directed by the Engineer, as specified in these Special Provisions, and as shown on the plans. The amount of dirt involved to be estimated at 1000 cubic yards. It is estimated the construction will take approximately 40 hours. However, it may range from 16 to 80 hours.

The contract price paid for the work shall be per hourly rate for a C-7 mud cat bulldozer plus an operator and no additional compensation shall be allowed therefor. The Contractor shall not be paid for idle time of equipment and/or operator. The hourly rate will be the same regardless of how many hours are required for the construction.

3-1.29 REMOVE AND REPLACE EXISTING CORRUGATED METAL PIPE RISER, ANTIVORTEX DEVICE AND TRASH RACK -- The work to be done consists of removing and replacing the existing 72-inch C.M.P. riser and the associated antivortex device and trash rack as shown on the plans and as specified in these special provisions.

Corrugated metal pipe and coupling shall be 0.168 inch thick, FIBER-BONDED, bituminous lined and coated in conformance with Section 66, "Corrugated Metal Pipe", of the Standard Specifications.

Galvanized steel shall conform to Section 75, "Miscellaneous Steel", of the Standard Specifications.

All bolts, nuts and washers shall be Type 304 Stainless Steel conforming to ASTM-320.

The contract lump sum price paid for removing and replacing the existing corrugated metal riser, antivortex device and trash rack shall include, but not limited to, full compensation for furnishing

all labor, materials (including concrete and steel), tools, equipment, and incidentals, and for doing all the work involved in removing and replacing the riser, antivortex device reinforced concrete foundation, piping, fittings, and trash rack complete in place, as shown on the plans, as specified in the special provisions, and as directed the Engineer.

3-1.30 REMOVE AND REPLACE EXISTING FLAP GATE AND ASSEMBLY -- Under this item of work, the Contractor shall remove and replace the existing flap gate and assembly complete in place as indicated on the plans and as specified herein.

Flap gate shall be the Heavy-Duty type as manufactured by ARMCO, HYDRO GATE CORPORATION, or equal. The gate shall be designed for up to 20 feet of head.

Gate assembly shall have cast iron seat and cover with Monel faces, cast iron pivot lugs and links, and Monel bushings and stainless steel fasteners. Materials shall conform to the requirements of the following ASTM Standards:

| | |
|---|---|
| Cast Iron | A 126, Class B or C |
| Austenitic Gray Iron Casting (Ni-Resist) | A 436, Type 2 or 2b |
| Monel (Sealing faces and fasteners) | B 164, Class A or B |
| Bolts, nuts and washers (stainless steel) | ASTM-A320, Type 304 |

Machined surfaces shall be coated with a water-resistant, rust preventive compound. All cast iron parts shall be shop cleaned and painted in accordance with the manufacturer's standard practice.

Drawings showing the dimensions and details required to locate and install the component assemblies shall be submitted for the Engineer's approval prior to fabrication.

It shall be the Contractor's responsibility to handle, store and install the gate in strict accord with the manufacturer's drawings and recommendations.

The Contractor shall install a new section of 48-inch C.M.P. if required for the installation of the new flap gate.

The contract lump sum price paid for removing and replacing existing flap gate and assembly shall include, but not limited to, full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved complete in place, as shown on the plans, as specified in the special provisions, and as directed by the Engineer.

3-1.31 INSTALL PARKING TIRE BUMPER -- Under this item of work, the Contractor shall install the tire bumpers complete in place as indicated on the plans and as specified herein.

The tire bumper shall be either cast-in-place or precast concrete bumper block as manufactured by Christy or equal. The tire bumper shall be affixed to the pavement by epoxy adhesive.

All costs involved in installing the tire bumper, complete in place, shall be included in the contract price paid for installing tire bumper and no additional payments will be allowed therefor.

9788

## WATER MAIN TESTING APPROVAL FORM

PROJECT NAME, LOCATION: _____

DATE: _____

INSPECTOR: _____

HYDROSTATIC TEST DATE: _____

TEST PRESSURE: _____

TEST DURATION: _____

ACCEPTANCE: _____

REJECTION: _____

BACTERIOLOGICAL TEST DATE: _____

SAMPLE LOCATIONS: _____

_____

TESTING LABORATORY: _____

ACCEPTANCE: _____

REJECTION: _____

RETEST DATE: _____

NOTES: _____

_____

_____

ACCEPTANCE SIGNATURES:

_____ _____

PUBLIC WORKS INSPECTOR
SUPERINTENDENT

WATER SYSTEM

xc: All Department Heads
cm de acm/salmons
risk wss pwi file

9788

BLANK

SECTION 3-2

# SPECIAL PROVISIONS

for
Lakeville Highway
Mitigation Plan

I hereby certify that the Project Drawings and the Project Specifications were prepared by me or under my direct supervision and that I am a duly registered Engineer under the laws of the State of California



SECTION III
SPECIAL PROVISIONS
SECTION 3-2

# SPECIAL PROVISIONS FOR LAKEVILLE HIGHWAY MITIGATION PROJECT

## 3-2.1 DESCRIPTION OF WORK

This section describes the site preparation, earthwork, planting, seeding and plant maintenance/wetland mitigation component of the project. Work, materials and services necessary to complete these requirements are shown on the Drawings and stated within these Specifications. The Contractor is to provide all labor and materials (except specified plant materials that can be gathered from locations on City lands) for completion of the work program. All work shall be conducted in a professional manner to achieve the best survival, growth and recruitment of native plant materials in the restoration/mitigation sites, while protecting sensitive wetlands.

The work to be done consists in general, of excavating and grading; planting; hydroseeding and erosion control; irrigation and maintenance; and doing other work specified in these special provisions and as shown on the Drawings. The City will provide surveying/grade staking services. The City will provide one set of stakes only, any restaking beyond the first set shall be born by contractor. The Contractor is to provide maintenance and replacement planting over a three-year period, in accordance with the schedule and provisions herein. Also included in these specifications are the method of measurement of the quantity and completion of work for payment purposes.

## 3-2.2 PLANS AND SPECIFICATIONS

There are twelve components to these specifications:

3-2.3 Fencing for Avoidance of Sensitive Areas
3-2.4 Coordination with Other Agencies
3-2.5 Mobilization and Staging Areas
3-2.6 Access Road and Adobe Creek Crossing
3-2.7 Location of Existing Utilities
3-2.8 Earthwork/Spoils Disposal
3-2.9 Planting
3-2.10 Irrigation
3-2.11 Erosion Control
3-2.12 Restoration of Staging Area
3-2.13 Maintenance, Monitoring and Replacement
3-2.14 Acceptance

The City of Petaluma has adopted the latest edition of Cal Trans Standard Specifications; use of the term Standard Specifications refers to that document (July 1992 edition).

In the event of conflict between the Standard Specifications, the Special Provisions and other contract documents, the document of precedence shall be determined in the following order, highest to lowest:

- Special Provisions
- General Provisions
- Improvement plans (drawings)
- Detail Specifications and Standard Details (City of Petaluma)
- Caltrans Standard Specifications and Standard Plans (1992 Edition)

It is the intent of the Drawings and Specifications to provide guidelines and prescriptions for excavation and site grading, and wetland and upland enhancement planting with healthy plants and propagules. Any items not specifically shown in the Drawings or called for in the Specifications, but normally required to conform with such intent, are to be considered as part of the work.

The items of work listed in the following sections and in the Bid Schedule have been developed to cover construction of all phases of the mitigation project as herein provided and shown on the Drawings. Compensation for all work incidental to accomplishment of the construction and maintenance in accordance with the Plans and Specifications shall be considered as being included in the contract price for the appropriate items of work. The Contractor is instructed to provide written notice to the Engineer, in advance, of all work considered out-of-scope and outside of the terms of the Contract.

All existing improvements and natural areas disturbed by the Contractor's operations shall be restored to their original condition or replaced in kind. Replacement of all improvements disturbed during project construction shall be replaced in kind and be included in the contract price for the appropriate items of work; no additional payment will be made therefor.

In these Special Provisions, "City Engineer" refers to the City of Petaluma Director of Engineering; "Consulting Engineer" refers to Questa Engineering Corporation, the City's consultant for this project.

## 3-2.2.1 ORDER OF WORK

A. PRECONSTRUCTION MEETING. Prior to commencement of work, a pre-construction meeting will be held by the City Engineer to be attended by the Contractor on-site project manager, foreman or crew supervisor, the Consulting Engineer, or his/her representative, and the City Inspectors. The meeting will be held at a time and place mutually agreeable to Contractor and City. The purpose of this meeting is to discuss work schedules and thoroughly review the scope of the contract, responsibilities of both parties to the contract, and promote a clear understanding of the work between the Contractor and the City.

B. FIELD PRE-WORK MEETING. Before any crews start work on this contract or with the

introduction of crews which have not performed on this specific contract, the Contractor and the field representative shall meet with the Engineer in the field to discuss, explain and clarify the Specifications of this contract to each crew. The field meeting will take place at least one week prior to mobilization (provide one week notice to arrange). Especially important will be discussion of provisions to insure that disturbance to sensitive wetland habitats is avoided, and all sensitive, disturbed areas are immediately stabilized and repaired.

## 3-2.2.2 QUALIFICATIONS AND SUBMITTALS

The Contractor for the Lakeville Highway Mitigation work shall be a California landscape contractor (current Class C27 License required) with at least five years experience in native plant restoration/revegetation projects, preferably in native estuarine/riparian habitats of California Coastal Ranges, San Francisco Bay area and surrounding areas. The prospective contractor will supply a description of at least three similar, representative and successfully completed projects including location, size and value of contract, plant materials used, and name and phone number of client contact with the bid proposal. Failure to submit three successful representative projects may be grounds for Contractor disqualification.

After the contract is awarded the Contractor shall provide the Engineer with all required information in a timely manner as stated within these Specifications. Required notifications and submittals are as follows:

A. MOBILIZATION. The Contractor shall notify the City's Contracting Officer ten working days prior to mobilization and job start-up.

B. PLANT DELIVERY. The Contractor shall notify the City's Contracting Officer within 48 hours of the pick-up and delivery of plant materials to the site.

C. LIST. An itemized list of actual quantities, sizes, and source of origin of all plants, seeds, fertilizer, mulch, and other materials in each delivery shall be supplied to the City's Contracting Officer prior to installation. The Contractor will notify the City's Contracting Officer 72 hours before mobilizing excavation equipment at the job site

D. SCHEDULE. The Contractor shall submit an estimated schedule showing start and completion dates for each item of work shown on the Bid Schedule and in accordance with these Specifications.

Contractor's attention is directed to the Planting Schedule (Sheet M2) and the restriction on earthwork (initiation after June 1, completion by October 30 imposed on the project. The earthwork limitations within the ordinary high water line of the creek include excavation, grading, fill, placement, and the temporary creek crossing. Planting requirements for the wetland plants dictates a window of planting with completion of all plantings in Zones A, B, and C between November 15, 1995 and April 15, 1996. Upland planting (Zones D and E) may extend to May 30. Site stabilization, including repair and clean-up, removal of temporary fencing, and erosion control work must be completed by June 30, 1996.

Earthwork, grading and installation of temporary creek crossing shall be limited to between June 1 and October 30 of the calendar year to avoid disturbance to the anadromous fisheries.

## 3-2.3 AVOIDANCE OF SENSITIVE AREAS

ENVIRONMENTALLY SENSITIVE AREA. Attention is directed to the areas designated on the plans as "Environmentally Sensitive Areas".

Prior to mobilizing equipment and commencing any work near the environmentally sensitive areas, the Contractor shall mark the boundaries of the designated areas with a fixed and continuous temporary barrier consisting of plastic construction fencing or other material as approved by the Engineer that will prevent disturbance by the Contractor's equipment and activities. The temporary barrier shall remain in place for the duration of the project.

CREEK PROTECTION ZONE. All banks adjacent to work areas above elevation 3.0 shall be protected from erosion to assure that any earthwork or site grading minimizes disturbance to the Creek area. Silt fences, straw bales and/or other erosion control measures shall be used prior to excavation to assure that the Creek is not impacted by construction activities, as shown in the Drawings or approved by the Engineer.

NATIVE PLANT SOURCE AREAS. Sources of native plants for use as cuttings and transplants are discussed in Section 3-2.9.7. These "borrow" areas will be shown to perspective bidders at the pre-bid conference, and again at the pre-construction meeting. Prospective bidders are cautioned regarding generally limited vehicular accessability to these "borrow" areas. Extreme care must be exercised in wild harvesting of plants so that plant communities are thinned, but not damaged. The Engineer will flag prospective borrow areas for the pre-bid conference and pre-construction meeting. Contractor will only have access to plant sources within the limits of the flagging. The Contractor is advised against wild harvesting of plant materials from other areas without the consent of the property owner and responsible state and federal agencies.

STAGING AREAS AND WORK ARES. The Contractor is advised of the necessity to restrict his/her activities only to those staging areas and work areas shown on the Drawings, unless otherwise authorized by the Engineer. All disturbed and damaged areas must be repaired by the Contractor.

PAYMENT. Engineers' estimate of lineal feet of construction fencing and silt fencing shown on the itemized bid list are approximations. Full compensation for installing, maintaining, removing and disposing of the temporary barriers, straw bales, silt fences, etc., shall be considered as included in the lump sum contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

## 3-2.4 COORDINATION WITH OTHER AGENCIES

All work shall be performed in accordance with all applicable laws, codes, and regulations required by authorities having jurisdiction over such work and provide for all inspections and permits required

by federal, state, and local authorities in furnishing, transporting and installing materials.

Certificates of inspection required by law for transportation shall accompany the invoice for each shipment of plants. File copies of certificates with the project Engineer after acceptance of material Inspections at place of growth does not preclude rejection of plants at project site.

3-2.4.1 CALIFORNIA DEPARTMENT OF FISH AND GAME

It is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any stream, river, or lake without first notifying the DFG, unless the project or activity is noticed and constructed in accordance with all conditions imposed under Fish and Game Code Section 1601. (Streambed Alteration Agreement)

Portions of this project are located within the jurisdiction of the California Department of Fish and Game, and a Streambed Alteration Agreement has been entered into by the City and the Department of Fish and Game (DFG) regarding work along Adobe Creek. The Contractor shall fully comply with the conditions of the Streambed Alteration Agreement as well as the rules, regulations and conditions that may govern operations in said areas and shall conduct his operations accordingly. The City will provide a copy of the Streambed Alteration Agreement to the Contractor prior to start of construction.

Any modifications to the agreements between the City and DFG which are proposed by the Contractor shall be submitted in writing to the Engineer for transmittal to the DFG for consideration.

When the Contractor is notified by the Engineer that a modification to the agreement is under consideration, no work will be allowed which is inconsistent with the proposed modification until the DFG takes action on the proposed modifications. Compensation for delay beyond two weeks will be determined in accordance with Section 8.1 of the Standard Specifications.

The provisions of this section shall be made part of every subcontract executed pursuant to this contract.

Any modifications to any agreement between the City and DFG will be fully binding on the Contractor and the provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

All costs involved in complying with the permit requirements shall be considered to be included in the prices paid for the various contract items of work and no separate payments will be allowed therefore.

3-2.4.2 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

The location of the mitigation area is within areas controlled by the San Francisco Bay Regional Water Quality Control Board (RWQCB), and must meet the General Permit Conditions for a

Construction Activity Stormwater Permit The Regional Water Quality Control Board has issued an order specifying conditions for construction activities and covering work to be performed under this contract. The Contractor shall fully comply with all rules, regulations and conditions as set forth in the General Conditions that may govern his operations in said areas and shall conduct his work accordingly.

The Contractor shall comply with all applicable General Conditions of the Stormwater Permit, including preparation of a Stormwater Pollution Prevention Plan. The Contractor shall be responsible for submittal of a Notice of Intent as required by the RWQCB.

The Contractor's attention is directed to the following conditions which are likely to be established by the RWQCB in their Order for this project:

1. The City/Contractor shall not discharge, or create a potential for discharge, any soil materials, including fresh concrete, cement, silts, clay or sand, to storm drains or any creek or tributary.

2. Drainage and surface flows from the construction areas shall be controlled to prevent downstream erosion.

3. All surplus and waste materials shall be disposed of in an approved manner and location sufficient to prevent erosion and subsequent sedimentation and that is acceptable to the Engineer and the RWQCB.

4. All earthwork within and disturbance to the stream channel will be completed by October 30, 1995.

Any change in the above listed conditions proposed by the Contractor shall be submitted to the Engineer for transmittal to the RWQCB for their approval. Changes shall not be implemented until approved in writing by the RWQCB.

Attention is directed to Section 8.1 "Time of Completion", of the Standard Specifications. Days when the Contractor's operations are restricted by the requirements of this section shall not be considered as nonworking days whether or not the controlling operation is delayed.

All costs involved in complying with the permit requirements shall be considered to be included in the prices paid for the various contract items of work and no separate payments will be allowed therefore.

### 3-2.4.3 U.S. ARMY CORPS OF ENGINEERS

The mitigation project is located within the jurisdiction of the United States Army Corps of Engineers (COE). A permit with conditions regarding slough, creek drainage areas or wetlands has been granted to the City by COE for this project. The Contractor shall fully comply with the requirements of this permit as well as all rules, regulations, and conditions that may govern his operations in said area and shall conduct his operations accordingly.

Any modifications to the permit between the City and the COE which are proposed by the Contractor shall be submitted in writing to the Engineer for transmittal to the COE for their approval.

When the Contractor is notified by the Engineer that a modification to the permit is under consideration, no work will be allowed which is inconsistent with the proposed modification until the City and COE take action on the proposed modifications. Compensation for delay beyond two weeks will be determined in accordance with Section 8.1 of the Standard Specifications.

The provisions of this section shall be made a part of every subcontract executed as part of this contract.

Any modifications to any permit between the City and COE will be fully binding on the Contractor, and the provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

All costs involved in complying with the permit requirements shall be considered to be included in the prices paid for the various contract items of work and no separate payments will be allowed therefore.

## 3-2.5 MOBILIZATION AND STAGING AREAS

Mobilization shall conform to **Section 11**, "Mobilization" of the Standard Specifications. Full compensation for this bid item of work shall be considered as included in the prices paid for the various items of work and no additional compensation will be provided therefor.

The designated mobilization/work areas shall be strictly adhered to and shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy or allow others to use these areas or any areas outside of designated staging and work areas for purposes which are not necessary to perform the required work.

No area is available within the contract limits for the exclusive use of the Contractor. However, temporary storage of equipment and materials on City property may be arranged with the Engineer. Use of the Contractor's work areas and other City owned property shall be at the Contractor's own risk, and the City shall not be held liable for any damage or loss of materials or equipment located within such areas.

The City has obtained permission to use the staging area east of the property shown on Sheet M2.

## 3-2.6 ACCESS ROADS AND ADOBE CREEK CROSSING

### 3-2.6.1 ACCESS ROADS

A. The existing access roads shall be upgraded as required to accommodate construction traffic.

Construction entrances and new access roads shall be constructed as necessary. New access roads and construction entrances shall only be permitted in locations shown on the Drawings or as approved by the Engineer.

B. Materials used to improve existing access roads or for the construction of any access roads, shall be subject to approval by the Engineer prior to delivery to the Site. Such materials shall not contain objectionable quantities of debris, roots, expansive soil, organic matter, or contamination.

C. Contractor shall repair/fix ruts in the access roads as they develop. The condition of all existing access roads shall be maintained in a condition that permits access by small trucks and heavy equipment.

D. The existing access roads may be widened by the Contractor at his expenses at selected locations approved by the Engineer.

E. Contractor shall maintain the integrity of all roadways located beyond the site boundaries. Damage to any such roads shall be repaired by the Contractor at the Contractor's expense.

F. Contractor shall erect a temporary locking gate at the Adobe Creek Crossing to keep out unauthorized vehicles, as shown on the Drawings.

## 3-2.6.2 TEMPORARY CROSSING OF ADOBE CREEK

A temporary culvert crossing of Adobe Creek may be constructed at the location and according to the procedures shown on the Drawings subject to the terms of the California Department of Fish and Game 1601 Agreement. At the discretion of the Contractor, the Contractor may obtain a temporary access easement through private properties along the north side of Adobe Creek. The Contractor must provide written proof of access to the Engineer, and follow all local, state and federal laws regarding protection of wetlands and sensitive habitat. The following specifications will apply to the construction, maintenance, and removal of the temporary culvert crossing.

### MATERIALS

A. Where culverts are installed, two-inch, clean coarse aggregate base or larger will be used to form the crossing. The depth of stone cover over the culvert shall be equal to one-half the diameter of the culvert or 12 inches, whichever is greater. To protect the sides of the stone from erosion, six to nine-inch clean riprap shall be used.

B. All culverts shall be strong enough to support their cross-sectioned area approximately 50 feet bottom width under maximum expected loads and shall conform to the City Storm Sewer Detail Specifications No. 31. Five 36-inch CMP's are suggested, approximately 16 feet in length; additional outside culverts may be sized and cut to fit stream bed conditions. Pack two-inch clean gravel (drain rock) between culverts and outside of outer culverts to span the creek bed.

C. The length of the culvert shall be adequate to extend the fill width of the crossing, including side slopes.

D. The slope of the culvert shall be at least 0.25 inch per foot.

TEMPORARY CULVERT CROSSING INSTALLATION

A. Clearing and excavation of the stream bed and banks shall be kept to a minimum.

B. Crossing Alignment

1. Crossing Alignment. The temporary waterway crossing shall be at right angles to the stream. Where approach conditions dictate, the crossing may vary 15° from a line drawn perpendicular to the centerline of the stream at the intended crossing location.

2. Centerline. The centerline of both roadway approaches shall coincide with the crossing alignment centerline for a minimum distance of 20 feet from each bank of the waterway being crossed.

3. Approaches. The approaches to the temporary crossing shall consist of stone pads meeting the following specifications:

Stone: two-inch clean aggregate
Minimum thickness: two inches
Minimum width: five feet
Maximum grade: 5H:1V

The invert elevation of the culvert shall be installed on the natural stream bed grade to minimize interference with fish migration.

C. Filter cloth shall be placed on the streambed and stream banks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the stream bed and extend a minimum of six inches and a maximum of one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability. Filter cloth shall be FILTER X, MIRAFI 100X, STABILINK T 140N, or equal.

D. The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 20 feet in length.

E. The culvert(s) shall be covered with a minimum of one foot of clean two-inch aggregate. If multiple culverts are used, they shall be separated by a least six inches of clean aggregate.

CLEAN-UP AND MAINTENANCE

A. All structures shall be inspected after every rainfall and at least once a week, whether it has rained or not, and all damages repaired immediately.

B. All structures including culverts, bedding and filter cloth materials with the exception of the temporary irrigation supply pipe shall be removed without construction equipment working in the waterway channel, as soon as possible, but no later than October 30.

C. Upon removal of the structure, the stream shall immediately be shaped as shown on the Drawings and cross-section and properly stabilized using native materials.

D. All access roads shall be restored to their pre-existing condition unless otherwise directed by the Engineer.

3-2-6.3 PAYMENT

Construction of the access road and temporary Adobe Creek crossing, including all maintenance and restoration work, is considered a lump sum item. Full compensation for this work shall be considered in the contract price and no additional compensation will be allowed.

## 3-2.7 LOCATION OF EXISTING OF UTILITIES

The Contractor's attention is directed to the approximate location of high pressure gas lines and existing 16-inch water line with associated anode beds are shown on the drawings. The City of Petaluma Water Department will confirm the location of water lines and location of anode beds/cathodic protection devices which shall be avoided. These shall be located and marked in the field by the Contractor prior to excavation (most areas are marked with permanent markings). Allow at least a 12-foot excavation setback from marked utilities, unless modified by the Engineer. Planting within 12 feet of utility line is allowed in the upland enhancement planting area, Zone D and E, except that Contractor shall locate and avoid planting within five feet of cathodic protection devices.

A. Additional construction and utilities whose locations are concealed and unknown are suspected to exist, and the Contractor shall be alert to their existence. If such concealed construction and utilities are encountered, immediately notify the Engineer, who will give directions for their disposition.

B. Additional compensation or extension of time because of construction and utilities not indicated, or otherwise brought to the Contractor's attention, including reasonable action to protect, relocate or repair damage to same, as required, shall be determined as provided in Section 8.1 of the Standard Specifications.

## 3-2.8 EARTHWORK/SI[illegible]POSAL

This section includes rough grading, finish grading, excavation, topsoiling, if required, and finish grading to the lines and grades shown on the Drawings. The intent of the work is to establish in-channel benches or terraces at elevations suitable for establishment of brackish emergent marsh plants and associated high marsh plants and riparian border. Not-to-scale cross sections are shown on the Drawings to illustrate the intent.

### 3-2.8.1 SITE CONDITIONS AND PROTECTION

A. The Contractor shall visit the site and be familiar with existing site conditions. The Contractor shall not be relieved of liability under the contract for any loss sustained as a result of any variance between conditions indicated on the Drawings and actual conditions encountered during the course of the work.

B. The Contractor shall, upon becoming aware of surface and/or subsurface conditions differing from the Drawings, promptly notify the City as to the nature and extent of the differing conditions, first verbally to allow verification of the conditions, and then in writing. No claim by the Contractor for any conditions differing from those anticipated in the Plans and Specifications will be allowed unless the Contractor has so notified the City, verbally and in writing, as required above, of such changed conditions.

C. Existing structures, pavements, curbs and gutters, conduits, fences and walls, and other facilities, both above and below ground shall be properly protected and maintained in a satisfactory manner. Contractor shall repair and restore any damage to original condition caused by neglect or construction operations at the Contractor's expense.

D. Contractor shall be responsible for dust control during all grading operations, as required for health and safety. Wherever practical, water spray shall be used to keep dust to a minimum. Any damage, such as compaction or rutting, caused to existing grades on the site during the grading operations shall be repaired, and the damaged areas returned to their original grade and state of permeability. Settlement or erosion that occurs during the grading operations shall be repaired, and grades re-established to the required elevations and slopes.

E. Protect above and below grade utilities which are to remain

### 3-2.8.2 EXCAVATION SAFETY

A. The Contractor shall be solely responsible for making excavations in a safe manner. Provide appropriate measures to retain excavation side slopes and prevent rock or soil slippage to ensure that people working in or near the excavation are protected.

B. Furnish and install shoring, bracing and sheeting required to support adjacent earth and for protection and safety of all personnel working in the excavations, as required by local, state, and

federal regulations.

3-2.8.3 WORK LAYOUT

A. The City will be responsible for the accuracy of all layout work and will retain the services of a licensed surveyor or civil engineer to set lines and grades for all construction. Contractor is to cooperate with the City in coordinating staking with grading operators. Equipment operators and workers are to be skilled in grading operations and are to be supervised by a competent superintendent who is familiar with the nature of the work, these provisions, and all permit conditions. All grading, subgrading, and finished grading areas shall be controlled by such intermediate grade stakes and lines as may be necessary to obtain the slopes and levels required by the finished grade elevations shown on the Drawings.

B. All bench marks, monuments and other reference points shall be carefully protected and maintained at no increased cost and, if disturbed or destroyed, shall be replaced as directed by the Engineer at Contractor's expense.

3-2.8.4 BENCHMARK

The benchmark for establishment of elevations and grades for all grading and structures will be established/located by the City.

3-2.8.5 SLOPE RATIOS

The maximum slope ratio shall be not more than two and one half feet horizontal to one foot vertical (2.5:1), unless otherwise shown on the Drawings or approved by the Engineer. Alert Engineer to any soft soils and potentially unstable slopes necessitating flatter slopes.

3-2.8.6 SOIL QUANTITIES

Determination of excavation quantities shall be the Contractor's responsibility. The Drawings indicate finished grades. Engineer's estimates shown in the Bid Schedule are approximations and are presented as an informational item only.

3-2.8.7 COMPACTION TEST METHOD

"Compaction" or "Relative Compaction" shall mean the in place dry density of soil expressed as percentage of the maximum dry density of the same material, as determined by the ASTM D1557-70 Compaction Test Method. Compaction or loosening may be required in fill or mobilization areas outside of Tidal Zones A and B as subsequently described.

## 3-2.8.8 SPOILS DISPOSAL

All excess soil/spoils excavated as part of this work, if not contaminated, may be disposed of at the designated upland area within City's dredge spoils site, located adjacent to the project area. The designated disposal site is shown on the Drawings. Disposal of any contaminated encountered soil will require a change order. The spoils shall be roughly graded and dispersed over the designated site. The spoils disposal area will be seeded and mulched using the seed mix shown on the Drawing. Spoils shall not be disposed of in any areas not approved by the Engineer.

## 3-2.8.9 ROUGH GRADING

A. Construct smooth and even grade transitions at changes of slope or grade and transitions between disturbed and undisturbed areas.

B. Conform lines are approximate only. Contractor shall match existing grades and make smooth transitions.

C. Proposed grades shown on the Drawings (spot elevations and contours) are finished grades.

D. Complete all grading to provide positive drainage (minimum $\pm$ ' percent slope) in all areas. Eliminate any area with potential for standing water greater than two inches deep, at low tide.

E. Grading shall be reviewed in the field by the Engineer. Minor changes in grading and shaping may be required and shall be made by the Contractor at no increase in the contract price.

F. Engineer shall be notified 48 hours prior to commencement of rough and final grading for inspection and must approve of the finished grades prior to planting.

G. Identify known above grade and below grade utilities. Stake and flag locations. Maintain and protect existing utilities remaining which pass through work area. Upon discovery of unknown utility or concealed conditions, discontinue affected work and notify Engineer for a decision before continuing the work.

H. Maintain a minimum of 12 feet undisturbed area between excavation and known utilities.

## 3-2.8.10 EXCAVATION AND TOPSOILING

A. UPLAND TOPSOIL AND SPOIL STOCKPILE. Stockpile excavated materials (where not loaded directly into trucks) in a manner that shall cause the least damage to adjacent trees, shrubs, vegetation, or structures. Remove excavated materials as directed by the Engineer, and leave these surfaces in a condition equivalent to their original condition.

1. Remove and dispose of all loose rock and stones larger than two inches in diameter occurring on the finished surfaces as a result of the construction operations.

2. In areas to be excavated, stockpile on-site upland topsoil (approximate three inches of soil) for possible replacement and grade free of any refuse, clay or dirt clods larger than four inches, stones larger than two inches, roots larger than 3/4 inches, noxious weeds and other deleterious materials. Topsoil replacement is a separate bid item and will be accomplished only where determined to be necessary by the Engineering following examination of soil conditions upon excavation and rough grading. If topsoiling with upland soil is determined to be unnecessary, transport topsoil to spoil disposal area.

B. EXCAVATION. Eliminate uneven areas and low spots. Remove debris, roots, branches and stones, in excess of one-inch in size. Excavate areas as shown on Drawings, excepting all areas within 12 feet of existing utilities.

1. Excavate to the lines and grades necessary for appropriate soil modification.

2. Remove from site all excess excavated material.

C. SCARIFICATION.

1. Scarify subgrade to depth of two inches (2") in excavated areas to facilitate planting. This may be accomplished with teeth of excavator bucket. Scarify also in areas where equipment used for hauling and excavation has compacted subsoil. Compact subgrade to 90% relative compaction to a depth of six inches (6"), where needed, as determined by Engineer.

D. INTERTIDAL ZONE TOPSOIL.

Apply approximately two to four inches of topsoil as needed to be spread over excavation areas Zones A and B. The source of this topsoil will be from the lower side slopes and clay riverain bottoms adjacent within the project work area. The Engineer will designate sources of tidal zone topsoil, within specified work areas. This topsoil is a source of native plant seeds and plant propagules. Consider the removal of topsoil with City Contracting Officer and Engineer. Need for placement of tidal zone topsoil shall be determined by Engineer following examination of soil conditions in rough graded areas. Topsoiling with tidal zone topsoil is a separate bid item. Payment will be based on the total square feet of topsoil placed with an average 3-inch depth.

E. EROSION CONTROL MEASURES - INTERTIDAL ZONE:

Placement of Coir Erosion Control Netting on graded channel slopes or to anchor loose tidal zone topsoiling as required as determined by the Engineer. Placement and anchoring shall be as shown in the landscaping manufacturer's specifications for overlap and staking or stapling fabric. Section 2.2 8.12) and as shown on the Drawings. Acceptable products are light weight coir Non Terra C14, North American Green C125, BioMatrix, Ocean Saver, Belton Industries Greenmat or equivalent. Measurement for this work item will be based on the square yardage of placed erosion control netting.

3-2-8.11 STREAMBED EXCAVATION AND SEDIMENT CONTROL

The Contractor's attention is directed to the streambed excavation shown on Sheet M2. The 40-foot channel section is to be excavated 1 to 1.5 feet in this area from current elevation 3.0 to 4.5 to new elevation 3.0, and transition to existing grade, as shown on the plans. This is a channel bottom distance of approximately 300 feet. The excavated material (approximately 500 cubic yards) shall be separately segregated (Coarse from fine) and each portion stockpiled within the spoils disposal area shown on the Drawings, under the direction of the City Engineer. This material may subsequently be used to topdress the newly created Zones A and B (Section 3-2.8.10 D). Topsoil not used will be subsequently spread, rough graded and seeded within the Spoils Disposal site.

Topsoiling of Zones A and B will be completed only upon the direction of the City Engineer. The Contractor is to complete this work after rough grading of Zones A and B, so that any suitable material can be utilized as topsoil.

Upon completion of sediment removal, the Contractor is to excavate a new low flow channel through the streambed excavation work area, matching the existing upstream and downstream low flow channel in location, depth, width and gradient. The Consulting Engineer will direct this phase of work in the field.

3-2.8.12 FINISH GRADING

A. Fine grade topsoil or final survey eliminating rough or low areas. Maintain levels, profiles, and contours of subgrade.

B. Grades at planting areas shall conform to the Drawings after settlement. Depressed or mounded surfaces shall not be accepted. Finish grades to be within ±.2 feet of elevation shown on Drawings.

C. Finish each area to present a neat and uniform appearance satisfactory to the Engineer.

D. Grades not otherwise indicated shall be uniform levels (±1 percent minimum) or slopes between points where elevations are given. Finish grades shall be smooth, even, and on a uniform plane with no abrupt change of surface.

E. All grades shall provide for positive runoff of water at low tide without low spots or pockets of water ponding more than two-inches in depth. The Engineer shall inspect final grades relative to tidal action prior to authorizing planting

3-2.8.13 EROSION CONTROL BLANKET AND WILLOW STAKES

This element of work consists of slope preparation and placement of erosion control blankets at the locations marked "Erosion Control" on the Drawings (Sheet M2) and in accordance with the details

(Sheet M3) and specifications herein. Following blanket installation, live willow stakes will be inserted through the blankets 4-feet on center, on the upper slopes, and alkali bulrush transplants 3-feet on center on the lower slopes (below elevation 3.5).

The erosion control blankets shall be *BonTerra* CF9, Bestmann fiber mat, North American Green C350, or equal, heavy weight coir mattress capable of withstanding a water velocity of 8-feet per cubic second. Substitutions must be submitted to the City Engineer for approval, and samples and manufacturer's specifications must be provided.

The blankets shall be laid out and installed parallel with the direction of water flow, beginning at the top of bank. Overlap shall be a minimum of ten inches at the ends and five inches along the sides. Key in and secure channel top and stream bottom ends into ten-inch deep anchor trenches backfilled with soil. Install per manufacturer's recommendations, with six-inch staples driven in a pattern of three staples per square yard of mat, and intervals of 12 inches along sides and overlapping sections.

Live willow stakes and alkali bulrush transplants shall be prepared and inserted as shown on the Drawings (Sheet M3)

3-2.8.14 BOULDER BARRIER

The Contractor is to construct a boulder barrier to prohibit vehicular access, as indicated on Sheet M2. Approximately 25 boulders shall be placed a minimum of five feet apart in a triangular pattern. Boulders shall be roudned natural rocks at least three feet in diameter, and embedded at least four-inches into the soil. The Consulting Engineer will designate the area and locations for boulder placement in the field, as well as Zone plants which shall be planted within this area. This is an alternative bid item.

3-2.8.15 LOOSE ROCK DROP STRUCTURE AND SCOUR POOL

The Contractor is to construct a loose rock drop structure at the streambed gradient change at the upstream end of the channel sediment excavation. An 18 to 24-inch drop is anticipated across the 70-foot channel section. Rock dam is to be approximately three to four feet.

A. Rock shall have a specific gravity of at least 2.65.

B. Rock size is as follows:
   Range 75 percent of rock - 18" to 36" — Range 50 percent of rock - 22" to 28"
   Range 25 percent of rock - > 36", < 18" — Range 10 percent of rock - < 12"

C. Place rock on keyed-in filter fabric per Section 3-2 6.2 Key into bank toe slope, as shown on the Drawings, using six-inch by one-inch staples.

D. Size rock for low flow channel. Chink in smaller rock between larger rock

E. Drive five to six-foot lengths of 3/4-inch rear below the downstream rock at 12-inch spacings. Drive them flush with the top of rocks. Refer to Drawings for diagram of profile and section (not to scale).

The work consists of pool excavation and placement of one to three-foot diameter rounded boulders to form a "plunge" or scour pool. This will require excavation in the channel and placement of the rock by bucket, as well as hand placement, as shown on the Detail (Sheet M3). Under the direction of the Engineer, excavate an approximately 10-foot long by, 30-foot wide, by 2-foot deep scour pool. Used 18-inch rock size to form downstream end of scour pool. The City Engineer will direct placement of the rock. For the loose rock drop structure and lining of the scour pool, approximately 150 tons of 18 to 36-inch rock are estimated to be required. Payment for this work will be based on a per ton or rock placed.

3-2.8.16 SIGNAGE

The Contractor shall provide three painted signs. The signs shall be 2-feet by 3-feet, erected on 4-foot posts, and shall read:

"City of Petaluma, Wetlands Restoration Area
Do Not Disturb Soil or Plants,
No Vehicular Access"

A detail of the sign design shall be submitted to the City Engineer for approval prior to installation. The signs shall be installed at the locations designated in the field by the Engineer.

3-2.8.17 PAYMENT

All earthwork, grading and spoils disposal including the Erosion Control Blanket (3-2.8.13), Grading and Seeding of the spoils disposal area (3-2.8.8) and Streambed Excavation (3-2.8.11), completed in conformance with contract drawings and specifications, is considered a lump sum item. The exceptions are placement of topsoil and erosion control netting within the Tidal Zone (3-2.8.10E) and the Loose Rock Drop Structure and Scour Pool (3-2.8.16). Payment for these work items will be on a unit cost basis, with all quantities to be verified by the Engineer. Estimates of yardage to be excavated are Engineer's best approximation; Contractor is responsible for their own estimates based on the Drawings and actual field conditions Additional earthwork, grading and spoils disposal for areas added outside of zones shown on the Drawings will be considered as additional work. Quote price based on a per cubic yard basis and lump sum so that additional work, if any, can be compensated. All additional work must be agreed to in advance by the Engineer, who will issue a written change order to the Contractor, and agree to the price based on the unit bid price. Full compensation for the earthwork, grading and spoils disposal as shown on the Drawings (with the noted topsoil and erosion blanket exceptions) shall be included in the lump sum contract price. Estimates of additional bank cubic yards of grading and spoils disposal will be as measured in the field by the Engineer, according to the Standard Specifications. Additional grading and spoils disposal outside the contract Drawings shall be compensated for on the bid unit price basis. The Contractors may at his/her own discretion and expense bring in an independent licensed surveyor or civil engineer to verify actual quantities.

Placement of topsoil shall be directed by the Engineer, where excavated and exposed subsoil conditions dictate the need. Bid price on bid sheet shall be on a unit basis by per square foot, based on a three-inch average depth of placement. Actual quantities of square footage of topsoil placed will be made by the Engineer. Quote prices separately (if different) for placement of "upland" topsoil stripped from upland enhancement areas, and for "marsh" topsoil removed from the graded down/disturbed areas designated by the Engineer from within the project area. Instructions and quantities for placement of topsoil shall be made in writing by the Engineer. Contractor will be compensated only for the actual square footage of topsoil placed by source (upland v. marsh).

Placement of erosion control netting may be needed to stabilize graded surfaces, particularly loose, soft "marsh topsoil" within the creek. Zones A and B shall also be accomplished where directed by the Engineer. Bid price on bid sheet shall be based on quantity per square foot placed and anchored in field as shown on Drawings. Separately quote prices for placement of: light weight erosion control netting in the tidal zone, conventionally anchored per the Drawings; and, heavy weight coir erosion control blanket on the bank slopes, staked with willow cutting inserts (.25 cuttings per square foot average). Instructions for methods, locations, and quantities of installed erosion control netting and blankets will be made in writing by the Engineer. Contractor will be compensated only for the actual square footage of erosion control netting, by type, installed.

At the discretion of the Engineer, items may be reduced in quantity or deleted from the Scope of Work, such as placement of topsoil, erosion control netting, and rock placements. No adjustments in contract unit prices will be allowed for reductions in work scope.

## 3-2.9 PLANTING

This section describes all work necessary and required for the construction of the project as indicated. Such work includes but is not limited to the following:

1. Site preparation including weed and rubble removal.
2. Preparation of planting holes.
3. Obtaining transplant root clumps, plugs or squares, and cuttings for those plants specified
4. Obtaining nursery stock of upland plants
5. Planting or seeding.

### 3-2.9.1 GENERAL PROVISIONS

Coordinate and cooperate with other contractors and Engineer to enable the work to proceed as rapidly and efficiently as possible

Visit site and inspect conditions as they exist prior to submitting bid. Site dimensions and general conditions shall be verified prior to beginning of any work. Written dimensions shown on Drawings take precedence over scale dimensions.

Wherever the terms "approve", "approval", or "approved" are used herein, they mean approval of the

project Engineer in writing.

Keep all areas of work clean, neat and orderly at all times. Clean-up and remove all deleterious materials and debris from the entire work area prior to Final Acceptance to the satisfaction of the Engineer.

Notify the Engineer in writing of all soil or drainage conditions Contractor considers detrimental to growth of native plant material. State condition and submit proposal and cost estimate for correcting condition.

## 3-2.9.2 SELECTION, TAGGING, AND ORDERING OF NURSERY PLANT MATERIAL

Submit documentation to the Engineer at least 7 days prior to start of work under this section that all required nursery plant material or seed has been ordered. Arrange procedure for observation/inspection with the Engineer at time of submission.

Plants shall be subject to inspection and approval by the Engineer at place of growth or upon delivery for conformity to Specifications. Such approval shall not impair the right of inspection and rejection during progress of the work. Submit written request for inspection of plant material at place of growth to the Engineer. Written request shall state the place of growth and the quantity of plants to be observed. Engineer reserves the right to refuse inspection at this time if, in his/her judgment, a sufficient number of plants are not available for inspection.

Substitution of plant material will not be permitted unless authorized in writing by the Engineer. All plant material shall have been collected and/or grown from seed or cuttings in Sonoma or Marin Counties, unless otherwise authorized by Engineer.

## 3-2.9.3 PLANT MATERIALS AND PRODUCT HANDLING

A. Plants shall be fresh, well established, vigorous, of normal habit of growth, free of disease, insects, insect eggs and larvae. Plants shall have healthy, normal root systems, well established in their containers, but not to the point of being root bound.

B. Plant materials shall be the quantities, species and spacing as indicated or noted on the Drawings.

C. Canned stock shall be removed carefully after cans have been cut on two sides. Do not use spade to cut cans. Do not lift or handle container plants by tops, stems, or trunks at any time.

D. Protect plants at all times from sun or drying winds. Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected, and shall be kept well watered.

E. Furnish standard products in manufacturer's standard containers bearing original labels showing quantity, analysis and name of manufacturer.

F. When plants are moved from the nursery to the job site they shall continue to receive regular irrigation. All plants shall be watered immediately before planting (i.e., the same day) so that moisture in the containers is at or near field capacity. Handling during planting shall be such that overheating or excessive drying is avoided.

G. If temperatures at the nursery and the job site are significantly different, the plants shall be delivered to the job site a minimum of one week prior to planting for acclimatizing.

H. Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product.

I. Wild harvest transplants and cuttings obtained from adjacent wetland areas must be planted within 48 hours of excavation and removal. (See also Section 3-2.9.7).

J. Contractor may wish to move plant materials and supplies to the north side of the Creek prior to removal of temporary crossing.

3-2.9.4 SAMPLES AND TESTS

The Engineer reserves the right to take and analyze samples of materials for conformity to Specifications at any time. Contractor shall furnish samples upon request by the Engineer. Rejected materials shall be immediately removed from the site at Contractor's expense. The cost of testing of materials not meeting Specifications shall be paid by Contractor.

3-2.9.5 INSPECTION SCHEDULE

Inspection by the project Engineer related to the planting components of this project are as follows:

A. Planting - Site Preparation and Plant Layout. Proposed layout and site preparation of all planting areas shall be inspected by Engineer prior to installation of plant material.

B. Plant Material. Engineer shall inspect plant material for quality prior to planting. Plants shall be subject to inspection and approval at place of growth or upon delivery for quality, size and variety; such approval shall not impair the right of inspection and condition of ball and roots, latent defects or injuries. Rejected plants shall be removed immediately from site.

C. Pre-Maintenance. When all work has been completed a pre-maintenance walk through will be conducted by the Engineer or his/her designee. If approved, the plant establishment period will begin.

D. Final Inspection. Final Observation is after the plant establishment period and all required work is completed. Please give one week notice for this observation meeting.

3-2.9.6 SITE PREPARATION

Prior to any work in the planting areas, the Contractor shall clear all weeds and debris from immediate planting areas. Weeds shall be removed and disposed of outside the project site. Designated areas within the City's dredge disposal site or landfill are available for material disposal. Generally, a 4' x 4' zone should be cleared around each planting site except in tidal zone A and B.

3-2.9.7 LAYOUT AND EXCAVATION OF PLANTING AREAS

Sheet M2 summarizes the quantities, locations, propagule, and species of plants to be used. The Engineer shall assist in plant layout such that all quantities in Sheet M2 are efficiently utilized.

A. MARKING. The Contractor shall place flags or markers, a different color for each seedling species at each planting site. The Contractor shall provide the City with an index correlating the flags or markers with the type of seedling or plant propagule. Stakes with colored flags can be used to demarcate general areas or boundaries for planting zones A and B (tidal zone). Engineer will assist in layout of zones A, B and C to conform plantings to tidal conditions.

B. FIELD CHECK. Engineer shall check location of plants in the field and adjust to exact position before planting begins. Engineer reserves the right to refuse inspection if, in his opinion, an insufficient quantity of plants available for layout check, or inferior quality plants are provided.

C. PLANTING PATTERN. Plantings shall be staggered at variable distances with a mix of species selected from Sheet M2 to create a natural, pleasing appearance, unless otherwise specified.

D. IN-CHANNEL TERRACE. There are three planting zones within the in-channel terrace, as delineated on the Drawings. They are: (1) Zone A - 3.0 to 3.6 feet msl; (2) Zone B - 3.6 to 5.2 feet msl; and (3) Zone C - 5.2 to 6.2 feet msl. Planting within this area shall consist of obtaining, transporting and planting root clumps, squares or cuttings of the wetland species indicated on the Drawings. Propagules shall be planted within the date specified in Sheet M2, unless authorized in writing by the Engineer.

The plant layout within these zones shall be as follows:

Zone A - Cordgrass, Alakalai Bulrush, Pickleweed

Transplant root clumps of cordgrass and/or alakalai bulrush three feet on center. This shall consist of two to three rows, approximately one-foot from lower bank edge of in-channel terrace and four and seven feet from lower bank edge of in-channel terrace. The Engineer will assist in identification of cordgrass or bulrush planting areas.

Transplant squares of pickleweed (approximately one-foot by one-foot) every ten feet linearly along the run of the creek, immediately upslope of the cordgrass bulrush zone, as shown on the Drawings.

Also rake in cuttings of pickleweed into the soft mud in this zone at a rate of approximately 100 lbs/1,000 square feet.

Zone B - Salt Grass, Gumplant, Jaumea, Frankenia

Transplant 1-foot by 1-foot squares containing Frankenia, Jaumea, and saltgrass 10 feet on center, upslope of Zone A. Seed gumplant (15 lbs/acre) and rake in rhizomes of saltgrass (100 lbs/1,000 sq. ft.) in upper elevation portion of zone. The Engineer will assist in layout of plants within zone. Plugs of Frankenia may be planted six feet on center.

Zone C - Arroyo Willow, California Rose

Stagger plantings within zone such that all plant materials specified in Sheet M2 are utilized. Engineer will assist in flagging and layout to utilize all quantities designated.

Live willow cuttings (arroyo willow) will be installed in the upper part of Zone C as shown on the Drawings. Plant in an irregular pattern such that plantings average an eight-foot spacing.

Willow cuttings shall be at least one-inch in diameter and at least 24 inches in length. Paint top with red latex to identify tip, axe score, and dip bottom end in rooting compound. Installation shall occur in the period from September to May. Insert the cuttings into a narrow diameter hole, prepared with a dibble or pole, at least two-thirds of the cutting length, with bud tips facing up. Insert perpendicular to slope and at a slight downstream angle. Willow cuttings must be kept moist and planted within 48 hours of cutting.

Plant rooted cuttings of California rose approximately four feet o.c.. Rose cuttings shall be at least six inches and no longer than 18 inches with at least a ¼ inch in diameter.

The Contractor shall notify the Engineer in writing at least ten working days prior to gathering wetland plant propagules. Plant propagules shall be collected only from sites designated by the Engineer.

E. ZONE D, UPLAND ENHANCEMENT PLANTING. Shrubs shall be planted in clusters of 5 to 9 plants with an average spacing of seven feet. These shall consist of deepots or leach tubes of the species shown in Sheet M2.

F. ZONE E, BUFFER ZONE PLANTING. Plant out quantities of Blue blossom, Bearberry, Coffeeberry, Lemonade berry, and Coyote bush as shown on Sheet M2, averaging a five-foot spacing. These can be from commercial nursery stock, deepots, or leach tubes preferred.

Immediately before planting the upland enhancement and buffer zone seedlings, the Contractor shall dig a planting hole at each previously prepared planting site, as shown on the Drawings. Remove the seedling from the liner, trim any curled or bent roots, and hold the seedling in the planting hole at the desired planting level. The desired planting level is at a point where the root crown is level with the original grade. Any roots touching the bottom of the planting hole and bending to the side or back upwards shall be trimmed so that the roots no longer bend. While

keeping the seedling at the desired planting level, the native soil shall be backfilled. The Contractor shall manually compress the soil as it is backfilled to remove air pockets and ensure good root-to-soil contact. The Contractor shall ensure that the seedlings are properly positioned; the soil shall be level with the root crown and the seedling shall be centered and pointing up straight. Each seedling shall be watered immediately after the backfilling is completed. If the seedling settles after watering, the Contractor shall raise the seedling back to the desired planting level.

Fertilizer Application. Contractor shall apply fertilizer consisting of 1/3 ounce (1 teaspoon) of Osmocote 14-14-14 slow release fertilizer per planting site or 2 slow release fertilizer tabs such as Agriform 21 gram tree and shrub fertilizer. The fertilizer shall be pre-mixed with the soil during final site preparation and prior to backfilling.

The Contractor shall provide browse protection to all container woody plants within the upland enhancement planting areas. Browse protection shall consist of placement of a planting collar and protective screen around each woody plant as shown on the Drawings. The size of the collar shall be equivalent to a one-quart sized cottage cheese container with the bottom cut out, or an alternative device which shall be submitted to the Engineer for approval. The protective screen shall be 1/20" mesh aluminum window screen fastened securely around the planting collar with 16-gauge aluminum tie wire. The collar and protective screen shall be installed around each seedling, as shown in the Drawings. The collar shall be placed so that as the soil is backfilled, the lip of the collar remains 1" above the surrounding soil level and the seedling is in the center of the collar. After watering, any settling of the collar below the specified 1" level shall be corrected by the Contractor.

A sheet of 3' x 3' weed control fabric shall be installed around woody plantings as shown on the detail. All soil remaining on top of the weed control fabric after installation shall be removed. The fabric shall be stapled using six-inch stables after the seedlings receive their first watering, immediately after installation.

G. JOINT PLANTING. Contractor is to insert cuttings of willows into voids or joints in the existing rock rip-rap, as shown on the Drawings. Insert cuttings as opportunities exist in the upper three feet of slope distance, as measured from top of bank. Cuttings should be spaced at 5-foot distances, or more, depending on opportunities. Plant 100 cuttings, 24 to 36-inches long, tips pointing up. A 30 percent survival after three years is allowed for the joint planting.

H. SOURCES OF PLANT MATERIALS. Contractors may have access to three borrow areas for obtaining plugs, clumps and cuttings of native plants through special arrangements with the City. Borrow areas and conditions are as follows:

1. Lakeville Highway Ditch and upper McDowell Creek Channel between Highway 101 Crossing and Baywood Drive where Lakeville Highway widening project impacts wetlands. Good access source of cordgrass, bulrush, pickleweed, saltgrass. Notify City Engineer 48 hours in advance to arrange access via Petaluma Marina at Baywood Drive.

2. Petaluma River Marsh immediately west of Lower Adobe Creek. Limited access and

availability to cordgrass, bulrush, abundant pickleweed, Frankenia, saltgrass, and some Jaumea. No vehicular access. Use temporary creek crossing.

3. Lower Ellis Creek between Lakeville Highway and Petaluma River adjacent to City's oxidation pond site. Source of Willow and California Rose. Poor vehicular access. Notify City Engineer 48 hours in advance to arrange access through Gray property.

Propagules shall be taken at random from healthy, vigorous plants and when such plants are in a dormant or early growth condition between November and May. No more than 25% of the plants in any designated area shall be cut and removed. Cuts shall be made with clean, sharp tools.

Each root clump segment shall include roots and be a minimum of 6 inches in length, to include a minimum of one lateral bud. Propagules shall be planted within 48 hours after cutting, and shall be kept wet until planted. Propagules not planted within 48 hours of cutting shall not be used, and shall be disposed of outside the project site. Procedures for root clumps, squares, and cuttings are shown on the Drawings.

### 3-2.9.8 PAYMENT

Payment for installation of plant materials will be on a unit price basis according to the Contractor's unit bid price. Contractor is advised to make minor field adjustments in placement of plant materials to accommodate the total number of plants specified and to avoid average amounts, or the necessity of procuring and installing additional plants. The Engineer will assist the Contractor in final adjustment of plantings to avoid average or necessitating out-of-scope planting. Unit costs for installation of plantings will include all labor and material costs such as site preparation, fertilizers, transplanting, nursery plants, and planting collars. Contractor shall cooperate with the Engineer in completing a daily inventory and record of all plant installations, including raking in rhizomes and cuttings of marsh plants for determination of completion for payment.

## 3-2.10 IRRIGATION

All plants in Zones C, D and E shall receive supplemental watering during the first two years to ensure satisfactory establishment, and thereafter at the discretion of the City Engineer. In general, plants shall be watered at least bimonthly during the first growing season, from May through October, to supplement any deficiency in rainfall that may occur. The need for supplemental irrigation during subsequent years will be determined by the Project and Consulting Engineer. The Contractor's water trucks shall not be allowed on the dike of the dredging pond at any time

### 3-2.10.1 SCOPE

A Work Included. Perform all work necessary and required for the installation of an operational drip irrigation system for Zones C, D and E. Such work includes, but is not limited to the

following:

1. Furnish and installed complete irrigation system, including backflow prevention in accordance with Petaluma City standards.
2. Trenching and backfilling.
3. Arrange for provision of 1" water service backflow prevention device and pressureregulating valve at three locations.

B. Related Work in Other Sections. The following items of associated work are included in other sections of these specifications:

1. Planting
2. Maintenance, monitoring and replacement

3-2.10.2 INSPECTION OF CONDITIONS

Examine related work and surfaces before starting work of this section. Report to the City Engineer in writing, conditions which will prevent the proper provision of this work. Coordinate all work with the City of Petaluma Water Department prior to start of work. Beginning the work of this section without reporting unsuitable conditions to the City Engineer constitutes acceptance of conditions by the Contractor. Any required removal, repair, replacement of this work caused by unsuitable conditions to be done at no additional cost.

3-2.10.3 CODES, RULES AND SAFETY ORDERS

A. All work and materials to be in full accordance with the latest rules and regulations of safety orders of Division of Industrial Safety; the Uniform Plumbing Code published by the Western Plumbing Official's Association; and other applicable laws or regulations, including the regulations of the City of Petaluma Water Department. Nothing in these drawings or specifications is to be construed to permit work not conforming to these codes. Should the construction documents, or instructions, be at variance with the aforementioned rules and regulations, notify the City Engineer and get instructions before proceeding with the work affected.

B. Furnish and maintain all warning signs, shoring, barricades, red lanterns, etc., as required by the Safety Orders of the Division of Industrial Safety and local ordinances.

C. The system shall conform to all applicable regulations of the City of Petaluma Water Department for this project.

3-2.10.4 STANDARDS

American Society of Testing and Materials (ASTM).

3-2.10.5 PERMITS AND FEES

Obtain all permits and pay required fees to the City of Petaluma Water Dept., which has jurisdiction over the work. A load account meter shall be installed by the Contractor at each point of connection shown on the plans. It is the Contractor's responsibility to coordinate all permits and approvals with them. Arrange inspections required by local agencies and ordinances during the course of construction, as required.

3-2.10.6 APPROVAL

Wherever the terms "approve", "approval", or "approved" are used in the specifications, they mean approval of City Engineer in writing, unless otherwise directed.

3-2.10.7 WORK SCHEDULE

Submit a proposed work schedule to the City Engineer at least 5 days prior to start of work under this Section. After approval, no modification shall be made to this schedule without written authorization.

3-2.10.8 PRE-CONSTRUCTION CONFERENCE

Schedule a pre-construction conference with the City Engineer at least 5 days before beginning work under this Section. The purpose of this conference is to review questions the contractor may have regarding the work, administrative procedures during construction and project work schedule.

3-2.10.9 SUBSTITUTIONS

A. Specific reference to manufacturer's names and products specified in this Section are used as standards, but this implies no right to substitute other material or methods without written approval of the City Engineer. Substitution of materials may also be subject to the written approval of the Petaluma Water Department.

B. Installation of any approved substitution is Contractor's responsibility. Any changes required for installation of any approved substitution must be made to the satisfaction of the City Engineer and without additional cost.

3-2.10.10 PROTECTION OF EXISTING CONDITIONS

Contractor shall acquaint himself with all site conditions. Should utilities or other work not shown on the plans be found during excavations, Contractor shall promptly notify the City Engineer for

instructions as to further action. Failure to do so will make contractor liable for any and all damage thereto arising from his operations subsequent to discovery of such utilities not shown on plans.

3-2.10.11 PRODUCT HANDLING

Protect work and materials under this Section from damage during construction and storage. Protect polyvinyl chloride (PVC) and polyethylene pipe and fittings from direct sunlight. Beds on which PVC is stored must be full length of pipe. Do not use any pipe or fitting that has been damaged or dented.

3-2.10.12 SAMPLES

City Engineer reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request. Rejected material shall be removed from the site immediately and replaced at the Contractor's expense. Cost of testing materials not meeting specifications shall be paid by Contractor.

3-2.10.13 INSPECTIONS AND TESTS

A. Submit requests for inspections to the City Engineer at least 48 hours prior to anticipated inspection.

B. Inspection of completed installation will be made by City Engineer prior to backfilling of trenches.

C. Make hydrostatic tests when welded PVC joints have cured at least 24 hours. Apply continuous static water pressure of 60 psi as follows: all piping on the pressure side of control valves shall be tested for 2 hours.

D. Leaks resulting from tests shall be repaired and tests repeated until system passes tests

3-2.10.14 "AS-BUILT" IRRIGATION DRAWINGS

Contractor shall furnish Record Drawings of the complete irrigation system. Procure from the City Engineer full sized sepias of Contract Drawings. Construction drawings shall be on the construction site at all times while the irrigation system is being installed. Actual location of valves and all irrigation and drainage piping shall be shown on the prints by dimensions from easily identified permanent features, such as buildings, roads, fences, walks or property lines. Drawings shall show approved substitutions, if any, of material including manufacturer's name and catalog number. The Drawings shall be to scale and all indications shall be neat. All information noted on the print shall be transferred to the prints by Contractor and all indications shall be recorded in a neat, orderly way. The record drawings shall be turned over to the City Engineer at or before the Final Acceptance of the project.

3-2.10.15 CLEAN-UP

Keep all areas of work clean, neat, and orderly at all times. Keep paved areas clean during installation, and avoid sensitive areas and the creek channel. Clean-up and remove all debris from the entire work area prior to Final Acceptance to satisfaction of the City Engineer.

3-2.10.16 FINAL ACCEPTANCE

Work under this Section will be accepted by the City Engineer upon satisfactory completion of all work. Upon final acceptance, the City will assume responsibility for maintenance of the work. Said assumption does not relieve Contractor of obligations under Warranty.

3-2.10.17 WARRANTY

In addition to manufacturer's guarantees or warranties, all work shall be warranted for one year from the date of Final Acceptance against defects in material, equipment and workmanship of Contractor. Warranty shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment and workmanship to the satisfaction of the City.

3-2.10.18 MATERIALS - GENERAL

Materials throughout the system shall be new and in perfect condition. At least 14 days prior to beginning work, submit for approval 2 copies of manufacturer's catalog cuts, specifications, and operating instructions of the complete list of materials and assemblies to be installed. Quantities of materials and equipment need not be included. No deviations from the specifications shall be allowed. The decision of the City Engineer shall be final in the determination of the quality of materials and equipment.

3-2.10.19 WATER METER

Contractor shall coordinate with the City of Petaluma Water Dept. (Steve Simonson, 778-4192) for the provision of 1" lead-accurate water service for irrigation use at each point of connection shown on the plans.

3-2.10.20 PIPE

All buried on-site piping in the water system shall be in accordance with the AWWA Guidelines.

Class of Pipe

A. Mainline piping on pressure side of irrigation control valves: Polyvinyl Chloride (PVC) Class 315 and shall conform to ASTM Standards.

B. Lateral line piping on non-pressure side of irrigation valves: Class 200 Polyvinyl Chloride (PVC) 1220.

C. Drip irrigation tubing: polyethylene tubing, size as indicated, and 1/4" spaghetti tubing.

D. Mainline at creek crossing: 2" polyethylene tubing, continuous length.

3-2.10.21 FITTINGS

A. PVC Fittings. Schedule 40 Polyvinyl Chloride, high impact weight, as manufactured by Sloane, Lasco, or approved equal.

B. Connections between main and valves shall be PVC Schedule 80 nipples.

C. Polyethylene fittings. Polyethylene compression fittings, and metal tubing clamps.

3-2.10.22 IRRIGATION VALVES

Irrigation valves to be Galcon 43000730 1" battery operated irrigation control valves. Install according to manufacturer's
recommendations.

3-2.10.23 VALVE BOXES

Meter and pressure regulating valves shall be placed in concrete utility boxes, Christy or equal, size to accommodate valve, or as approved by the City of Petaluma Water Department. Double check valve to be installed in box per City of Petaluma requirements. Battery operated and quick coupler valves shall be placed in plastic valve boxes, Brooks or equal.

3-2.10.24 QUICK COUPLING VALVES

Quick Coupling valves to be installed as per plans and details One valve key fitted with hose valve assembly shall be provided.

3-2.10.25 DRIP IRRIGATION EMITTERS

Drip irrigation emitters to be 2-gph pressure-compensating emitters, Rainbird or equal; install one emitter per plant as shown in Drawings

3-2.10.26 LAYOUT AND EXECUTION

A. Layout work as accurately as possible to drawings. Drawings are diagrammatic and are intended show the relationship of irrigation to planting, and do not show all components such as joints, offsets, fittings and distribution tubing to each plant. If an alternate layout or substitution of components is desired, submit to the City Engineer for written approval prior to making any changes.

B. Provision of one 2-gph emitter to each plant is required. Contractor shall make any necessary minor adjustments to layout required to achieve coverage.

3-2.10.27 EXCAVATING AND TRENCHING

A. Perform all excavations as required for installation of work included under this Section. Restore all surfaces, existing underground installations, etc., damaged or cut as a result of the excavations, to their original condition. No trenching or excavation shall be done within 12 feet of high pressure gas lines, the 16" water line or the cathodic protection systems, unless specifically directed by the City Engineer.

B. Should utilities not shown on the plans be found during excavations, contractor shall promptly notify City Engineer for instructions as to further action. Failure to do so will make contractor liable for any and all damage thereto arising from his operations subsequent to discovery of such utilities.

C. Trenches shall be of sufficient depth to provide minimum cover from finish grade as follows:

1. Over PVC pipe on pressure side of irrigation control valves and quick coupling valves - 18 inches (except at creek crossing).

2. Over pipe on non-pressure side or irrigation control valve - 12 inches.

3. Drip distribution tubing from emitters to planting locations - surface grade.

3-2.10.28 BACKFLOW PREVENTION DEVICE

A double check valve and pressure regulating/sustaining valve shall be installed at each meter location/point of connection. Installation shall be per City of Petaluma Water Dept. requirements.

3-2.10.29 PIPE LINE ASSEMBLY

A. Install pipe in accordance with manufacturer's instructions

B. Solvent weld PVC pipe and fittings shall use solvents and methods recommended by manufacturer, except where screw connections are required. Clean pipe and fittings of dirt and moisture before assembly. PVC pipe may be assembled on ground surface beside trench. Snake pipe from side to side of trench bottom to allow for expansion and contraction. Make all connections between PVC pipe and metal valves or pipe with threaded fittings using PVC male adapters. PVC to polyethylene connections shall utilize fittings and methods per manufacturer's recommendations.

C. Use Teflon tape on all threaded fittings.

3-2.10.30 IRRIGATION CONTROL VALVES

Install control valves in valve boxes where shown. Valve boxes shall be 3/4" above finish grade

3-2.10.31 DRIP IRRIGATION EMITTERS

Install heads as per details.

3-2.10.32 QUICK COUPLING VALVES

Quick coupling valves to be installed as per detail.

3-2.10.33 CLOSING OF PIPE AND FLUSHING OF LINES

A. Thoroughly flush out all water lines before installing heads, valves, etc.

B. Test as specified.

3-2.10.34 BACKFILL AND COMPACTING

A. After system is operating and required tests and inspections have been made, backfill excavations and trenches with clean soil, free of rubbish.

B. Backfill for all trenches, regardless of the type of pipe covered, shall be compacted to minimum 75% density under planted areas.

C. Dress off all areas to finish grades.

Irrigation shall be applied manually during dry winters to supplement any deficiency in rainfall that may occur during the first two years. Irrigation shall also be applied during the first summer after planting to ensure the successful establishment of the plants. The need for supplemental irrigation

during subsequent years will be determined by the Project and Consulting Engineer.

### 3-2.10.35 PAYMENT

Installation of the drip irrigation system and operation during the initial plant installation period will be considered a lump sum bid item. For contract pricing and payment purposes, all costs involved with the provision of irrigation for maintenance years 1, 2, 3, etc., are to be considered as part of the lump sum payments included in the contract prices paid for maintenance.

## 3-2.11 EROSION CONTROL

Following completion of earthwork, all disturbed areas not within the in-channel terraces to be planted shall be seeded with a mix of annual grasses and forbs to prevent soil erosion and provide habitat enhancement.

Erosion control seeding activities shall take place in the fall so the sown seeds can benefit from winter rains. The seed mix shall be composed of the grass and herbaceous species listed on Sheet M2 and shown on the Drawings.

A. Seed Sowing Methods. Disturbed areas shall be hydromulched, hand seeded or seeded with a mechanical seed reader and protected by straw.

   1. Hydro Mulch and Straw. The application rate shall be at 2,000 pounds per acre Straw shall be applied uniformly over surface immediately after seeding.

   2. Hand Broadcasting and Mechanical Seed Spreaders. Seed shall be applied at the rate indicated, Broadcast seeds shall be covered by raking or dragging with chain or other approved means.

B. Application. Seeding shall be uniformly distributed and be applied at the rate indicated in Sheet M2.

   1. Apply seed at the rate indicated, evenly and in two intersecting directions. Rake seed in lightly. Do not seed area in excess of that which can be mulched on the same day. Immediately following seeding, apply mulch at the indicated rate (2,000 lbs/acre).

   2. Do not sow immediately following rain, when the ground is too dry, or during windy periods.

   3. Hydroseeding. If hydroseeding, the Contractor shall apply seeded slurry at the equivalent rate for the seed mixture as indicated and evenly in two intersecting directions, with a hydraulic seeder. Do not hydroseed area in excess of what can be mulched on the same day. Immediately following seeding, apply mulch to a thickness of 1/8 inch at a rate of 2,000 pounds per acre.

4. Apply water with a fine spray immediately after each area has been mulched. Saturate to a depth of four inches.

C. Seed Protection. Seeded slopes where slope is 2.5:1 or greater or where potentially erosive conditions exist shall be covered with erosion fabric (jute or coir netting) as determined by the Engineer. Roll fabric onto slopes without stretching or pulling. Lay fabric smoothly on surface, bury top end of each section in six-inch deep excavated topsoil trench. Rake smooth, level with adjacent soil. Secure outside edges and overlaps at 36" intervals with stakes. Lightly dress slopes with topsoil to ensure close contact between fabric and soil, where directed by Engineer. Payment for erosion control netting will be as described in Section 3.06.

D. Payment. With the exception of installation of Erosion Control netting, this work item is considered a lump sum for bidding and payment purposes. For informational purposes, the Engineer estimates 10,000 square feet will require erosion control seeding and mulching. Full payment for this work shall be considered in the contract bid price for this item.

## 3-2.12 RESTORATION OF STAGING AREA

All staging and work areas, pilot access roads and disturbed areas shall be repaired to their pre-existing condition. This may require filling in ruts, scarification of compacted areas, minor shaping, and seeding and mulching using the erosion control specifications (Sec. 3-2.11).

Payment. This is a lump sum bid item for bidding and payment purposes. For informational purposes, the Engineer estimates 21,000 square feet of staging area will require restoration. Full payment for this work shall be considered in the contract bid price for this item

## 3-2.13 MAINTENANCE, MONITORING AND REPLACEMENT

### 3-2.13.1 SCOPE OF WORK

Under these work items, the Contractor shall maintain, repair, and replace, as necessary, the mitigation site improvements as specified herein, for a period of three years after final acceptance of construction, per the Implementation and Monitoring Schedule (Figure 1).

The initial plant establishment period shall begin upon inspection, final acceptance, and approval by the Engineer.

Maintenance activities shall be conducted during the first growing season (May through October) and thereafter shall be completed three times per year (March, May and September).

Maintenance of new plantings shall consist of watering, cultivating, weeding, mulching, tightening, and repairing of browse protection cages, resetting plants to proper grades or upright position, and

replanting or reseeding as deemed necessary by the Engineer so as to keep all plants in a healthy and thriving condition.

Protect plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection fences, barriers and signs as required for protection. If any plants become damaged or injured, treat or replace as directed by the Engineer at no additional cost.

Monitoring by the City's consulting Engineer shall begin upon completion of the plant seedlings installation and continue for a period of five years. The consulting Engineer/Monitor shall observe the hydroseeding activities, plant and any irrigation system installation, annual maintenance activities and prepare annual reports. The plantings shall be monitored for compliance with the performance standards contained in these specifications

3-2.13.2 AS-BUILT PLAN

An as-built project inventory, map, and initial report shall be prepared and submitted to the City and to the Corps by the consulting Engineer within eight weeks of satisfaction of the final phase of plant installation specifications, notifying all responsible parties of project completion. This will begin the effective date of the three-year monitoring and assessment period.

3-2.13.3 PROJECT STATUS REPORT

On the first workday of every October, during the three-year contract period, the Contractor shall submit a brief project status report to the City. The project status report shall include a schedule of watering and maintenance events for the next growing season and what these events will involve. In addition, each of these reports, except for the first report, shall give a general summary of how the plantings reacted to the previous watering and maintenance efforts. The Contractor shall notify the City at least two working days prior to entering the project area for watering or maintenance purposes.

3-2.13.4 ANNUAL HEALTH AND VIGOR MONITORING SURVEY AND REPORT

A. The Engineer shall conduct an annual monitoring survey of all the plantings and submit a report to the City and Contractor by the end of July of each year of the three year maintenance period, using the form provided. The Engineer shall notify the Contractor at least five working days prior to the monitoring survey.

B. Plants and planting areas shall be rated as described below, and evaluated in an Annual Health and Vigor Monitoring Survey and Report, as contained in these specifications.

| Rating | Description |
|---|---|

| | |
|---|---|
| 0 | Dead, no evidence of recovery or natural recruitment |
| 1 | Main stem dead, but basal sprouts emerging |
| 2 | Low vitality with evidence of biomass loss, leaves chlorotic or necrotic |
| 3 | Plant stable, little or no new growth, but plants not chlorotic or necrotic |
| 4 | Vigorous growth, plant mass spreading with some natural recruitment in recruitment in Zones A and B. |
| 5 | Vigorous growth, extensive natural recruitment of desirable plants in Zones A and B. |

The subscript x can be used if the planting area is being invaded by weedy or less desirable plants (i.e., 2x).

If 25% or more of a species receives a 0 rating, then all 0-rated plants of that species shall be replaced by the Contractor, without regard to causes of mortality and at Contractor's expense. Before replacement occurs, the Engineer in cooperation with the Contractor shall investigate the causes of mortality and the causes of less-than-vigorous growth and shall report the findings of these investigations to and shall submit these recommendations to the Engineer for approval. When replacing dead plants, the Contractor may use revised planting methods or alternative native plant materials as approved by the Engineer and the Corps. Replacement plants shall be the same size as those removed. If less than 25% of the plants of a species receive a 0 rating, then replacement shall not be required, however, the Contractor shall discuss with the Engineer the probable causes of mortality and poor growth rates.

The monitoring reports shall be submitted in accordance with the Mitigation Plan and Monitoring Program as approved by the Corps of Engineers

3.2.11.5 FINAL VISIT

During Contractor's final scheduled maintenance visit (after three full years following installation), all remaining plant containers, screens, collars, tie wires, marker flags, and weed control fabric from established plantings, and all refuse brought to the site by the Contractor, shall be removed to an off-site disposal facility. An additional two years of maintenance may be required and are listed as alternate bid items. The irrigation system may be abandoned in place at the discretion of the City Engineer.

3-2.13.6 PERFORMANCE STANDARDS

Success of the plant establishment portion of the project shall be assessed annually and the project shall be determined to be successful if, after three years, the Zone C, D and E plantings are healthy and mass grouping will survive without further irrigation applications, if Zone C, D and E planted species have attained at least a 20-percent increase in mass grouping canopy cover and if there is a 70 percent survival of Zone C, D, and E species with vigor ratings of 3, 4 or 5. If transplanted wetland species (Zones A and B) have at least a 50 percent ground surface cover, and at least 70 percent of each transplanted specimen is living or there is extensive natural recruitment of native wetland plants of the adjacent zone. The exception is the joint planting with willow cuttings. A 30 percent survival after three years is acceptable. Maintenance shall be required up to five years after final acceptance of improvements, if the success criteria have not been met.

## 3-2.14 ACCEPTANCE

Work under this section will be accepted by the Engineer upon satisfactory completion of all work, but exclusive of replacement of maintenance and plant materials under the Warranty Period. After three years following final acceptance of improvements and satisfaction or warranty period conditions, the City will assume responsibility for maintenance of the work.

3-2.14.1 WARRANTY PERIOD AND REPLACEMENTS

A. Contractor shall warrant that all shrubs and trees planted under this contract will be healthy and in a flourishing condition of active growth three years from date of Final Acceptance, and 70 percent of each wetland species (Zones A and B) will be healthy and flourishing (vigor rating 3, 4 or 5) three years from date of Final Acceptance.

B. Any delay in completion of planting operations which extends the planting into more than one planting season shall extend the Warranty Period correspondingly.

C. Replace, without cost to City, and as soon as weather conditions permit, all dead plants and all plants not in vigorous, thriving condition, as determined by the Engineer during and at the end of Warranty Period according to the acceptance criteria. Woody plants shall be free of dead or dying branches and branch tips, and shall bear foliage of a normal density, size and color. Replacements shall closely match adjacent specimens of the same species and shall be subject to all requirements of this specification.

D. Contractor shall not be held responsible for failures due to neglect by City, vandalism, excessive flooding (if a 10-year, or greater flood recurrence event occurs), etc during Warranty Period. Report such conditions to the City in writing

SECTION 3-3

# SPECIAL PROVISIONS

for
City of Petaluma
Class III Landfill
Closure Construction

I hereby certify that the project drawings and Section 3-3 (Special Provisions for City of Petaluma Class III Landfill Closure Construction) were prepared by me or under my direct supervision and that I am a duly registered engineer under the laws of the State of California.



SPECIAL PROVISIONS INDEX FOR
CITY OF PETALUMA
CLASS III LANDFILL CLOSURE CONSTRUCTION

BID SCHEDULE "C"

PART A--TECHNICAL SPECIFICATIONS


DIVISION 1--GENERAL REQUIREMENTS
- SECTION 01001 SUPPLEMENTAL CONDITIONS
- SECTION 01010 SUMMARY OF WORK
- SECTION 01011 TIME FOR COMPLETION
- SECTION 01050 SURVEY INFORMATION
- SECTION 01060 SITE HEALTH AND SAFETY PLAN
- SECTION 01300 SUBMITTALS
- SECTION 01310 CONSTRUCTION SCHEDULE
- SECTION 01500 UTILITIES
- SECTION 01560 TEMPORARY AND ENVIRONMENTAL CONTROLS

DIVISION 2--SITE WORK
- SECTION 02100 MOVE-IN AND SITE PREPARATION
- SECTION 02200 EARTHWORK
- SECTION 02240 EROSION CONTROL
- SECTION 02244 LOW PERMEABILITY SOIL LAYER
- SECTION 02445 CHAIN LINK FENCE
- SECTION 02722 OVERSIDE DRAINS

DIVISION 15--MECHANICAL
- SECTION 15064 PVC PIPE

PART B--CONSTRUCTION QUALITY ASSURANCE PLAN

# PART A

# TECHNICAL SPECIFICATIONS

DIVISION 1

GENERAL REQUIREMENTS

| Section | Title |
|---|---|
| 01001 | SUPPLEMENTAL CONDITIONS |
| 01010 | SUMMARY OF WORK |
| 01011 | TIME FOR COMPLETION |
| 01050 | SURVEY INFORMATION |
| 01060 | SITE HEALTH AND SAFETY PLAN |
| 01300 | SUBMITTALS |
| 01310 | CONSTRUCTION SCHEDULE |
| 01500 | UTILITIES |
| 01560 | TEMPORARY AND ENVIRONMENTAL CONTROLS |

SECTION 01001

SUPPLEMENTAL CONDITIONS

The Contractor shall comply with all permit conditions and requirements for this project including:

1. U.S. Army Corps of Engineers Section 404 and Section 10 Permit.

2. California Department of Fish and Game, Streambed Alteration Agreement (1601).

Copies of these permits and requirements shall be made available at the City of Petaluma, Engineering Department, 22 Bassett Street, Petaluma, California.

Prior to beginning construction, the Contractor shall be responsible for compliance with the permit requirements as specified below:

1. State Water Resources Control Board, National Pollution Discharge Elimination System-General Storm Water Permit for construction activities.

   The Contractor shall be responsible for compliance with the General Conditions for State Water Resources Control Board, Construction Activity Storm Water Permit under the National Pollutant Discharge Elimination System (NPDES).

   The Contractor shall eliminate nonstorm water discharges to waters, drainages, streams, wetlands or storm sewer systems; develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and perform inspections prior to and after storm events to ensure prevention measures and control practices are properly implemented.

   The Contractor shall retain the SWPPP at the construction site and shall submit a copy of the SWPPP to the Engineer and the City of Petaluma Building Department for a grading permit. The SWPPP shall identify potential sources of sediment and other pollutants and must describe best management practices to reduce sediment and other pollutants. Erosion and sedimentation control procedures may include measures such as temporary earthen berms, hay bales, and silt fences as necessary to prevent sedimentation.

The Contractor shall file the required Notice of Intent and appropriate fee with the State Water Resources Control Board prior to beginning construction.

2. Prior to beginning construction, the Contractor shall be responsible for obtaining a grading permit from the City of Petaluma Building Department (requires submittal of an Erosion Control Plan-same as the SWPPP above).

All costs involved in meeting the permit requirements, limitations or conditions shall be included in the various contract items of work, and no separate payments will be allowed.

**END OF SECTION**

SECTION 01010

SUMMARY OF WORK

1.0 PROJECT LOCATION

The work covered under this contract will be performed at the City of Petaluma Class III Landfill (Landfill). The Landfill is located at the south end of Casa Grande Road in Sonoma County near the Petaluma River.

The Landfill occupies approximately 9 acres of a 19-acre parcel owned by the City of Petaluma. The Landfill is bisected by a drainage channel dividing the east and west portions of the Landfill. The site is bounded on the east, west and south by the Petaluma River marsh, which is tidally influenced and designated as an environmentally sensitive area. The Landfill is adjoined on the north by industrial uses including a bus yard and tallow plant.

2.0 PROJECT DESCRIPTION

A. LANDFILL HISTORY:

The Landfill was used as a public landfill and burn site for municipal refuse from the late 1940s until 1960. The Landfill was closed to the public in 1960 and has only been used by the City for disposal of demolition debris, street cleanings or sweepings, and yard wastes since that time. The Landfill is currently not receiving any wastes.

B. RELATED INFORMATION:

The City has completed reports related to the Landfill and Landfill closure activities. This information includes the following:

1. Final Closure Plan. City of Petaluma Class III Landfill. Prepared by Brown and Caldwell. July 1993, Revised June 1, 1994.

2. Final Postclosure Maintenance Plan. City of Petaluma Class III Landfill. Prepared by Brown and Caldwell. July 1993, Revised June 1, 1994.

3. Initial Study for Landfill Closure and Postclosure Maintenance Plan. Prepared by City of Petaluma Planning Department. Filed August 1, 1994.

4. Dredge Material Testing for Vegetative Layer. Prepared by Environmental Technical Services. November 23, 1994, and March 10, 1995.

## 3.0 WORK OF THIS CONTRACT

The work to be performed under this contract generally consists of regrading the Landfill to obtain the slopes and grades necessary for proper drainage; placement of a multilayered final cover system and erosion control materials; construction of swales; and removal of debris from the adjacent wetlands, breaching of the levee and revegetation of the site.

The Contractor shall, except as otherwise specifically stated in applicable parts of these contract documents, provide and pay for all labor, materials, equipment, tools, construction equipment, facilities, and services necessary for proper execution, testing, and completion of the work.

## 4.0 SEQUENCE OF WORK

The following sequence of work is provided as a general guide only to assist the Contractor in scheduling the work and preparing the construction schedule:

1. Prepare health and safety plan.
2. Prepare stormwater pollution prevention plan and erosion control plan.
3. Obtain City grading permit; and file the Notice of Intent to comply with the NPDES permit requirements.
4. Mobilize construction equipment and temporary site controls.
5. Remove trash from adjacent wetlands.
6. Remove sections from adjacent berms.
7. Perform clearing and grubbing operations.
8. Verify existing grade.
9. Reroute the drainage ditch around the Landfill.
10. Regrade the site as needed to achieve required landfill slopes and grades and swale alignments and slopes.
11. Verify foundation material thickness; supplement as needed to achieve proper thickness.
12. Extend leachate monitoring wells as necessary.
13. Place the final cover system.

14. Construct surface water control system.

15. Place erosion control measures.

16. Install plant materials along side slopes and drainage as shown on the drawings.

## 5.0 LIST OF DRAWINGS

| Sheet number | Sheet title |
|---|---|
| L1 | Abbreviations, General Notes, Symbols and Location Plan |
| L2 | Existing Site Conditions |
| L3 | Cut and Fill Grading Plan |
| L4 | Final Grading and Drainage Plan |
| L5 | Sections |
| L6 | Details and Sections |
| L7 | Borrow Area Site Plan |

**END OF SECTION**

SECTION 01011

TIME FOR COMPLETION

1.0 GENERAL

All work involved in the landfill closure construction shall be completed within eighty (80) working days from the start of the project. Working day is defined in accordance with Caltrans Standard Specifications, Section 8-1.06, Time of Completion.

**END OF SECTION**

SECTION 01050

SURVEY INFORMATION

The Contractor shall develop and make surveys as needed for construction, such as control lines, slope stakes, batter boards, stakes for pipe locations and other working points, lines, and elevations.

The Contractor shall retain a professional land surveyor registered in the State of California (Surveyor) at the Contractor's expense. The Surveyor shall have 5 years' experience in surveying and staking for earthwork operations.

The Surveyor shall establish and maintain bench marks throughout the site and in the immediate vicinity of all earthwork. The Surveyor shall take field measurements, as many as necessary, for laying out, confirming and measuring construction lines and grades.

The Surveyor will resurvey the Landfill after the clearing and grubbing operation (Section 02100) is completed. The survey shall establish existing grade for the purpose of determining solid waste regrading quantity in accordance with Section 02200. The survey shall be accurate to within ± 0.25 foot vertical and ± 0.50 foot horizontal. Contractor shall allow the Engineer up to 25 days to complete a review of the survey/topographical work before commencing construction excavation. The City may make adjustments to the plans after completion of the survey.

Following the regrading operations, the affected areas will be resurveyed. The volume of solid waste material regraded will be based on the cross sections taken before and after the regrading.

The Contractor shall be responsible for coordinating the work with the surveying requirements. The Contractor shall make provisions to suspend earthwork operations during the time a survey is being performed in a particular area and shall include this period in his schedule. No extensions of time will be permitted for suspension of work to allow for surveying. No separate payment shall be made for surveying.

**END OF SECTION**

SECTION 01060

SITE HEALTH AND SAFETY PLAN

PART 1--GENERAL

1.01 DESCRIPTION

Portions of the landfill will be exposed during construction operations. Hazards do exist when excavating and working on landfills. A partial list of the potential hazards the Contractor may encounter includes the possible puncture of containers that could become explosive, the release pockets of landfill gas under pressure, the release of fluids that could be contaminated, surface subsidence by moving refuse, and others. Exposures to decaying wastes are also a potential hazard during this work. Exposures may also include possible contact with leachate, inhalation of landfill gas, fire, explosion, pathogenic bacteria, and others. The partial listing of potential hazards and exposures is not intended to be a compete description or listing of the potential hazards and exposures the Contractor may encounter. The submission of a bid shall constitute that the Contractor certifies that he is experienced and qualified to anticipate and meet the safety and health requirements of this project.

Upon request by the Engineer, prior to and at various times during the construction project, the Contractor will be required to show proof of certification training for all employees of the Contractor and subcontractor involved in remediation activities in accordance with 29 CFR Part 1910.120, Hazardous Waste Operations and Emergency Response. The level of training provided shall be consistent with the worker's job function and responsibilities and with the degree of anticipated hazards.

All subcontractors shall be responsible for their own health and safety programs and the health and safety of their own employees.

1.02 WORK INCLUDED

The Contractor shall prepare and implement a detailed and site-specific Site Health and Safety Plan describing all procautions that shall be taken by the Contractor to minimize the site hazards to the Contractor's personnel and subcontractors and to visitors or property.

1.03 REPORTING OF EMERGENCY EVENTS

Oral and written notice shall be made to the City and the Engineer if any event occurs which harms or has a risk of harm to

on-site workers, public health, or the environment. This does not take the place of, or preclude, the Contractor's other emergency reporting requirements. Such events will include but not be limited to:

1. Hazards not included in the site safety and health plan.
2. Accidents.
3. Illnesses which could be related to work.
4. Hazards caused by unusual weather conditions.
5. Failure of protective equipment (instruments and personal protection).

PART 2--PRODUCTS

2.01 SITE HEALTH AND SAFETY PLAN

The Site Health and Safety Plan shall be consistent with all applicable local, state and federal health standards and guidelines including, but not limited to, the Occupational Safety and Health Administration (OSHA) and amendments thereto, the National Institute of Occupational Safety and Health (NIOSH), the U.S. Environmental Protection Agency (EPA), and Sonoma County Public Health Department. The plan shall be sufficient to protect on-site and off-site personnel from the potential physical, chemical, and/or biological hazards particular to the site.

As a minimum, the following shall be addressed in the Site Health and Safety Plan:

1. A short description of the project and planned activities shall be provided. This summary shall include a brief site history including types of waste disposal on site and matrices affected (i.e., soil, water, and/or air); site description including topography, size, location, and perimeter land uses; project objectives and planned field activities.
2. Site safety management, including the responsibilities and qualifications of the site health and safety officer, key project personnel, and the site chain of command.
3. Site control measures including site work zones, site security and site communications. Site work zones

shall be delineated on a map showing the exclusion zone(s), contamination reduction zone(s), and support zone(s) as a minimum.

4. Certification that all site personnel, subcontractors, and visitors are adequately trained according to the requirements outlined in 29 CFR Part 1910.120, Hazardous Waste Operations and Emergency Response, and understand the specific hazards that may be encountered on the site.

5. The personal protection plan which will describe the protective clothing and equipment to be worn by personnel during site operations.

6. The monitoring of site personnel for contaminant exposure to maintain the proper level of personal protection, including action levels of protection.

7. Decontamination procedures for personnel and equipment at different levels of protection.

8. A description of the site-specific medical surveillance program for personnel who have potential for contact with any contaminated material.

9. Documentation of all safety-related site activities including implementation of the Site Health and Safety Plan, environmental and personal monitoring, site conditions, training programs, medical surveillance, injuries and illness, respirator fit-tests, problems and emergencies.

10. Specific site hazards (including, but not limited to, landfill gases and leachate) and necessary safe work practices.

11. Site Contingency Plan for safe and effective response to site emergencies including a list of emergency contacts, phone numbers, and map showing route to hospitals or clinics.

Several reports have been prepared over the years. Examples of data which may be helpful are listed in paragraph 01010-2.0 B. These and other data will be available to the Contractor for review at the Engineer's office for use in preparing the Site Health and Safety Plan.

## 2.02 EQUIPMENT

All required heath and safety equipment identified in the Site Health and Safety Plan shall be supplied and made available by the

Contractor to all site personnel, regulatory representatives and all authorized visitors. Such items include protective clothing and equipment, first aid kits, fire extinguishers, warning signs, barricade tape, illumination, potable water, toilet facilities, and other equipment as required to protect the health and safety of all site personnel, regulatory representation, and authorized visitors.

PART 3--EXECUTION

3.01 PLAN IMPLEMENTATION

Within 10 days of the execution of the contract between the City and the Contractor, and prior to mobilization of the Contractor's work force on site, the Contractor shall submit his Site Health and Safety Plan to the Engineer for documentation of compliance with the contract documents. The Contractor will not be allowed to mobilize his work forces on site work until the Site Health and Safety Plan has been submitted to the Engineer and the City. The receipt of these items in no manner implies that either the City or the Engineer has reviewed, approved, or otherwise inspected the materials submitted.

The Contractor must provide written certification of compliance with training and medical requirements for employees conducting work subject to OSHA 1910.120.

At the preconstruction conference, the Contractor shall make an oral presentation of the Site Health and Safety Plan to the Engineer. The presentation shall include details of the plan, procedures to be followed, individual responsibilities, equipment to be furnished, etc.

The Contractor shall be responsible for the proper execution of the plan. The Engineer, however, may recommend to the City to stop the work and will notify the Contractor's site health and safety officer if, in his professional opinion, it is determined that the Contractor's Site Health and Safety Plan is not being adequately implemented or observes other unsafe practices.

PART 4--PAYMENT

The contract lump sum price paid for the Site Health and Safety Plan shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in this section, as specified in these specifications, and as directed by the Engineer.

**END OF SECTION**

SECTION 01300

SUBMITTALS

## 1.0 GENERAL

Submittals covered by these requirements include manufacturers' information, shop drawings, test procedures, test results, samples, requests for substitutions, and miscellaneous work-related submittals. Submittals shall also include, but not be limited to, all mechanical, electrical and electronic equipment and systems, materials, reinforcing steel, fabricated items, and piping and conduit details. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's installation and other instructions as specifically required in the contract documents to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the contract documents.

## 2.0 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements. Submittal documents shall be clearly edited to indicate only those items, models, or series of equipment, which are being submitted for review. All extraneous materials shall be crossed out or otherwise obliterated. The Contractor shall ensure that there is no conflict with other submittals and notify the Construction Manager in each case where his submittal may affect the work of another contractor or the Owner. The Contractor shall coordinate submittals among his subcontractors and suppliers including those submittals complying with unit responsibility requirements.

The Contractor shall coordinate submittals with the work so that work will not be delayed. He shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. The Contractor shall not proceed with work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor stamped "No Exceptions Taken" or "Make Corrections Noted."

The Contractor shall certify on each submittal document that he has reviewed the submittal, verified field conditions, and complied with the contract documents.

The Contractor may authorize in writing a material or equipment supplier to deal directly with the Construction Manager or with the Owner with regard to a submittal. These dealings shall be limited to contract interpretations to clarify and expedite the work.

3.0 CATEGORIES OF SUBMITTALS

A. GENERAL:

Submittals fall into two general categories; submittals for review and comment, and submittals which are primarily for information only. Submittals which are for information only are generally specified as PRODUCT DATA in Part 2 of applicable specification sections.

At the beginning of work, the Construction Manager will furnish the Contractor lists of those submittals specified in the project manual. Two separate lists will be provided: submittals for review and comment and product data (submittals) for information only.

B. SUBMITTALS FOR REVIEW AND COMMENT:

All submittals except where specified to be submitted as product data for information only shall be submitted by the Contractor to the Construction Manager for review and comment.

C. SUBMITTALS (PRODUCT DATA) FOR INFORMATION ONLY:

Where specified, the Contractor shall furnish submittals (product data) to the Construction Manager for information only.

4.0 TRANSMITTAL PROCEDURE

A. GENERAL:

Unless otherwise specified, submittals regarding material and equipment shall be accompanied by Transmittal Form 01300-A specified in this section. A separate form shall be used for each specific item, class of material, equipment, and items specified in separate, discrete sections, for which the submittal is required. Submittal documents common to more than one piece of equipment shall be identified with all the appropriate equipment numbers. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XXX"; where "XXX" is the sequential number assigned by the Contractor. Resubmittals shall have the following format: "XXX-Y"; where "XXX"

is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 25B, for example, is the second resubmittal of submittal 25.

B. DEVIATION FROM CONTRACT:

If the Contractor proposes to provide material, equipment, or method of work which deviates from the project manual, he shall indicate so under "deviations" on the transmittal form accompanying the submittal copies.

C. SUBMITTAL COMPLETENESS:

Submittals which do not have all the information required to be submitted, including deviations, are not acceptable and will be returned without review.

5.0 REVIEW PROCEDURE

A. GENERAL:

Submittals are specified for those features and characteristics of materials, equipment, and methods of operation which can be selected based on the Contractor's judgment of their conformance to the specified requirements. Other features and characteristics are specified in a manner which enables the Contractor to determine acceptable options without submittals. The review procedure is based on the Contractor's guarantee that all features and characteristics not requiring submittals conform as specified. Review shall not extend to means, methods, techniques, sequences or procedures of construction, or to verifying quantities, dimensions, weights or gages, or fabrication processes (except where specifically indicated or required by the project manual) or to safety precautions or programs incident thereto. Review of a separate item, as such, will not indicate approval of the assembly in which the item functions.

When the contract documents require a submittal, the Contractor shall submit the specified information as follows:

1. Five copies of all submitted information plus one reproducible original of all information shall be transmitted with submittals for review and comment.

2. Unless otherwise specified, five copies of all submitted information shall be transmitted with submittals (product data) for information only.

B. SUBMITTALS FOR REVIEW AND COMMENT:

Unless otherwise specified, within 21 calendar days after receipt of a submittal for review and comment, the Contruction

Manager shall review the submittal and return three copies of the marked-up reproducible original noted in 1 above. The reproducible original will be retained by the Construction Manager. The returned submittal shall indicate one of the following actions:

1. If the review indicates that the material, equipment or work method complies with the project manual, submittal copies will be marked "NO EXCEPTIONS TAKEN." In this event, the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.

2. If the review indicates limited corrections are required, copies will be marked "MAKE CORRECTIONS NOTED." The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections.

3. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "AMEND AND RESUBMIT." Except at his own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

4. If the review indicates that the material, equipment, or work method does not comply with the project manual, copies of the submittal will be marked "REJECTED - SEE REMARKS." Submittals with deviations which have not been identified clearly may be rejected. Except at his own risk, the Contractor shall not undertake the work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

C. SUBMITTALS (PRODUCT DATA) FOR INFORMATION ONLY:

Such information is not subject to submittal review procedures and shall be provided as part of the work under this contract and its acceptability determined under normal inspection procedures.

1.5 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

Review of contract drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Construction Manager or the Owner, or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. A mark

of "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED" shall mean that the Owner has no objection to the Contractor, upon his own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

**END OF SECTION**

SECTION 01310

CONSTRUCTION SCHEDULE

1.0 SCOPE

This section specifies reports and schedules for planning and monitoring the progress of the work.

2.0 DESCRIPTION

The Contractor shall provide a graphic and narrative (work plan) construction schedule indicating the various subdivisions of the work and the dates of commencing and finishing each. The schedule shall be of sufficient detail and must clearly show all critical path items. Slack time shall be shown for items which are not on the critical path. The construction schedule shall include/incorporate each individual bid item as presented in the bid form. The schedule shall also incorporate construction sequences, as indicated in Section 01010, material delivery, material installation, testing, time for surveys to be completed, preparation of Site Health and Safety Plan, payment dates and other events which may affect construction activities. The schedule will take into account the time of completion and the specific dates given in Section 01011 and the work sequence described in Section 01010. The work plan shall include a review of available information. Work objectives shall be defined and the methods for accomplishing the objectives will be included. Personnel requirements shall be determined and additional training requirements identified. Equipment requirements shall be determined and the need for special equipment or services evaluated.

3.0 SUBMITTAL PROCEDURES

Five (5) days prior to the date of the Preconstruction Conference the Contractor shall submit a construction schedule. The submittal shall consist of a reproducible original and two copies.

Within seven (7) calendar days after the Preconstruction Conference, the Contractor shall modify the schedule if required and resubmit it to the Engineer. If the Engineer finds that the submitted schedule does not comply with specified requirements, the corrective revisions will be noted on the submittal copy and returned to the Contractor.

4.0 SCHEDULE REVISIONS

Revisions to the accepted construction schedule may only be made with the written approval of the Engineer and City.

## 5.0 PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in this section, as specified in these specifications and as directed by the Engineer, shall be considered as included in the contract as part of the appropriate unit or lump sum prices various contract items stated in the proposal and no separate payment will be made therefor.

**END OF SECTION**

SECTION 01500

UTILITIES

1.0 SANITARY FACILITIES

The Contractor shall provide toilet facilities for his work force at the site of work. They shall comply with applicable laws, ordinances, and regulations pertaining to the public health and sanitation of dwellings and camps.

2.0 WATER

On-site water is not available. The Contractor shall make arrangements for and provide all necessary facilities for water supply, for both personnel consumption and job site needs, at his own expense. Brackish water is not acceptable for watering during the final cover construction.

3.0 PAYMENT

Full compensation for utilities shall be considered as included in the contract lump sum price for "Move In and Site Preparation."

**END OF SECTION**

SECTION 01560

TEMPORARY AND ENVIRONMENTAL CONTROLS

1.0 SITE MAINTENANCE

The Contractor shall maintain a neat work site. The Contractor shall stockpile raw and excavated materials on the interior portions of the site to prevent silt, sediment, and other contaminants from these stockpiles from leaving the site or entering the surrounding marsh. Contractor shall contain any contaminated water or materials encountered and shall remove, treat and dispose of any contaminated substances in accordance with local, state and federal regulations. Materials and equipment shall be removed from the site when they are no longer necessary. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance.

2.0 TEMPORARY EARTH BERMS

Temporary earth berms and sand bags, asphaltic concrete, or other acceptable material will be permitted when necessary to protect the work, provided their use does not create a hazard or nuisance to the public or the environment. Such dams shall be removed from the site as soon as they are no longer necessary.

Contractor shall observe the environmentally sensitive areas as identified on the plans and specifications and shall avoid and minimize disturbances to the maximum extent practicable. To prevent inadvertent fill within the marsh area, the Contractor shall place a barrier (such as hay bales) along the toe of slope to capture loose material. On-site inspection of these environmental protective measures shall be verified by the City prior to grading.

3.0 WATER POLLUTION CONTROL

Comply with laws, rules, and regulations of the State of California and agencies of the United States Government prohibiting the pollution of lakes, wetlands, streams, or river waters from the dumping of refuse, rubbish, or debris. Prior to commencing excavation and construction, submit detailed plans showing procedures intended to handle and dispose of hazardous materials and manage stormwater flow. Contractor shall prevent debris, earth fill or other materials from entering the surrounding marsh area. If any material falls into the marsh, it shall be removed by the Contractor. Erosion and sedimentation control measures may include temporary earth berms, hay bales and silt fences. Contractor shall comply with the procedures outlined in the U.S. Environmental Protection Agency manuals entitled "Guidelines for Erosion and

Sedimentation Control Planning and Implementation" and "Processes, Procedures and Methods to Control Pollution Resulting From All Construction Activity."

## 4.0 AIR POLLUTION CONTROL

The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of any legally constituted authority. He shall also abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary. Operations of dumping soils and carrying soils in trucks shall be conducted to cause a minimum of dust. Grading areas and temporary haul roads, if used, shall be watered at a minimum of twice daily during use or more frequent during windy periods.

## 5.0 WORK HOURS

Work shall be allowed between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday unless otherwise approved by the Engineer. Should the Contractor wish to work on weekends, Contractor must notify the Engineer at least 72 hours in advance of proposed weekend work for approval.

Truck hauling on Lakeville Highway shall be limited to between 7:00 a.m. to 4:30 p.m., weekdays, and 8 a.m. to 6 p.m., weekends, to minimize traffic noise at adjacent residences.

Contractor may utilize a temporary haul road from the City's dredge disposal site and temporary crossing of Adobe Creek without limitation on work hours subject to obtaining written consent of the property owners and approval of the location of haul road by the City. The City's dredge disposal site is approximately 2 miles from the Landfill, and the site plan of the dredge disposal site (also called the borrow area) is shown on Drawing L7.

## 6.0 WASTE MATERIAL DISPOSAL

Excess excavated material not required or suitable for backfill, and other waste material, must be incorporated into the Landfill surface as indicated on the plans and as directed by the Engineer. Excess material will not be removed from the site without Engineer's approval. Cleaning and disposal shall comply with local ordinances and pollution control laws. Do not burn rubbish or waste materials on the project site. Do not dispose of volatile wastes such as mineral spirits, oil, chemicals, or paint thinner in Landfill. Disposal of wastes into streams or waterways is prohibited. Provide acceptable containers for collection and disposal of waste materials, debris, and rubbish.

## 7.0 PAYMENT

The contract lump sum price paid for "Temporary and Environmental Controls" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in temporary and environmental controls, complete in place, as specified in these specifications, and as directed by the Engineer.

**END OF SECTION**

DIVISION 2

SITEWORK

| Section | Title |
|---|---|
| 02100 | MOVE-IN AND SITE PREPARATION |
| 02200 | EARTHWORK |
| 02240 | EROSION CONTROL |
| 02244 | LOW PERMEABILITY SOIL LAYER |
| 02445 | CHAIN LINK FENCE |
| 02722 | OVERSIDE DRAINS |

SECTION 02100

MOVE-IN AND SITE PREPARATION

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies the work necessary to move in personnel and equipment; and site preparation which consists of clearing, grubbing and demolition.

B. EXISTING CONDITIONS:

The Contractor shall determine the actual condition of the site as it affects this portion of work.

C. PROTECTION:

Site preparation shall not damage structures, landscaping or vegetation adjacent to the site. The site is located adjacent to a protected wetlands area. The Contractor shall make every effort to limit and avoid disturbances to these areas. The Contractor shall repair or replace any damaged property and remove any debris, fill or other material that enters the adjacent marsh. The Contractor shall place a barrier around the toe of slope prior to grading to prevent fill material from entering the marsh.

PART 2--PRODUCTS

2.01 TEMPORARY FACILITIES

The Contractor shall provide all temporary facilities as required for performing the work. Contractor shall obtain permission to cross adjacent lands for temporary haul road utilizing temporary crossing of Adobe Creek, if feasible. Such temporary construction access shall be reviewed and approved by the City engineer prior to earthwork activities.

2.02 UTILITIES

Temporary utilities are discussed in Section 01500, Utilities. The Contractor shall obtain any necessary permits for these services.

2.03 SECURITY FENCE

Construct secondary temporary security fence if required. Maintain fence during construction period and provide secondary security fence for the Owner's existing equipment and facilities if existing fence or gate is removed or damaged during construction.

Contractor's security fence may be constructed for the protection of the Contractor's materials, tools and equipment.

2.04 PARKING FACILITIES

Provide parking facilities for personnel working on the project.

PART 3--EXECUTION

3.01 CLEARING AND GRUBBING

The Engineer will stake the limits of clearing. No clearing or other disturbance to native vegetation shall occur outside these limits except as described herein and directed by the Engineer. The Contractor shall remove and dispose of all obstructions on or protruding from the ground surface such as brush, trees, logs, stumps, roots, heavy sod, vegetation, rock, stones larger than 6 inches in any dimension, broken or old concrete and pavement, debris, and structures where the completion of the work require their removal. This material may be disposed of on site in the areas designated to receive these materials. In addition, the Contractor shall remove trash and debris from an adjacent wetlands area as shown on the design plans and as directed by the Engineer.

3.02 UTILITY INTERFERENCE

Where existing utilities interfere with the prosecution of the work, the Contractor shall relocate them as directed by the Engineer.

PART 4--PAYMENT

The contract lump sum price paid for "Move-In and Site Preparation" shall include full compensation for doing all the work involved in the site preparation, complete in place, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

**END OF SECTION**

SECTION 02200

EARTHWORK

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies earthwork which consists of excavation, filling, grading, and disposal of excess material. Specifications for the low permeability soil layer are provided in Section 02244. Specifications for erosion control are provided in Section 02240.

B. DEFINITIONS:

1. ATTERBERG LIMITS: The liquid limit, plastic limit, and shrinkage limit for soils (ASTM D4318-04). The water content when the soil behavior changes from the liquid to the plastic state is the liquid limit; from the plastic to the semisolid state is the plastic limit; and from the semisolid to the solid state is the shrinkage limit.

2. CLASSIFICATION SYSTEM: See Unified Soil Classification (ASTM D2487-85).

3. COMPACTION: The process of increasing the density or unit weight of soil by rolling, tamping, vibrating, or other mechanical means.

4. COMPACTOR PASS: A pass is defined as one trip of the compacting equipment over the lift and back to the starting point by a single drum roller or one trip across the lift surface from one side to the other if the compacting equipment has front and back compacting rollers.

5. COMPLETE COURSE: A course or layer that is ready for the next layer or next phase of the work.

6. CONSTRUCTION QUALITY ASSURANCE (CQA) PLAN: A written document prepared specifically for the final cover construction of the City of Petaluma Class III Landfill (Landfill). This document contains quality assurance procedures related to the final cover construction.

7. DENSITY: Mass density of a soil is its weight per unit volume; usually reported in pounds per cubic foot.

8. FOUNDATION LAYER: An inorganic material used as a subgrade for the final cover system.

9. LANDFILL GAS PROBE: A vertically installed, slotted, or perforated pipe surrounded by a gravel pack and connected to a solid riser pipe used to monitor Landfill gas.

10. IMPORTED MATERIAL: Material obtained by the Contractor from sources off the site.

11. LABORATORY PERMEABILITY: As described in paragraph 3.4B, Laboratory Permeability Testing, ASTM D5084-90.

12. MOISTURE CONTENT: Ratio of quantity of water in the soil (by weight) to the weight of the soil solids (dry soil), expressed in percentage; also referred to as water content.

13. LOW PERMEABILITY SOIL LAYER: A fine-grained material having a low permeability that is imported.

14. OPTIMUM MOISTURE CONTENT (OMC): Moisture content corresponding to maximum dry density as determined in the modified Proctor Test (ASTM D1557-78).

15. PERMEABILITY: Ability of pore fluid to travel through a soil mass via interconnected voids. "High" permeability indicates relatively rapid flow and vice versa. Rates of permeability are generally reported in centimeters per second.

16. RELATIVE COMPACTION: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D1557-78. Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Engineer.

17. STANDARD SPECIFICATIONS: The Standard Specifications of the State of California, Department of Transportation (Caltrans), 1992 edition.

18. UNCLASSIFIED: The nature of materials to be encountered has not been identified or described herein.

19. VEGETATIVE LAYER: Topsoil or other material capable of sustaining plant growth.

1.02 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and the listed documents, the requirements of this section shall prevail.

| Reference | Title |
|---|---|
| ASTM C136-84a | Standard Method for Sieve Analysis of Fine and Coarse Aggregates |
| ASTM D1556-82 | Test Method for Density of Soil in Place by the Sand-Cone Method |
| ASTM D1557-78 | Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.5-kg) Rammer and 18-in. (457-mm) Drop |
| ASTM D2922-91 | Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) |
| ASTM D3017-88 | Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) |
| ASTM D5084 (EPA 9100) | Test Methods for Permeability of Soil Using Flexible Wall Permeameter |

B. TESTS:

The Contractor shall provide the Engineer with representative samples of the low permeability soil material prior to moving the material from the borrow site. The Engineer will observe the collection of soil samples and must approve the methodology used by the Contractor. The Engineer will take samples and perform tests during placement of Landfill cover materials to check compliance with these specifications in accordance with the CQA Plan. The Contractor shall remove surface material at locations designated by the Engineer and provide such assistance as necessary for sampling and testing. The Engineer may direct the Contractor to construct inspection trenches in compacted or consolidated backfill to determine that the Contractor has complied with these specifications.

1.03 SUBMITTALS

Samples of fill materials to be used shall be submitted 2 weeks in advance of use. Samples shall consist of 0.5 cubic feet of each type of material unless otherwise specified by the Engineer.

PART 2--PRODUCTS

2.01 FILL MATERIALS

A. WASTE FILL

Waste fill shall be unclassified material obtained from clearing operations or excavation on site and used as general fill between the mounds and other areas designated for regrading. The material may contain extraneous material such as demolition waste, concrete, clearing and grubbing debris, solid waste, and other waste materials.

B. FOUNDATION LAYER (EARTH FILL)

Excavated or imported material shall be free from roots, organic matter, trash, debris, rocks larger than 3 inches (except as permitted by this specification), and other deleterious materials and shall be obtained from on-site stockpiles, cover stripping operations and other off-site sources as directed by the City engineer. The off-site source is located at the city's dredge disposal site shown on Drawing L7.

Individual large rocks (larger than 3 inches and less than 6 inches in minimum dimension) shall be permitted in the earth fill provided:

1. The rocks are angular.
2. Earth fill with rocks smaller than 3 inches is placed and compacted to the specification requirements above, below and adjacent to the larger rock material.
3. The large rock material placed in earth fill shall not comprise more than 10 percent of the total volume of a lift.
4. The finished surface is smooth and free of protrusions.

C. LOW PERMEABILITY SOIL LAYER:

The low permeability soil layer shall be a fine-grained, low permeability material that meets the requirements set forth in Section 02244, Low Permeability Soil Layer.

D. VEGETATIVE LAYER:

The vegetative layer shall be capable of sustaining plant growth and shall contain no more than 70 percent sand with a pH range of 6.5 to 7.5. This material may consist of fertile, friable soil of loamy character and shall be reasonably free from subsoil,

refuse, roots, heavy or stiff clay, stones large than 1 inch in size, coarse sand, noxious seeds, sticks, brush, litter, and other deleterious substances.

The material for the vegetative layer may be obtained by stripping the top 6 inches of material from the City's dredge spoils disposal site as directed by the Engineer. Any damages to the City's dredging disposal site shall be repaired by the Contractor at his/her own costs. At the City's option, the City may provide approximately 3000 cubic yards of composted sewage sludge for the vegetative layer delivered to the Landfill closure site by the City. If the City decides to deliver and provide to the Landfill site the sewage sludge or other soil amendments to the vegetative layer, the Contractor shall provide labor and material to provide adequate blending until a homogeneous soil mixture is obtained. No adjustments of the contract unit prices due to quantity changes will be made therefor.

E. SLOPE PROTECTION:

Type F material as indicated below shall be used for slope protection. Type F material shall be 18-inch riprap. Riprap shall be graded rock having a range of individual rock weights as follows:

| Weight of stone | Percent smaller by weight |
|---|---|
| 160 pounds | 100 |
| 100 pounds | 80-100 |
| 50 pounds | 45-80 |
| 20 pounds | 15-45 |
| 5 pounds | 5-15 |
| 1 pound | 0-5 |

F. GROUT FOR MONITORING WELLS:

A mixture of Portland cement (ASTM C150), not more than 7 gallons of clean water per bag (one cubic foot or 94 pounds) of cement, and a maximum of 5 percent by weight of bentonite shall be used. Bentonite shall be thoroughly mixed and hydrated in the water prior to addition of the Portland cement to ensure uniform distribution and hydration of the bentonite. The use of special cements or other admixtures (ASTM C494) to reduce permeability, increase fluidity, and/or control time of set, and the composition of the resultant slurry must be approved by the Engineer.

2.02 OTHER MATERIALS

A. WATER FOR COMPACTION:

Contractor is responsible for obtaining sufficient suitable water to meet the construction schedule and compaction requirements. Water shall be of potable quality.

B. COMPACTION EQUIPMENT:

Compaction equipment shall be of suitable mechanical type and adequate to obtain the densities specified and shall provide satisfactory breakdown of materials to form a dense fill. Flooding or jetting will not be allowed.

Compaction equipment shall be operated in strict accordance with the manufacturer's instructions and recommendations. Equipment shall be maintained in such condition that it will deliver the manufacturer's rated compactive effort. If inadequate densities are obtained, larger and/or different types of additional equipment shall be provided by the Contractor. Hand-operated equipment shall be capable of achieving the specified densities.

C. MOISTURE CONTROL EQUIPMENT:

Equipment for applying water shall be of a type and quality adequate for the work, shall not leak, and shall be equipped with a distributor bar or other approved device to assure uniform application. Equipment for mixing and drying out material shall consist of blades, discs, or other approved equipment.

PART 3--EXECUTION

3.01 GENERAL

A. EXCAVATION:

All excavation shall be performed as specified, shown, or required to accomplish the construction. Exposed waste fill material shall not become a nuisance, nor shall it be the cause of wind-blown debris and excessive odors, nor be a risk to public health or site workers' safety. Waste fill material, which is relocated for use as on-site fill material, shall be compacted within 4 hours of placement and shall not remain uncompacted from 1 day's operation to the next. Provide a minimum of 4 inches of temporary cover at the end of each working day over exposed waste fill.

Allow for overlying materials and finish topsoil as shown or required. Trenches for pipelines shall be at least 24 inches wider than the pipe outside diameter unless otherwise approved. Do not carry excavations deeper than the elevation shown. Excavation carried below the grade lines shown or established by the Engineer

shall be replaced with overexcavated material compacted to a density equal to that specified for similar embankments, but not less than that of the underlying ground. Cuts below grade shall be corrected by similarly cutting adjoining areas and creating a smooth transition. Correct all overexcavated areas at the Contractor's sole expense.

B. EXCAVATION OF WASTE FILL:

When waste fill is encountered, expose the surface of the waste fill within the excavation limits for purposes of measurement for payment. Salvage overlying granular cover soils for rough grading as required. The Contractor shall establish before and after survey measurements of the waste fill excavation, accurate to the nearest 0.25 foot. The Contractor shall not excavate any waste fill without prior approval of the Engineer. The Contractor shall limit exposure and excavation of waste fill to that which can be completed and backfilled within the working day. The Contractor shall backfill or cover any exposed waste fill at the end of each working day so as to minimize health, odor and safety risks.

C. DISPOSAL OF WASTE FILL:

Waste fill excavated from the site shall be regraded on site as shown on the drawings and approved by the Engineer. Waste fill shall be relocated within the Landfill area and graded to match proposed base grades as shown on the plans or directed by the Engineer.

D. HAULING:

When hauling is done over highways or city streets, the loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading. The loads shall be covered after trimming to eliminate dust.

E. FINISH GRADING:

Finished surfaces shall be smooth, compacted and free from irregularities. The degree of finish shall be that normally obtainable with a blade-grader.

Finished grade shall be generally specified by the contours except where a local change in elevation is required to match drainage ditches, down drains, or to ensure proper drainage. Contractor may be allowed to vary from the final elevations shown; however, the slopes and grades shown must be maintained. Allowance for vegetative layer and grass cover shall be made so that the specified thickness of vegetative layer can be applied to attain the finished grade.

When the work is at intermediate stage of completion, the lines and grades shall be as specified plus or minus 0.5 foot to provide adequate drainage.

If the soil is to be cultivated or straw is to be incorporated into the surface, rocks larger than 2-1/2 inches in maximum dimension, roots and other debris on the surface of the slope shall be removed and disposed of prior to cultivation or placement of straw.

F. CONTROL OF EROSION:

The Contractor shall maintain earthwork surfaces true and smooth and protected from erosion. Where erosion occurs, the Contractor shall provide fill or shall excavate as necessary to return earthwork surfaces to the grade and finish specified. Provide erosion control for finished areas as specified in Section 02240.

3.02 CLASSIFICATION OF FILL

Fill material shall be placed in horizontal layers and compacted with power operated tampers, rollers, idlers, or vibratory equipment. Material type, maximum layer depth, relative compaction, and general application are specified in Table A.

Table A, Fill Classifications

| Material type | Maximum uncompressed layer depth, inches | Minimum relative compaction, percent | General application |
|---|---|---|---|
| Waste fill | 8 | -- | Unclassified site fill for regrading operations |
| Foundation layer | 8 | 90 | final cover sub-base material |
| Low permeability soil layer' | 8 | 95 | Low permeability component of final cover |
| Vegetative layer | 8 | 90 | Top layer of final cover used for supporting vegetative growth |

'See Section 02244, Low Permeability Soil.

3.03 FINAL COVER BASE GRADE PREPARATION

A. GENERAL:

The final cover base grade shall be defined as the surface that the low permeability soil layer is placed on. Preparation of the final cover base grade requires excavation, stockpiling, relocating, placing and compaction of the waste fill and foundation layer materials to the lines and grades as shown on the drawings. Large objects, greater than 12 inches in any direction, that are regraded back into the Landfill as fill material shall be covered by a minimum of 2 feet of additional waste fill prior to placement of the foundation layer.

A minimum of 24 inches of foundation material is required over all regraded waste fill areas. Areas that do not require regrading may require supplemental foundation material if the existing soil cover is less than 24 inches thick.

B. COMPACTION:

Waste fill material shall be placed in lifts no greater than 8 inches in depth (loose) and shall be compacted to a smooth, firm, and nonyielding condition as determined by the Engineer. All other areas of the Landfill not requiring fill material shall also be compacted following clearing operations. All foundation layer material placed over waste fill shall also be compacted. The final subgrade surface shall be proof rolled to assure that it is firm and nonyielding. Proof rolling on grades less than 10 percent shall be performed by running an empty 10 cubic yard dump truck, or other equipment acceptable to the Engineer, across the entire area. Proof rolling on grades greater than 10 percent shall be performed by running or pulling a heavy compaction roller across the entire area. The Engineer shall observe all proof rolling. Any areas of the subgrade which rut or are otherwise not acceptable in the opinion of the Engineer shall be recompacted.

3.04 EARTHWORK FOR OVERSIDE DRAINS

A. GENERAL:

Earthwork for overside drains is specified in Section 02722, Overside Drains, in the Standard Specifications, in the details and in the following paragraphs.

B. PIPE BACKFILL:

Pipe backfill material shall be the same as the vegetative layer unless otherwise directed by the Engineer. After the pipe has been laid to alignment and grade, unless otherwise specified, backfill material shall be placed in layers the full width of the trench and compacted up to the specified level. Backfill shall be placed simultaneously on both sides of the pipe, keeping the level

of backfill the same on each side. The material shall be carefully placed and compacted around the pipe to ensure that the pipe barrel is completely supported and that no voids or uncompacted areas are left beneath the pipe. Contractor shall use particular care in placing material on the underside of the pipe to prevent lateral movement during backfilling.

3.05 FINISH GRADING

All earthwork shall be performed to the lines and grades as shown and/or established by the Engineer, with proper allowance for vegetative layer where specified or shown. Shape, trim and finish slopes of channels to conform with the lines, grades and cross sections shown. Make slopes free of all exposed roots and stones exceeding 3-inch diameter which are loose and liable to fall. Round tops of banks to circular curves, in general, not less than a 6-foot radius. Rounded surfaces shall be neatly and smoothly trimmed. Neatly blend all new grading into surrounding, existing terrain. Overexcavating and backfilling to the proper grade will not be acceptable. Finished site grading will be reviewed by the Engineer.

PART 4--MEASUREMENT AND PAYMENT

4.01 GENERAL

Unless otherwise provided, payment for earth work shall be included in the various contract items of work and no separate payments will be made.

4.02 WASTE FILL

Payment for waste fill regrading including, but not limited to, labor, materials, equipment, excavation, sorting, relocation, spreading, filling and compacting will be made under "Solid Waste Regrading." The volume of regraded material will be determined by the average end area method of cross sections taken in the fill area. Payment will be made on the quantity of material filled. Cross sections will be taken before placement and after compaction of the materials. The contract unit price paid per cubic yard shall include full compensation for doing all the work involved in solid waste regrading, complete in place, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

The City has the option of leaving waste in place on the west side of the Landfill. This will result in less solid waste regrading. The Contractor will adjust the total contract price accordingly.

4.03 FOUNDATION LAYER

Payment for foundation layer including, but not limited to, labor, materials, equipment, excavation, spreading, filling, and compacting will be made under "Foundation Layer." Payment will be made for the actual amount of foundation layer placed as required. The contract unit price paid per cubic yard shall include full compensation for doing all the work involved in furnishing and placing the foundation layer, complete in place, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

4.04 VEGETATIVE LAYER

Payment for the vegetative layer including, but not limited to, labor, materials, equipment, excavation, hauling, spreading, filling, and compacting will be made under "Vegetative Layer." Payment will be made for the actual amount of vegetative layer placed as required. The contract unit price paid per cubic yard shall include full compensation for doing all the work involved in furnishing and placing the vegetative layer, complete in place, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

4.05 SLOPE PROTECTION

The contract lump sum price paid under "Drainage Control System" shall include full compensation for doing all the work involved in the slope protection, complete in place, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

4.06 GROUT FOR MONITORING WELLS

The contract unit price paid under "Leachate Monitoring Well Extensions" shall include full compensation for doing all the work involved in the slope protection, complete in place, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

**END OF SECTION**

SECTION 02240

EROSION CONTROL

PART 1--GENERAL

1.01 WORK INCLUDED

This section covers work necessary for stabilization of soil to prevent erosion following construction completion. The work shall include the furnishing and installation of all required materials. The Contractor shall, unless otherwise shown or directed, apply soil erosion control on all cut and fill slopes and the entire landfill surface as soon as practical following construction completion.

The work in this section shall conform to the requirements set forth in the Standard Specifications, Section 20-3, except as described below.

1.02 DEFINITIONS

Thickness: as defined by ASTM D1777.

PART 2--PRODUCTS

2.01 SEED

Seed shall be of a quality that has a minimum pure live seed content of 90 percent and weed seed shall not exceed 0.5 percent of the aggregate of pure live and other material as determined by the Contractor. Seed shall be certified native California Brome (Bromus carinatus). Seed shall be distributed uniformly over the seed bed by hydroseeding at the following rates: 25 lb/acre on 3-5 percent slopes and 50 lb/acre on 3:1 (horizontal to vertical) slopes.

2.02 FERTILIZER

Fertilizer shall conform to the requirements set forth in the Standard Specifications, Section 20-2.02, Commercial Fertilizer.

2.03 STRAW

Straw shall conform to the requirements set forth in the Standard Specifications, Section 20-2.06, Straw.

2.04 STABILIZING EMULSION

Stabilizing emulsion shall meet the requirements set forth in the Standard Specifications, Section 20-2.11, Stabilizing Emulsion.

PART 3--EXECUTION

3.01 GENERAL

This work shall conform to the requirements set forth in the Standard Specifications, Section 20-3, Erosion Control.

PART 4--PAYMENT

Payment for "Erosion Control" will be made under the contract unit price paid per acre for the actual amount of erosion control work completed as required. The contract unit price shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all erosion control work, complete in place, including applying water, as shown on the drawings, and as specified in these specifications, and as directed by the Engineer.

**END OF SECTION**

SECTION 02244

LOW PERMEABILITY SOIL LAYER

PART 1--GENERAL

1.01 DESCRIPTION

This section specifies select fill material to be furnished and placed by the Contractor for construction of the low permeability soil layer of the final cover system. The material and installation specifications provided herein are supplemental to the Construction Quality Assurance (CQA) Plan. The Contractor shall comply with the requirements of the CQA Plan as well as those of this section.

1.02 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and the listed documents, the requirements of this section shall prevail.

| Reference | Title |
|---|---|
| CQA Plan | Construction Quality Assurance Plan |
| ASTM D1557-91 | Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft$^3$) |
| ASTM D2216 | Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures |
| ASTM D1556 | Density of Soil in Place by the Sand-Cone Method |
| ASTM D2922-91 | Test Methods for Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth) |
| ASTM D5084 (EPA 9100) | Test Methods for Permeability of Soil Using Flexible Wall Permeameter |

B. TESTING:

A 50-foot x 200-foot test plot shall be constructed and tested as described in the CQA Plan. The Engineer shall (1) observe and record test plot construction procedures, (2) review and summarize data obtained from the delivered material and test plot, and (3) certify that the specified design is achieved.

1.03 SUBMITTALS

The Contractor shall submit the following information:

1. Permeability and particle-size distribution data from an independent materials testing laboratory. (Engineer will obtain the samples as specified in the CQA Plan.)

2. Recommended placement and compaction procedures necessary to achieve the specified compaction and permeability requirements.

PART 2--PRODUCTS

2.01 MATERIALS

The low permeability soil layer material shall be imported material free from roots, organic matter, debris, rocks, or slag larger than 1 inch, and other deleterious materials. This material shall be obtained from the City's Dredge Spoils Disposal Site shown on Drawing L7 at no cost to the Contractor. Materials shall be thoroughly blended to provide homogeneous material relatively uniform in gradation and moisture content throughout.

Earthen materials used for the low permeability soil layer shall consist of a mixture of low permeability soil and other suitable fine-grained soils which can be compacted to attain the required permeability when installed. The permeability shall be $1 \times 10^{-6}$ centimeters per second, maximum, at a minimum relative compaction of 95 percent as measured by the modified Proctor Test (ASTM D1557-78).

PART 3--EXECUTION

3.01 PRODUCT HANDLING AND STORAGE

Contractor shall initially provide low permeability soil material for construction of the test plot. Contractor shall construct the test plot in accordance with the requirements of this section and the CQA Plan. Following completion of the test plot and review of test plot data, Contractor, Owner, and Engineer shall agree on construction procedures for the low permeability soil layer.

Material shall be visually inspected upon delivery by the Engineer. Excessive moisture indicated by standing water in the delivered product will not be accepted and no deliveries will be accepted during precipitation events. The Engineer shall have authority to obtain samples of the material for testing if field inspections indicated that the appearance or properties of the delivered material have changed significantly.

Stockpiles of low permeability soil material shall be segregated from native soil to the fullest extent possible. In general, stockpiles shall be maintained with sufficient compaction and slope, or other protective measures, to minimize infiltration of precipitation into the stockpile material.

3.02 INSTALLATION

Low permeability material shall be spread on the subgrade in two lifts and kneaded to a depth between 6 inches and 8 inches. Sufficient number of passes shall be made to achieve a density of 95 percent of the maximum modified Proctor dry density. The minimum thickness of the low permeability soil layer shall be 12 inches after grading.

PART 4--PAYMENT

The contract unit price paid for the "Low Permeability Soil Layer" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in constructing the low permeability soil layer, complete and in place, as shown on the drawings, as specified in these specifications and in the Construction Quality Assurance Plan, and as directed by the Engineer.

**END OF SECTION**

SECTION 02445

CHAIN LINK FENCE

1.0 GENERAL

This section specifies chain link fence comprising the fence, entrance gate, and appurtenances, as indicated on the drawings.

2.0 REFERENCES

Unless otherwise specified herein, the chain link fence shall conform to the requirements of Section 80-A of the Standard Specifications.

3.0 MATERIALS

Unless otherwise specified, galvanized steel chain link fence conforming to the requirements of Section 80-A of the Standard Specifications shall be furnished.

4.0 PAYMENT

The contract lump sum price paid for the "Chain Link Fence and Gate" shall include full compensation for furnishing all labor, equipment and incidentals for doing all the work involved in constructing the chain link fence and gate, complete and in place, including removal of existing fence, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

**END OF SECTION**

SECTION 02722

OVERSIDE DRAINS

PART 1--GENERAL

1.01 WORK INCLUDED

This section covers the work necessary for the construction of the overside drains complete. The reference specifications for the work in this section shall be Section 66 of the Standard Specifications, except as modified herein.

PART 2--MATERIALS

2.01 OVERSIDE DRAIN

Corrugated metal pipe shall be galvanized steel meeting the requirements set forth in Section 66 of the Standard Specifications. Provide standard coupling bands and fittings manufactured of like materials with similar protective coating.

PART 3--EXECUTION

3.01 INSTALLATION

Place overside drains as shown on the drawings and in accordance with the Standard Specifications. Where overside drain is not covered with soil, and if directed by the Engineer or specified, the overside drain shall be securely anchored to the slope at the ground with an anchor assembly as shown on the drawings and as directed by the Engineer.

PART 4--PAYMENT

The contract lump sum price paid for "Drainage Control System" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in drainage control system construction, complete in place, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

**END OF SECTION**

DIVISION 15

MECHANICAL

| Section | Title |
| --- | --- |
| 15064 | PVC PIPE |

SECTION 15064

PVC PIPE

PART 1--GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies polyvinylchloride (PVC) pipe and fittings used in monitoring well extensions.

B. PIPE DESIGNATIONS:

For use in this section, the following plastic pipe designations are defined:

| Designation | Definition |
|---|---|
| PVC | Polyvinylchloride |

1.02 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

| Reference | Title |
|---|---|
| ASTM D1248 | Polyethylene Plastics Molding and Extrusion Materials |
| ASTM D1784 | Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds |
| ASTM D1785 | Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120 |
| ASTM D2241 | Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR) |
| ASTM D2464 | Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80 |

| Reference | Title |
|---|---|
| ASTM D2466 | Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40 |
| ASTM D2467 | Socket-Type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80 |
| ASTM D2564 | Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings |
| ASTM D2665 | Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings |
| ASTM D3034 | Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings |
| ASTM F402 | Safe Handling of Solvent Cements and Primers Used for Joining Thermoplastic Pipe and Fittings |
| ASTM F477 (1985) | Elastomeric Seals (Gaskets) for Joining Plastic Pipe |

PART 2--PRODUCTS

2.01 PVC PIPE

A. MONITORING WELL EXTENSIONS:

PVC material and fittings shall conform to ASTM D1784, Class 12454-B, ASTM D1784. Pipe and fittings shall conform to ASTM D2665. Unless otherwise specified, all connections shall be flush-threaded. Connections to traps, closet flanges, and nonplastic pipe shall be with approved adapter type fittings designed for intended use. All PVC pipe shall be Schedule 40. Slotted gas pipe shall be the same material.

2.02 PRODUCT DATA

The following information shall be provided:

1. Manufacturer's certificates of compliance with the specified standards and Contractor's layout plans.

PART 3--EXECUTION

3.01 INSTALLATION

Connections to different types of pipe shall be by means of flanges, specified adapters or transition fittings. Where sleeve type couplings are used, both shall be uniformly torqued in accordance with pipe manufacturer's recommendation. Foreign material shall be removed from the pipe interior prior to assembly.

PART 4--PAYMENT

The contract unit price paid for "Leachate Monitoring Well Extensions" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in monitoring well extensions construction, complete in place, as shown on the drawings, as specified in these specifications, and as directed by the Engineer.

**END OF SECTION**

PART B

CONSTRUCTION QUALITY ASSURANCE PLAN

# CONSTRUCTION QUALITY ASSURANCE PLAN

## 1. INTRODUCTION

This construction quality assurance (CQA) plan has been prepared for the final cover construction of the City of Petaluma's Class III Landfill (Landfill), County of Sonoma, California. The City of Petaluma (City) owns and operated the Landfill and is responsible for the Landfill closure.

This CQA plan presents the quality assurance procedures that will be used to construct the final cover at the Landfill in accordance with the design specifications and applicable regulations. Together with the project's engineering drawings and specifications, it provides the basis and requirements for quality assurance activities related to the final cover. These quality assurance activities will be verified by the City's Engineer (Engineer). The Engineer shall be a registered civil engineer or certified engineering geologist, and shall be designated the CQA officer. An independent soils testing laboratory will be retained by the City to analyze samples obtained by the Engineer.

## 2. SITE PREPARATION

### A. WASTE FILL EXCAVATION AND BACKFILL

Regrading of waste fill is required to achieve the lines and grades shown on the drawings. Waste fill excavated from the Landfill shall be relocated within the Landfill area and graded to match proposed base grades as shown on the drawings or directed by the Engineer.

### B. FOUNDATION LAYER

Upon completion of the waste fill regrading operations, the foundation layer shall be prepared to receive final cover. This shall consist of placement of 6-inch lifts of foundation material where required over waste fill areas or, if sufficient foundation material exists, this existing material shall be scarified and compacted as required.

1. SURFACE PREPARATION: Foreign objects (e.g., rocks, sticks, glass, etc., and all visible vegetation) shall be removed from the surface of the foundation layer. Soil at the surface of the foundation layer shall be spread to a smooth, even surface. The foundation layer shall be compacted to 90 percent relative density using ASTM Test Method D1557-78 (approved

5/88), "Standard Methods for Moisture-density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop". No abrupt changes in grade, standing water, or excessive moisture shall be allowed.

2. TESTING: Foundation layer testing shall be conducted in a regular grid pattern at a minimum rate of four (4) field density tests per each 1,000 cubic yards of material placed, or at a minimum, four (4) locations shall be tested per day. The equipment used shall be a nuclear density gauge calibrated according to the manufacturer's recommendations or other appropriate field equipment. Each location will be tested as follows:

- In-place density, D2922-81.
- Four out of five tests must meet the criteria for a lift to be accepted. A lift will be recompacted and retested if it fails to meet the pass/fail criteria.

3. INSPECTION: The foundation layer surface shall be inspected by the Engineer for surface preparation prior to installation of the low permeability soil layer. The inspection shall be documented, including problems noted and corrective action taken. The Engineer must approve the foundation layer prior to placement of the low permeability soil layer.

C. LOW PERMEABILITY SOIL LAYER

The material used for construction of the low permeability soil layer shall be free of clods greater than 1/4 inch in diameter, roots, rocks, sticks, glass, or other foreign objects. The material shall be classified as a silty clay, sandy clay or clayey sand according to the Unified Soil Classification System (USCS). Materials classified as CL, CH, MH, and SC according to the USCS may be used. The material shall contain moisture sufficient to allow effective kneading and compaction of the product. The material shall be of sufficient uniformity in quality and composition to consistently achieve a coefficient of permeability less than $1 \times 10^{-6}$ centimeters per second (cm/s) under saturated conditions when installed according to the design specifications. The material shall have a minimum of 30 percent by weight passing the U.S. No. 200 Standard Sieve (ASTM D1140-54) and shall have a plasticity index no less than 20 percent and no greater than 70 percent (ASTM D4318-84).

1. BORROW SITE TESTING: Prior to the Contractor moving the low permeability soil material from the borrow site, the Engineer will conduct sampling of the proposed material. The samples will be sent to a soils testing laboratory for testing of the following properties:

- Percent fines (ASTM D1140-54)
- Moisture content (ASTM D2216-80)

- Maximum density and optimum moisture content (ASTM D2922-81)
- Atterberg limits (ASTM D4318-84)
- Permeability (EPA 1900, triaxial permeameter, laboratory compaction to 95 percent as measured by modified Proctor)

Borrow material will be accepted as suitable if four out of five samples meet the requirements specified in Table 1 of this CQA plan.

2. DELIVERY AND STOCKPILING: Material shall be visually inspected upon delivery by the Engineer. Excessive moisture indicated by standing water in the delivered product will not be accepted and no deliveries will be accepted during precipitation events. The Engineer shall have authority to obtain samples of the material for testing if field inspections indicate that the appearance or properties of the delivered material have changed significantly. Stockpiles of low permeability soil material shall be segregated from native soil to the fullest extent possible so that suitable material is used in construction of the low permeability soil layer. All material used to construct the low permeability soil layer shall be free of clods in excess of 1/4 inch in diameter, rocks, sticks, roots, stumps, glass, and any other objects which might promote channeling of fluids through the low permeability material. In general, stockpiles shall be maintained as necessary to minimize infiltration of precipitation into the stockpile material.

3. TEST PLOT: A test plot shall be constructed by the Contractor and tested prior to construction of the low permeability soil layer to verify that the materials and construction techniques utilized consistently achieve the specified design. Identical materials, compaction equipment, equipment speed, number of passes, and procedures should be used to construct the test plot as those proposed for the low permeability soil layer.

A baseline curve relating density to optimum moisture content shall be developed for the material prior to construction of the test plot. The curve will be developed from Modified Proctor test results on five samples of the low permeability soil material.

The dimensions of the test plot shall be 50 feet wide by 200 feet long. Foundation layer for the test fill shall be compacted as described in paragraph 2.B. The proposed placement and compaction procedure described in the following paragraph shall be used to determine acceptable construction procedures for achieving the specified design. The Engineer shall observe the construction of the test plot and document the equipment and methods used during test plot construction including (1) placement and spreading; (2) resulting loose lift thickness; (3) uniformity of material after spreading; (4) incorporation of water; (5) equipment weight, configuration, and number of passes; and (6) repair of disturbances due to quality assurance sampling.

A minimum of three locations shall be sampled and analyzed for the parameters described in paragraph 2.B.2. Results shall be compared with the criteria specified herein and the design specifications to assess whether construction methods have achieved the design requirements.

The three test locations shall be selected at random by the Engineer. Modifications of the test plot construction sequence or methods (e.g., addition of moisture or additional passes of kneading and/or compaction equipment) shall be followed with repeat testing to document the variation in properties, especially permeability, as a function of construction method modifications. The testing methods for evaluating the effectiveness of the construction procedures shall be as described in paragraph 2.B.2. The following construction sequence should be investigated for their impact on resulting in-place density:

1. Material moisture content as delivered; single loose lift kneaded for three passes; four passes with smooth wheel vibratory compactor; test three locations.

2. Kneading for two additional passes and vibratory smooth wheel compaction for two or more additional passes; test three locations.

3. Adding water to increase moisture content and reworking as needed to homogenize the layer; test three locations.

4. Techniques for maintaining the soil layer such as (1) supplying moisture to prevent desiccation, or (2) placing a protective layer of thin (6 mil) polyethylene sheet; test three locations after 3 days, 7 days, and 10 days.

4. PLACEMENT AND COMPACTION OF LOW PERMEABILITY LAYER: Moisture content of the material prior to compaction shall be the Modified Proctor optimum moisture content (ASTM D1557-78) plus 2 percent. Low permeability material shall be spread over the base grade in 6-inch to 8-inch lifts and kneaded. The Contractor shall use a compactor, such as a Caterpillar 815, or approved equal, which has steel kneading feet. Following spreading, kneading, and initial compaction, the material shall be rough leveled with a grader. Final compaction and smoothing of the material shall be accomplished with a smooth wheel, vibratory compactor such as a Caterpillar CS553. Sufficient number of passes shall be made to achieve a density of 95 percent of the maximum dry density (ASTM D1557-78) and to smooth the surface. A motor grader may be used to remove excess material to establish the final grade and thickness of the low permeability soil layer. The minimum thickness of the final layer shall be 12 inches after grading.

Upon completion of the final grading, the low permeability soil layer shall be visually inspected by the Engineer. Areas which appear to be inadequately prepared will be sampled, tested, and reworked if necessary to achieve the specified properties. The Engineer shall inspect the condition of the low permeability soil layer daily following its installation for signs of desiccation or other damage and shall recommend corrective action if the condition of the low permeability soil layer deteriorates. Areas with desiccation cracks shall be wetted and reworked at the Contractor's expense to produce a smooth homogeneous layer which meets the specified requirements.

In the event of significant precipitation or other extreme weather conditions during construction, the Engineer shall inspect the work in progress and may require additional testing to verify that the work has not been adversely affected. If portions of the low permeability soil layer are impacted to the point that they no longer meet the design requirements, these areas shall be reworked as needed to achieve said design requirements.

5. SAMPLING AND TESTING OF LOW PERMEABILITY LAYER: Samples and measurements shall be obtained from the low permeability material and constructed low permeability soil layer as summarized in Table 2. Frequency of testing for the test plot shall be as shown in Table 2.

6. INSPECTION OF LOW PERMEABILITY SOIL LAYER: The installed low permeability soil layer shall be inspected by the Engineer prior to beginning installation of the vegetative layer. Inspection personnel shall walk the entire length of each cell and shall be spaced so that each individual is responsible for inspecting no more than a 20-foot-wide section of the low permeability soil layer in a given pass. Any damaged areas shall be reworked to the satisfaction of the Engineer.

The installation of the vegetative layer shall occur as soon after inspection and approval by the Engineer of the low permeability soil layer as practicable. If the low permeability soil layer is impaired after the inspection, but prior to completion of the vegetative layer (e.g., heavy rain), the low permeability soil layer shall be reworked as needed to the standards in paragraph 2.B.5 and the inspection shall be repeated.

D. REPORTING REQUIREMENTS

Construction quality assurance documentation requirements shall include, at the minimum, reports bearing unique identifying sheet numbers for cross-referencing and document control, the date, project name, location, descriptive remarks, the data sheets, inspection activities, and signature of the designated authorities with concurrence of the CQA officer. The following reports shall be submitted, but not limited to:

1. Daily record keeping, which shall include preparation of a summary report with supporting inspection data sheets, problem identification and corrective measures reports. Daily summary reports shall provide a chronological framework for identifying and recording all other reports. Inspection data sheets shall contain all observations (i.e., notes, charts, sketches, or photographs), and a record of field and/or laboratory tests. Problem identification and corrective measures reports shall include detailed descriptions of materials and/or workmanship that do not meet a specified design and shall be cross-referenced to specific inspection data sheets where the problem was identified and corrected.

2. All test reports shall be assembled and summarized in order to verify that the materials and construction processes comply with the specified design. This report shall include, as a minimum, inspection summary reports, inspection data sheets, problem identification and corrective measures reports.

3. At completion of the project, the Engineer shall prepare a Final Documentation Report which contains all reports submitted concerning the placement of the final cover. This document shall provide evidence that the CQA plan was implemented as proposed and that the construction proceeded in accordance with design criteria, drawings, and specifications pursuant to Chapter 5, Article 3.4, Section 18275, of the Closure/Post-closure Regulations.

4. The Engineer shall submit copies of the Final Documentation Report to the Board and the local enforcement agency as prepared by the CQA officer.

5. Once construction is complete, the document originals shall be stored by the City in a manner that will allow for easy access while still protecting them from any damage. All documentation shall be maintained throughout the post-closure maintenance period.

Table 1 Borrow Site Testing

| Description | Acceptable value | Method | Frequency* |
|---|---|---|---|
| Borrow Site Testing | | | |
| Standard test method for particle size analysis of soils, percent passing | 30 | ASTM D4221-83 | 1 per 2,000 cy or 1 per day |
| Maximum permeability, cm/s | $1x10^{-6}$ | EPA Test Method 9100 | 1 per (5,000 cy) |
| Atterberg limits | -- | ASTM D4318-84 | 1 per 5,000 cy or 1 per day |
| Minimum plasticity index | 20 | ASTM D4318-84 | 1 per 5,000 cy or 1 per day |
| Maximum plasticity index | 70 | ASTM D4318-84 | 1 per 5,000 cy or 1 per day |
| Standard practice for description and identification of soils | -- | ASTM D2488-84 | 1 per 5,000 cy or 1 per day |

Table 2 Properties of Low Permeability Soil Layer

| Description | Acceptable value | Method | Frequency* |
|---|---|---|---|
| Low Permeability Soil Layer Testing: | | | |
| Minimum compacted thickness, inches | 12 | Self-supporting markers or survey | 1 per 10,000 sq ft |
| Field moisture content as percent of optimum Modified Proctor (ASTM D698-78) | 100-102 | ASTM D2216-80 | 4 per 1,000 cy or 4 per day |
| Minimum field density as percent of Modified Proctor | 95 | ASTM D2922-81 | 4 per 4,000 cy or 4 per day |

*Analyzed using a triaxial permeameter.

## REFERENCES


| Reference | Title |
|---|---|
| ASTM D422-63 | Particle Size Analysis of Soils |
| ASTM D1140-54 | Amount of Material in Soils Finer than the No. 200 (75-micron) Sieve |
| ASTM D1557-78 | Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-16 (4.54 kg) Rammer and 18-in. (457-mm) Drop |
| ASTM D2167-84 | Density of Soil in Place by the Rubber-Balloon Method |
| ASTM D2216-80 | Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures |
| ASTM D2922-81 | Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) |
| ASTM D2937-83 | Density of Soil in Place by the Drive-Cylinder Method |
| ASTM D4318-84 | Liquid Limit, Plastic Limit, and Plasticity Index of Soils |
| EPA 9100 | Triaxial-Cell Method with Back Pressure |

SECTION IV

# CITY OF PETALUMA DETAIL SPECIFICATIONS

Revised 6/92

City of Petaluma
Engineering Department
Petaluma, California

# WATER MAIN INSTALLATION DETAIL SPECIFICATION NO. 11

## Description

1101.1 Description. The work shall consist of furnishing and installing water mains, valves, fittings, fire hydrants, thrust blocks, and appurtenances and testing and chlorinating the same in accordance with the plans and these specifications, the end result being a completed project ready for use.

## Materials

1102.1 Asbestos-Cement Water Pipe. Asbestos-cement water pipe shall be Class 150 conforming to American Water Works Association Specifications C-400-80," Asbestos-Cement Distribution Pipe, 4 inch through 16 inch (100mm through 400 mm) NPS, for water and other liquids."

1102.1A Polyvinyl Chloride (PVC) Water Pipe (4" through 12").

Pipe: Four (4") inch through twelve (12") inch polyvinyl chloride (PVC) water pressure pipe shall conform with ANSI/AWWA C900-81 Polyvinyl Chloride (PVC) Pressure Pipe Four 4 Inch Through Twelve 12 Inch For Water.

Pressure class shall be Class 150 unless specified otherwise on the plans or in the Special Provisions. Dimensions for pressure class PVC shall be as shown in Table 2 of referenced ANSI/AWWA C900 specifications. O.D. of PVC shall fit cast iron pipe O.D. Class 150 psi pipe shall meet the requirements of Dimension Ratio (DR) 18 and Class 200 psi the requirements of DR 14. Pipe joints shall be couplings or integral wall bell "push-on" type with elastomeric gaskets conforming to the requirements of ANSI/ASTM F477 Elastomeric seals (gaskets) for joining plastic pipe. No solvent weld joints will be permitted. PVC pipe shall be "Blue Brute" as manufactured by J-M pipe; "Vinyl-Iron" as manufactured by Certainteed or equal.

Fittings: Fittings for PVC pressure pipe shall be cast or ductile iron as specified for cast iron or ductile iron pipe in paragraphs 1102.3 Cast Iron Fittings and Clause 1102.3A Fittings for Ductile Iron Pipe. "Restrained" joints shall not be permitted on polyvinyl chlorine pipe without written approval from the Engineer.

Pipe Clamps: All water services, blowoffs and air release valves to be attached to polyvinyl chloride mainline pipe shall be connected with flat double strap, bronze service clamps. Service clamps for PVC pipe shall be Rockwell No. 323 double strap bronze saddle or equal.

Leakage Test for PVC Pressure Pipe: In lieu of paragraph 1103.20 Leakage Tests of the No. 11 Detail Specifications, polyvinyl chloride (PVC) pressure pipe shall be hydrostatically pressure tested at a minimum of 150 psi for a duration of a minimum of two (2) hours. The allowable leakage shall be determined by the following formula:

$$L = \frac{N D \sqrt{P}}{7400}$$

Where L = Allowable leakage in gallons per hour.
N = Number of joints in the length of pipeline tested.
D = Nominal diameter of pipe in inches.
P = The average test pressure during the test in pounds per square inch gauge.

Leakage values determined by the above formula are shown in the following table:

| Nominal Pipe Size inches | Test Pressure psi | Allowable Leakage, gal. per 1000 ft. (50 joints) per hour |
|---|---|---|
| 4 | 150 | 0.33 |
| 6 | 150 | 0.50 |
| 8 | 150 | 0.66 |
| 10 | 150 | 0.83 |
| 12 | 150 | 0.99 |

Maximum length of pipe line to be tested on one individual test in one hundred (100 each) joints or two thousand (2000) linear feet whichever is less.

The Contractor shall furnish all pressure testing equipment, test gauges, measuring containers and all other fittings, pipe, pumps and material required for leakage testing the PVC pressure pipe.

PVC water mains shall not be used in areas where soils are contaminated with petroleum based products or where the intended use of the site may so contaminate the soil.

1102.2 Cast Iron Water Pipe. The cast iron water pipe shall be new pipe conforming to the most recent American Standards Association Specifications with all subsequent amendments, if any, as sponsored by the American Water Works Association for Class 150 and/or Class 200 cement lined pipe, except that the thickness of the pipe barrel may be based on the American Standards Association Specification A-21.1-1967 (AWWA-H1-67) entitled "USA Standard for Thickness Design of Cast Iron Pipe" with a bursting tensile strength of 21,000 psi and a modulus of rupture of 45,000 psi. The pipe shall conform to the American Standards Association Specification A21.6-1962 (AWWA-C106-62) "American Standard for Cast Iron Pipe centrifically cast in metal molds,

Where restrained joints on ductile-iron pipe are required or permitted the following is applicable:

| | Mechanical Joint | Push-on-Joint | | | |
|---|---|---|---|---|---|
| Nom. Pipe Dia. (In.) | EBBA-Iron Series 100 Ductile Iron MJ Retainer Gland With Set Screws (Class) | U.S. Pipe "Lock-Type" (Class) | U.S. Pipe "Lok-Tyton" (Class) | U.S. Pipe "Field-Lok" (Class) | EBBA-Iron Series 800 "Cover All" With Set Screws (Class) |
| 4 | 52 | 55 | 52 | 50 | 52 |
| 6 | 52 | 54 | 53 | 50 | 52 |
| 8 | 52 | 54 | 53 | 50 | 52 |
| 10 | 52 | 54 | 54 | 50 | 52 |
| 12 | 52 | 54 | 54 | 50 | 52 |

Ductile iron restrained joints shall be installed in strict accordance with the manufacturer's recommendations.

1102.3 Cast Iron Fittings. Cast iron fittings shall be cement lined and conform to the American Standards Association Specification A-21.10-1952 (AWWA-C110-52), "American Standard for Short-Body Cast Iron Fittings, 3-inch to 12-inch, for 250 psi water pressure plus water hammer." The fittings shall have ends designed to joint directly with the type of pipe being used. The cement mortar lining shall be same as specified above for cast iron pipe.

1102.3A Ductile Iron Pipe Fittings. Fittings for ductile iron pipe may be either cast iron in conformance with Clause 1102.3 Cast Iron Fittings of the Detail No. 11 Specifications or the fittings for ductile iron pipe may be ductile iron in conformance with ANSI/AWWA C110/A21.10-82 "Ductile Iron and Gray-Iron Fittings, 3 Inch Through 48 Inch, for Water and Other Liquids."

All ductile iron fittings shall be cement-mortar lined in conformance with ANSI/AWWA C104/A21.4-80 "Cement-Mortar Lining for Ductile Iron and Gray-Iron Pipe and Fittings for Water."

Joints for ductile iron fittings shall be mechanical, push-on or flanged. Mechanical and push-on joints for ductile iron fittings shall conform with ANSI/AWWA C110/A21.10-80 "Ductile Iron and Gray Iron Fittings, 3 Inch Through 48 Inch for Water and Other Liquids" and with ANSI/AWWA C111/A21.11-80 "Rubber-Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings."

Flanged joints for ductile iron fittings shall be "Full Faced" and shall conform with ANSI/AWWA C110/A21.10-82 "Ductile-Iron and Gray-Iron Fittings, 3 Inch Through 48 Inch for Water and Other Liquids."

All ductile iron fittings shall be encased in polyethylene unless otherwise noted on the plans or in the specifications. Polyethylene encasement

for water or other liquids," or American Standards Association Specification A21.8-1962 (AWWA-C108-62) "American Standard for Cast Iron Pipe Centrifically Cast in Sandlined Molds for Water or other Liquids," with bell and spigot ends; or with mechanical joint ends conforming to the American Standards Association A-21.11-1953 (AWWA-C111-53) and as amended by American Standards Association A21.11-1964 (AWWA-C111-64) "American Standard for Mechanical Joint for Cast Iron Pressure Pipe and Fittings," or with ends joined by a method approved by the engineer which employs a single elongated rubber gasket to effect the joint seal. Said gasket shall conform to the American Standards Association Specification A-21.11-1964 (AWWA-C111-64) "American Standard for Rubber Gasket Joint for Cast Iron Pressure Pipe and Fittings," or with flange ends (where flange ends are shown on the plans) conforming to the American Standards Association Specifications B-16.1-1948 (AWWA-C207-55) "Cast Iron Pipe Flanges and Flanged Fittings, Class 125," or AWWA Standard for Steel Pipe Flanges. The cement mortar lining shall conform to ASA standard A21.4-1964 (AWWA-C104-64), American Standard for cement mortar lining for cast iron pipes and fittings for water.

1102.2A Ductile Iron Pipe. Ductile iron pipe shall conform with ANSI/AWWA C151/A21.51-81 "Ductile-iron pipe, centrifugally cast in metal molds or sand-lined molds, for water or other liquids."

Ductile iron pipe thickness shall conform with ANSI/AWWA C150/A21.50-81 "Thickness design of ductile-iron pipe." All ductile iron pipe shall be cement-mortar lined in conformance with ANSI/AWWA C104/A21.4-80 "Cement-mortar lining for ductile iron and gray-iron pipe and fittings for water."

Joints for ductile iron pipe shall be mechanical, push-on or flanged. Mechanical and push-on joints shall conform with ANSI-AWWA C111/A21.11-80 "Rubber-gasket joints for ductile-iron and gray-iron pressure pipe and fittings." Flanged joints shall be "full faced" and shall conform with ANSI A21-15-1975 (AWWA C115-75) "Flanged cast-iron and ductile-iron pipe with threaded flanges."

All ductile iron pipe shall be encased in polyethylene unless otherwise noted on the plans or in the specifications. Polyethylene encasement shall conform with ANSI/AWWA C105/A21.5-82 "Polyethylene encasement for ductile-iron piping for water and other liquids."

1. Restrained Joints. Restrained joints for ductile iron pipe shall be subject to the approval of the City. No restrained joint of any type may be used in the City of Petaluma without the written approval of the Director of Public Works.

   Restrained joints, if approved by the City, shall be shown on the plans and/or described in the special provisions.

shall conform with ANSI/AWWA C105/A21.5-82 "Polyethylene Encasement for Ductile-Iron Piping for Water and Other Liquids.

a. Short Body or Compact Ductile Iron Fittings: These light weight, compact, fittings may be used in conjunction with ductile iron pipe provided the Engineer authorizes, in writing, the use in each project.

These fittings shall be mechanical joint, ductile iron and shall comply with ANSI/AWWA C110/A21.10 "Ductile-Iron and Gray-Iron Fittings, Three (3") Inch Through Forty-eight (48") Inch, for Water and Other Liquids" and with ANSI/AWWA C111/A21.11-80 "Rubber-Gasket Joints for Ductile Iron and Gray-Iron Pressure Pipe and Fittings" except for wall thickness and laying lengths. Nominal thickness shall meet or exceed those specified for Class 53 ductile iron pipe. Laying lengths and radii may be as recommended by the manufacturer. The working pressure rating shall be 350 psi.

These compact ductile iron fittings shall be cement-mortar lined and polyethylene encased as required for all other ductile iron fittings described in "Fittings for Ductile Iron Pipe" above.

1102.3B Tapping Sleeves. Tapping sleeves shall be as follows:

| Type and Diameter of Existing Pipe to be Tapped | Type of Tapping Sleeve Required | Tapping Sleeve Material and Specifications |
|---|---|---|
| 4" through 12" asbestos cement | M. J. Mueller H-619<br>M. J. Clow F-5207<br>or approved equal | Cast iron, split sleeve, mechanical joint with recessed flange Class 125 in conformance with ANSI B16.1 |
| 4" through 12" cast or ductile iron | M. J. Mueller H-615<br>M. J. Clow F-5205<br>or approved equal | Cast iron, split sleeve, mechanical joint with recessed flange Class 125 in conformance with ANSI B16.1 |
| 14" through 16" cast or ductile iron | M. J. Mueller H-615<br>M. J. Clow 5205<br>or approved equal | Cast iron, split sleeve, mechanical joint with recessed flange Class 125 in conformance with ANSI B16.1 |

| | | |
|---|---|---|
| 14" and larger cast or ductile iron or asbestos cement | Rockwell 622 or approved equal | Fusion bonded inside and out carbon steel ASTM 285 Grade C with stainless steel bolts and nuts Type 304 |
| 4" through 12" welded steel | Rockwell 622 or approved equal | Fusion bonded inside and out carbon steel ASTM 285 Grade C with stainless steel bolts and nuts Type 304 |
| 8" through 12" universal cast iron | Rockwell 622 or approved equal | Fusion bonded inside and out carbon steel ASTM 285 Grade C with stainless steel bolts and nuts Type 304 |
| 8" through 12" universal cast iron | Calked Type Mueller H-611 or approved equal | Cast iron, split sleeve, calked-cast iron with recessed flange Class 125 in conformance with ANSI B16.1 |

1102.4 Gate Valves. Gate valves shall be Mueller No. A-2380, or approved equal, with "O" ring seals, nonrising stem, shall have ends designed to joint directly with the type of pipe being used. The valves shall conform to the American Water Works Association Specification AWWA-C500-61 "AWWA Standard for Gate Valves for Ordinary Water Works Service."

1102.4A Butterfly Valves. Butterfly Valves shall be Dresser AWWA "450" (or approved equal) NRS, of the rubber-seated, tight-closing type and shall have the same approximate number of closing turns as gate valves of the same size. Butterfly valves shall conform with AWWA-C504.

Approved butterfly valves may be used as an alternate to gate valves.

1102.4B Valve Stem Extensions. Where the vertical distance from the top of the two (2") inch operating nut on top of a buried gate or butterfly valve exceeds four (4') feet from finished grade (the top of the valve box) the Contractor shall furnish and install a one (1") inch diameter (solid bar stock steel) valve stem extension as shown on the City's drawings, Standard Details for Water Mains.

1102.5 Valve Boxes and Extensions: Valve boxes shall be Christy G-5, or approved equal. Covers shall be marked "Water." Valve boxes and extensions shall be installed as shown on the plans.

a. Valve Box Extensions shall be eight (8") inch diameter ACP or VCP installed directly on the valve bonnet as shown on the plans. Valve box extensions shall be set vertically (plumb) and centered over the two (2") inch valve operating nut.

Joints, if used, in the valve box extensions shall not be permitted below the top two and one-half (2-1/2') feet of the extensions and shall be installed in such a manner as to cause the valve stem extensions to be "self-centering" and "self-seating" on the two (2") inch operating nut (with slight horizontal rotation). Joints, if used, shall be smooth inside and equal to factory made joints for that particular eight (8") inch pipe used for the valve box extension.

The valve box extension shall in no way impair the free movement, vertically or free seating, of the valve stem extension. Valve box extensions which impair the free vertical movement and/or free seating of the valve stem extension shall be reexcavated and reinstalled to comply with these specifications.

All debris, gravel, mud or foreign matter of any kind within the valve box extension shall be removed by the Contractor.

1102.6 Fire Hydrants. Fire hydrants shall be 6 (6") inch diameter conforming with AWWA Standards with outlets that have National Standard hose threads.

| ZONE | HYDRANT NAME | SIZE OUTLETS | MODEL NO. |
|---|---|---|---|
| Residential Area: | Rich | 1-4 1/2" x 1-2 1/2" | Range #950 |
| | Long Beach | 1-4 1/2" x 1-2 1/2" | #614 |
| | Jones | 1-4 1/2" x 1-2 1/2" | J3740 |
| Commercial Area: | Rich | 1-4 1/2" x 2-2 1/2" | Range #960 |
| | Long Beach | 1-4 1/2" x 2-2 1/2" | #615 |
| | Jones | 1-4 1/2" x 2-2 1/2" | J3760 |

1102.7 Fire Hydrant Break-off Check Valve. Fire hydrant break-off check valves shall not be used on fire hydrants unless specifically required elsewhere by the contract Special Provisions or Drawings. Break-off valves where required shall be Rich #30 or equal.

1102.8 Lead Joints. Packing material shall be square braided hemp. The above material shall be handled with care in order to prevent contamination and shall be dry when put into place in the joint. The material used shall be free of oil, tar, and greasy substances.

Lead for caulking purposes shall contain not less than 99.73% pure lead. Impurities shall not exceed the following limits:

| | Percent |
|---|---|
| Arsenic, antimony, and tin together | 0.015 |
| Copper | 0.08 |
| Zinc | 0.002 |
| Iron | 0.002 |
| Bismuth | 0.025 |
| Silver | .02 |

1102.9 Flanged Joints. Flanged joints shall be full faced and conform to ASA Standard B16,1-1948.

1102.10 Mechanical Joints. Mechanical joints shall conform to ASA Standard A-21.11-1953 (AWWA-C111-53) and as amended by ASA Standard A-21.11-1964 (AWWA-C111-64) entitled "American Standard for Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings" (AWWA C207-5J), "AWWA Standard for Steel Pipe Flanges."

1102.11 Portland Cement Concrete. Portland cement concrete for hydrant bases, thrust blocks and anchors shall conform to the requirements of Section 90 of the most recent State Standard Specifications and as herein specified. The concrete shall be Class "B" containing five (5) sacks of Portland cement per cubic yard of concrete. The grading of the combined aggregate shall conform with the requirements for one and one-half (1-1/2") inch maximum. The consistency of the fresh concrete shall be such that the slump does not exceed four (4") inches as determined by Test Method California No. 519A or 520. The Test Method used shall be determined by the Engineer.

1102.12 Chlorine. Hypochlorites shall conform to the American Water Works Association Specification B300-64, "AWWA Standard for Hypochlorites." Liquid chlorine shall conform to the American Water Works Association Specifications B301-59T, "AWWA Standard for Liquid Chlorine."

1102.13 Select Backfill Material. Select backfill material shall be granular material of the quality herein specified.

Select backfill material shall have a size and gradation falling with the following limits:

| Sieve Size | Percentage Passing Sieve |
|---|---|
| 1" | 100 |
| 3/4" | 90 to 100 |
| No. 4 | 35 to 55 |
| No. 30 | 10 to 30 |
| No. 200 | 2 to 10 |

The material shall compact to a relative compaction of ninety percent (90%). The relative compaction is that determined by Test Method California No. 216 (Materials and Research Department, California Division of Highways). The material shall have a minimum sand

equivalent value of twenty-five (25), as determined by the test method currently in use by Caltrans.

The in-place density and moisture of soils and aggregate may be determined by the use of nuclear methods and the area concept as per Test Method California No. 231, with the following conditions:

1. The test maximum density shall be determined as specified in Part II of Test Method California No. 216.

2. A minimum of one in-place density test, using the sand volume method as prescribed in Part I of Test Method California No. 216, shall be taken to standardize the nuclear gauge for each type of soil or aggregate.

3. After correlation is assured and the equipment standardized, then the nuclear gauge may be used as directed by the Engineer.

1102.14 Bolts. All bolts, nuts, washers and tie-back rods used throughout any valve, valve body, fitting or bury installation shall be stainless steel conforming to ASTM A320, Type 304.

## CONSTRUCTION METHODS

1103.1 Handling of Materials. Water pipe, fittings, hydrants, and valves must be carefully handled at all times. Only suitable and proper equipment and appliances shall be used for the safe loading, hauling, unloading, handling and placing of materials. Special care shall be exercised so that the coating on pipe, valves, and fittings will not be damaged. If such damage should occur the coating shall be repaired to the satisfaction of the Engineer. Chain slings will not be permitted. Pipe loaded on trucks or stacked one upon another shall be supported on wooden blocking. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.

1103.2 Trench Excavation. Any existing pavement over the trench shall be cut out, removed and hauled away from the job.

Pavement shall be cut as specified in Section 1103.19C of these specifications. All water mains shall be laid in open trench or tunnels and open trench as indicated on the plans or as directed by the Engineer. The maximum clear width of trench at the top of the pipe shall not be more than the outside diameter of the barrel of the pipe plus two (2') feet. Greater width of trench at the top of the pipe shall be permitted only on written approval by the Engineer. In no case shall the free working space on each side of the pipe be less than six (6") inches.

The trench shall be excavated a minimum of four (4") inches below the grade of the bottom of the pipe and sufficient "Select Backfill Material" shall be placed in the trench and tamped to bring the trench bottom up to the grade of the bottom of the pipe. The relative compaction of the tamped material shall not be less than ninety percent (90%) as determined by Test Method California No. 216. The holes for bells, collars, valves, and fittings shall be excavated by hand. It is the intention of these requirements to provide firm, uniform bearing for the pipe.

Material excavated in streets and roadways shall be laid alongside the trench and kept trimmed up so as to cause as little inconvenience as possible to public traffic. All materials excavated in streets and roadways and not required for backfill shall be immediately removed and disposed of by the Contractor. No surplus material shall be placed on private property unless written permission is furnished the Engineer, signed by the owner of the property.

At street crossings or where existing driveways occur on a street, the Contractor shall make provisions for trench crossings at these points, either by means of backfill or temporary bridges, as the Engineer may direct. Free access must be provided to all fire hydrants, water gate valves, and private drives, and means shall be provided whereby all storm and waste water can flow uninterrupted in the gutters or drainage channels.

1103.3 Bracing and Shoring. The Contractor's attention is directed to 3(f) "Excavation and Trenching Safety" of the General Provision. Excavation shall be supported as set forth in the rules, orders, and regulations of the California Industrial Accident Commission. Failure to comply with any of these rules, orders, and regulations shall be sufficient cause for the Engineer to immediately suspend all work. Compensation for losses incurred by the Contractor by such an emergency suspension shall not be allowed. During backfilling the bottom of the shoring shall be kept above the level of the backfill at all times.

1103.4 Control of Dust. The Contractor shall at all times keep the streets sufficiently watered and swept of all loose material produced by his operations in order that traffic and construction does not raise an objectionable amount of dust. When directed by the Engineer, the Contractor shall apply a suitable dust palliative to control dust.

1103.5 Control of Waste Water. The Contractor shall furnish, install and operate all necessary equipment to keep trenches reasonably free from water. All water removed from trenches or flushed from pipes shall be disposed of in a manner that will cause no injury to public or private property or cause no nuisance or menace to the public. Under no circumstances will the laying of pipe or the placing of concrete in water be permitted.

1103.6 Pipe Laying. All pipe shall be laid true to line and grade as shown on the plans or as directed by the Engineer to pass existing obstructions. Before any length of pipe is laid, it shall be carefully inspected for defects. No pipe or other material which is cracked or shows other defects shall be placed.

All pipe, valves, and fittings must be carefully wiped out and cleaned as they are installed. Any earth or rubbish which may have lodged inside during or before laying shall be removed. Every open end of installed pipe shall be kept closed at all times when work is suspended at the close of the workday and as directed by the Engineer.

Pipe must be given a solid uniform bearing in the bottom the trench. Blocking or supporting pipe on earth mounds will not be permitted.

Whenever it is necessary to use a short length of pipe at a fitting or valve, the minimum length shall be thirty-two (32") inches. If it is necessary to cut pipe, said cut shall be made with an approved pipe cutter. The use of hammer and chisel for pipe cutting will not be permitted.

Whenever the work ceases for any reason or when the line is constructed with an end not jointed to an existing main, the end shall be closed with a cast iron cap or plug making a watertight joint. Deadends shall be anchored as shown on the plans to prevent movement.

A six (6) gauge solid copper wire shall be installed in the trench with nonmetallic pipe (ACP or PVC, etc.). The wire shall be insulated and shall be laid along the top of the pipe, all tracer wire splices shall be made (metal-to-metal) with brass mechanical connector. The wire shall be installed so that there is no direct contact between the copper and any other metal in the trench. The wire shall be firmly attached at least once on each length of pipe by means of tape, adhesive, or by other approved methods. The wire shall be continuous along each section of pipeline between mainline valves. At each valve, a loop or end of the wire shall be run up into the valve box.

1103.7 Joints. All joints shall be watertight and shall be made by competent workmen. Unless otherwise specified on the plans or in these specifications, joints may be of any of the type listed below which are consistent with the type of pipe being used except that joints shall in no case be caulked with cement. Flanged joints shall only be installed where specifically shown on plans.

1103.8 Joints for Asbestos-Cement Water Pipe. Each pipe shall be sealed with a coupling consisting of an asbestos-cement sleeve and two (2) rubber rings. The machined ends of the pipe to be jointed, the inside of the sleeve and the two (2) rubber rings shall be wiped clean immediately before jointing the pipes. The assembly of the coupling shall be made as recommended by the manufacturer of the coupling. On completion of the assembly of the coupling, the pipe ends within the coupling shall be separated at least one-quarter (1/4") inch to allow for expansion and flexibility. After assembling the coupling, the rubber ring locations shall be checked with a suitable gauge. Both rings for the full circumference of the pipe shall be located a distance from the coupling ends as recommended by the manufacturer of the couplings. If the distance does not fall within the required limits, the coupling shall be disassembled and reassembled in an acceptable manner.

1103.9 Lead Joints. The packing material shall be placed around the spigot of the pipe and shall be of proper dimensions to center the spigot in the bell. When the spigot is shoved home, the packing material shall be driven tightly against the inside base or hub of the bell with suitable yarning tools. A space not less than two and one-quarter (2-1/4") inches in depth shall be left in the bell for the lead. The joint runner shall fit snugly against the bell and the outside of the pipe and shall be dammed with clay to form a pouring lip to provide for filling the joint flush with the face and to the top of the bell.

The lead shall be heated in a melting pot kept in each reach of the joint to be poured so that the molten metal will not be chilled in being carried from the melting pot to the joint and shall be brought to a proper temperature so that when stirred it will show a rapid change of color. Before pouring, all scum shall be removed. Each joint shall be made with one continuous pour filling the entire joint space with solid lead. Spongy or imperfectly filled joints shall be burned out and repoured.

After the lead has cooled to the temperature of the pipe, lead joints shall be caulked with pneumatic or hand tools operated by competent workmen until the joints are thoroughly compacted and watertight. The finished joint shall show a hard and even hammered surface over all. Care shall be taken not to overstrain the bells during caulking.

1103.10 Flanged Joints. Before installing gaskets in flanged joints, the faces of the flanges shall be perfectly clean. Bolts for flanged joints shall be of sufficient length to give a full nut when the joint is made. In bolting flanges together, the bolts shall be tightened in such a way that the flanges in the completed joint will be parallel and free from unequal stresses. Care shall be taken to prevent damage to the bolt heads, nuts, or threads, and if any such damage is done, the damaged material shall be replaced.

No flanged joint will be accepted until leakage under test has been stopped. Such leakage shall be stopped only by cleaning flanges, or replacement of gaskets or adjustment of tension on the bolts. No other method will be permitted. After the flanged connection has been tested and inspected by the Engineer, the Contractor shall apply a coating of an asphalt or bitumastic paint (approved by the Engineer) on all exposed metal surface of the flange connection and bolts.

1103.11 Mechanical Joints. The last eight (8") inches outside of the spigot and the inside of the bell of mechanical joints shall be thoroughly cleaned out of all oil, grit and other foreign material by brushing with a wire brush then painted with a soap solution made by dissolving one-half (1/2) cup of granular soap in one (1) gallon of water. The cast iron gland shall be placed on the pipe with the lip extension of the gland toward the socket or bell end of the joint, and the rubber gasket shall be painted with the soap solution and placed on the pipe with the thick edge toward the gland. The pipe shall be pushed into the bell to seat the spigot and the gasket pressed into place within the bell, being careful to have the gasket evenly located around the entire joint. The cast iron gland shall be placed against the gasket, the bolts inserted and the nuts tightened with a suitable (preferably torque-limiting) wrench. The range of a torque for three-quarter (3/4") inch bolts shall be sixty (60) to ninety (90) foot pounds. Nuts spaced one hundred eighty (180°) degrees apart shall be tightened alternately in order to produce an equal pressure on all parts of the gasket.

1103.12 Compressed Gasket Joints for Cast Iron Water Pipe. The joint shall be of a type which employs a single elongated rubber gasket to effect the joint seal. The assembly of the joint shall be made as recommended by the manufacturer.

1103.13 Setting Valves, Fittings and Hydrants. Gate valves are to be set in a vertical position and provided with valve boxes. Gate valves shall be anchored as shown on the plans.

Fire hydrants and fire hydrant connections shall be installed where indicated on the plans except where the Engineer directs that they be relocated to avoid an obstruction. The Contractor shall make such relocations at the time of construction and without additional compensation. Each hydrant shall be installed in accordance with the standard detail for hydrants shown on the plans. A breakoff check valve shall be installed only when specifically shown on the plans, or required by Special Provisions.

Fittings and fire hydrant burys shall be anchored as shown on the plans. Anchors and thrust blocks shall be poured against undisturbed earth.

1103.14 Connecting to Existing Mains. The Contractor shall make connections to existing mains where indicated on the plans. Said connections shall be made after new water mains have been chlorinated and pressure tested to the acceptance of the Engineer. Service in existing mains shall be interrupted only with authorization by the Engineer. The Contractor shall contact users whose service may be interrupted.

1103.15 Air Reliefs and Blowoffs. Air reliefs and blowoffs shall be one (1") inch and two 2"), inches respectively, Type "K" copper tubing, unless otherwise noted, installed and located as shown on the plans.

1103.16 Painting. All materials which are not adequately protected against corrosion by a suitable protective coating shall be carefully cleaned and given a thick coating of a good quality asphaltum paint. This paint shall be allowed to harden before the material is placed in the trench. All buried bolts, nuts and washers of all types and kinds, (including mechanical joint tee-bolts and gate valve body bolts) regardless of protective coating, shall be given a thick coating of, City approved, asphaltum paint and wrapped in 8 mil minimum thick polyethylene as specified in ANSI/AWWA C105/A21.5-82.

1103.17 Backfilling.

1103.17A Initial Backfill. "Select Backfill Material" as specified in Section 1102.13 of these specifications shall be used for initial backfill. After the pipe has been properly laid and inspected, select backfill material shall be placed on both sides and over the pipe to such a depth that after thorough compaction, the final depth shall be at least twelve (12") inches above the top of the pipe. The Contractor shall be wholly responsible for damage to the pipe.

The initial backfill shall be compacted by hand tamping. The use of machine tampers will not be permitted. The initial backfill material shall be hand tamped in layers not exceeding four 4") inches in uncompacted depth. The final depth of compacted initial backfill shall be at least twelve (12") inches above the top of the pipe.

After handtamping, the relative compaction of the initial backfill material shall be not less than ninety (90%) percent as determined by Test Method California No. 216.

1103.17B Subsequent Backfill. Above the level of the initial backfill, the trench shall be backfilled with structural backfill (excluding pea gravel) as specified in paragraph 19-3.06 Structure Backfill of the current State of California, Department of Transportation, Standard Specifications dated January 1988. Unless otherwise specified in the Special Provisions or certified by an approved soil testing laboratory that the native trench excavated material meets the requirements of structural backfill as stated above - native excavated trench material shall not be used for backfill in any portion of the trench.

The Contractor shall compact by tamping and/or rolling, the backfill material in layers not exceeding eight (8") inches in loose depth, each layer being thoroughly compacted by tamping and/or rolling before succeeding layers are placed. "Stamper" type equipment for compaction shall not be permitted. Vibrating equipment that does not damage the pipe or adjacent facilities may be used for compaction.

Subsequent backfill compacted by tamping and/or rolling shall be free from stones or lumps exceeding three (3") inches in greatest dimension, vegetable matter, or other unsatisfactory material, and shall be compacted to a relative compaction of not less than ninety (90%) percent as determined by Test Method California No. 216, except that within two and one-half (2-1/2') feet of finished permanent surfacing grade the relative compaction shall not be less than ninety-five (95%) percent. The Contractor will be charged for the cost of all compaction tests where the test results do not meet the above specifications.

1103.17C Re-excavating. If the compaction requirements as specified above are not met, the trench shall be re-excavated. Backfill material shall then be compacted by tamping and/or rolling as specified above until the compaction requirements are satisfied.

1103.18 Subgrade Preparation. The finished subgrade immediately prior to placing base material thereon shall have a relative compaction of not less than ninety-five (95%) percent , for a depth of two and one-half (2-1/2') feet below finished permanent surfacing grade, as determined by Test Method California No. 216. Mud or other soft or spongy material shall be removed and the space filled with gravel or select backfill material and rolled or tamped in layers not exceeding eight (8") inches in thickness until the above relative compaction requirement is satisfied.

Subgrade preparation is not required in unimproved areas where trench surfacing is not required.

1103.19 Trench Surfacing.

1103.19A General. Where an unimproved surface is encountered, the trench shall be restored to its original surface.

Where a gravel surface is encountered, it shall be replaced over the width of the trench with Class 2 aggregate base six (6") inches in depth as specified in Section 26 of the Standard Specifications.

Where the existing surface is some type of asphalt concrete, it shall be restored with a temporary surface followed by a permanent surface as specified herein.

1103.19B Temporary Surfacing. The temporary surfacing shall be Class 2 aggregate base as specified in Section 26 of the Standard Specifications. The aggregate base shall be equal in depth to the existing pavement structural section but in any case not less then fourteen (14") inches in depth.

The aggregate base shall be brought within one (1") inch of the top of the existing paving and covered with temporary "cold mix" asphalt paving using an MC-250, MC-800 or approved equal. All temporary surfacing shall be installed the same day as backfilling and shall be level with the existing paving.

The Contractor shall maintain the temporary surfacing level with the existing paved surface at all times. All dirt and gravel and debris of any kind shall be removed from city streets by the end of the day.

In the event the Contractor does not comply fully with the above requirements, no further excavation will be permitted until the requirements are met.

All temporary asphalt shall comply fully with the Bay Area Air Quality Management District's Regulation 8, Rule 15.

Section 302 of Rule 15 prohibits the use of "cut back" asphalt (including MC-70) during the months of April through October in paving material or in paving and maintenance operations.

The Contractor shall use only slow-cure (SC) liquid asphalts for temporary trench paving during April through October.

1103.19C Permanent Surfacing. Permanent surfacing shall not be constructed until the compaction requirements of Section 1103.17 of these specifications are satisfied. The wearing surface for permanent surfacing shall be replaced "In-kind", but in no case shall the new surfacing be less than two (2") inches thick for asphalt concrete or less than six (6") inches thick for Portland Cement Concrete. A permanent surface shall be installed no later than ten (10) calender days from completion of backfill.

1103.19C1 Asphalt Concrete. The existing pavement shall be neatly cut to a depth of two (2") inches and removed to at least five (5") inches outside each side line of the pipe trench to permit proper keying in the restored pavement. The existing pavement cut shall be straight, vertical and with no ragged edges.

The base course for permanent surfacing shall be Class 2 aggregate base as specified in Section 26 of the Standard Specifications. The aggregate base shall be equal in depth to the existing pavement structural section, but in any case not less than twelve (12") inches in depth. The wearing surface for permanent surfacing shall be asphalt concrete two (2") inches minimum in depth. The asphalt concrete shall be "Type B Asphalt Concrete" with one-half (1/2") inch maximum, medium grading

aggregate conforming to the requirements of Section 39 of the Standard Specifications.

1103.19C2 Portland Cement Concrete Paving. The existing pavement shall be neatly sawcut to a minimum depth of two (2") inches and at least five (5") inches outside each side line of the pipe trench to permit proper keying in the restored pavement. The Contractor shall chip along the edge of the existing concrete pavement and remove all loose pieces prior to replacing the wearing surface for permanent surfacing.

The base course for permanent surfacing shall be Class 2 aggregate base as specified in Section 26 of the Standard Specifications. The aggregate base shall be equal in depth to the existing pavement structural section less six (6") inches, but in any case not less than six (6") inches in depth.

The wearing surface for permanent surfacing shall be Class A Portland Cement Concrete in conformance with Section 90 of the Standard Specifications.

1103.19C3 Restoration of Existing Facilities. Whenever existing improvements such as pavements, curbs, gutters, sidewalks, driveways, storm drains, sanitary sewers, laterals, utilities, utility services, etc., have been cut or damaged in order to construct waterlines and appurtenances, the backfill shall be thoroughly compacted and all improvements restored to their original condition. The cost of restoring all original improvements shall be included in the unit bid price for water pipe and appurtenances and no additional allowance shall be made therefore.

1103.20 Leakage Tests. Each run of pipe between two sectionalizing valves or between a valve and a cap or plug shall be tested for leakage. Only one (1) run of pipe shall be tested at a time, but the pressure may be applied through sections of pipe already tested. It is the intention of these tests to test the watertightness of the closed gate valves as well as the pipes.

The Contractor shall furnish all equipment for making tests including a suitable gauge for measuring the applied line pressure. The tank containing the water to maintain line pressure shall be of such a design that the volume of water used may be accurately measured. The hydrostatic pressure shall be one hundred fifty (150) pounds per square inch, based on the elevation of the lowest point of the section under test and corrected to the elevation of the test gauge. The test pressure shall be maintained for one (1) hour by pumping water from the measuring tank into the line. At the end of the hour the volume of water pumped into the line will be measured and recorded as the leakage.

No pipe installation will be accepted until the leakage in each section is less than the amount based on the rate of fifty (50) gallons per inch of diameter per mile of pipe per twenty-four (24) hours.

1103.21 Chlorination. All lines, mains, and branches shall be sterilized by chlorination in accordance with American Water Works Association Standard C601-54, "Disinfecting Water Mains", and as herein specified. Chlorine shall be a one (1%) percent solution or a solution containing ten thousand (10,000) parts per million available chlorine.

The weight of chlorine or chlorine compound required to make one (1%) percent chlorine solution is as follows:

| Product | Amount of Compound | Quality of Water in gals. |
|---|---|---|
| High test calcium hypochlorite (65-70% CL) | 1 lb. | 7.50 |
| Chlorinated Lime (32-35% CL) | 2 lbs. | 7.50 |
| Liquid Laundry Bleach (5.25% CL) | 1 gal. | 4.25 |
| Liquid Chlorine (100% available chlorine) | 0.62 lb. | 7.50 |

The required concentration of chlorine in the pipes is twenty-five (25) parts per million. This concentration may be attained by adding two and one-half (2-1/2) gallons of the chlorine solution to one thousand (1,000) gallons of water.

Pipelines shall first be flushed to remove all mud, dirt, or other foreign matter. The chlorine solution shall then be introduced into the line through corporation stops at such locations along the line that uniform distribution of chlorine throughout the line is insured, including services, fire hydrants, and stubs. Treated water shall be retained in the pipe long enough to destroy all nonsporeforming bacteria. Samples shall be taken from services, blowoffs or air reliefs, but not from fire hydrants. All services and fire hydrants shall be flushed with treated water. This period should be at least twenty-four (24) hours and should produce no less than ten (10) ppm at the extreme end of the line at the end of the retention period. After treatment, the line shall be flushed until the residual chlorine is less than two-tenths (0.2) of a part per million, or until there is no objectionable odor of chlorine. The line shall then be checked for contamination by a laboratory approved by the Engineer and either accepted or rejected for use. In case of rejection, the chlorination process shall be repeated until the contamination test is satisfactory.

1103.22 Utility Easement. Whenever the trench lines within property controlled by agencies such as the Southern Pacific Railroad, State of California, Sonoma County, Pacific Bell, or Pacific Gas and Electric Company, the trench backfill and resurfacing shall comply with the requirements of these agencies as well as the requirements of these specifications. If permits must be obtained or bonds posted before entering these rights-of-way, the Contractor shall obtain and pay for such permits and bonds.

1103.23 Access Road. The Contractor shall construct a paved access road over all new water pipe mains constructed in easements.

The access road shall conform to the City Detail Plans, the City of Petaluma's Street Construction Detail Specification No. 41 and to these specifications.

The access road shall be eight (8') feet wide (centered over the watermain) with two (2") inches of asphalt concrete on six (6") inches of Class 2 aggregate base, three-quarter (3/4") inch maximum grading. The subgrade shall be prepared as required in the No. 41 Detail Specifications. Asphalt and aggregate shall conform with the No. 41 Detail Specifications.

The finished grade of the access road shall be even (flush) with the existing natural ground surface prior to the installation of the water pipe.

1103.24 Traffic Control. Traffic control shall conform with Section 7-1.08 "Public Convenience" and Section 7-1.09 "Public Safety" of the State of California Standard Specifications dated July 1984; with the City General Provisions; and, with these Detail Specifications.

All costs including flagging shall be borne by the Contractor. The Contractor shall provide safe passage for vehicular and pedestrian traffic through the work at all times.

Traffic on two (2) lane streets may be reduced to one (1) lane and traffic on three (3) or more lanes may be reduced to two (2) lanes provided that, with all restriction of traffic flow, the Contractor shall furnish flagmen, cones, signs and barricades as required by the Engineer and shall permit the traffic equal flow time in each direction.

a. Public Access. Access to public and private buildings, businesses and driveways shall be maintained by the Contractor. The Contractor shall provide approved metal "bridge" or temporary backfill for access when and where required within one-half (1/2) hour after request by the Inspector except that emergency vehicles and personnel shall be provided immediate access at all times.

b. Notification. The Contractor shall notify the property occupant at least twenty-four (24) hours in advance of the trenching across their driveway.

1103.25 Procedure for Testing and Acceptance of Water Mains.

1. All material, workmanship and construction details shall conform to the City of Petaluma's, "Water Main Installation Detail Specification No. 11", dated 6/92, including all addenda, standard plan revisions and special provisions.

2. 24 hour notice required for all inspections.

3. Only City Water Utility personnel shall operate valves on existing water mains or water services.

4. Install water main on-site including backfill, water services, fire hydrants, blow-offs and air reliefs.

5. Install temporary "bridge" set-up, per City specifications, (see Detail), between existing and new water systems.

6. The hydrostatic test shall be performed after placement of the final aggregate base section. This test shall be at the pressure required by City specifications and shall be witnessed by the City's authorized representative.

7. Chlorinization of the pipeline may be done in conjunction with the hydrostatic test. Treated water shall be retained in the pipe for a period of at least 24 hours.

8. Following chlorination, all treated water shall be thoroughly flushed from the system. It shall be the responsibility of the contractor to dispose of the treated water in an appropriate manner. Under no circumstances shall highly chlorinated water be flushed into the public storm drain system.

9. Chlorine residual and bacteriological tests shall be taken at least 24 hours after the completion of flushing.

10. Bacteriological tests shall be scheduled by the City, with the number and location of the tests to be determined by the inspector. The City shall pay for all passing tests. The contractor will be responsible for the costs of all failing tests.

    Should the initial treatment, in the opinion of the Inspector, prove ineffective, the chlorinization procedure shall be repeated until confirmed tests show that the water sampled from the newly laid pipe conforms to City requirements.

11. Water main tie-ins shall be made only after the specific approval of the bacteriological tests by the Inspector. The contractor shall notify the City Water Department and any affected customers 24 hours prior to individual mainline shutdowns required to facilitate the tie-in operations. All shutdowns and valve turning operations shall be performed by City Water Utility personnel only. During the tie-in, the contractor shall exercise all necessary precautions to prevent the entrance of trench water or any other foreign material into the existing water main and shall conduct all operations in accordance with the most stringent sanitation practices.

Thomas S. Hargis, P.E.
Director of Engineering

Jclwm

# WATER MAIN TESTING APPROVAL FORM

PROJECT NAME, LOCATION: _____

DATE: _____

INSPECTOR: _____

HYDROSTATIC TEST DATE: _____

TEST PRESSURE: _____

TEST DURATION: _____

ACCEPTANCE: _____

REJECTION: _____

BACTERIOLOGICAL TEST DATE: _____

SAMPLE LOCATIONS: _____

_____

TESTING LABORATORY: _____

ACCEPTANCE: _____

REJECTION: _____

RETEST DATE: _____

NOTES: _____

_____

_____

ACCEPTANCE SIGNATURES:

_____ _____

Public Works Inspector Water System Superintendent

xc: All Dept. Heads
cm de acm/salmons
risk wss pwi file

## METHOD OF MEASUREMENT

1104.1 Water Main. Water main shall be measured horizontally by the linear foot through valves and fittings. Pipe for fire hydrant runs shall not be measured as water mains.

1104.2 Gate Valve Assemblies. Gate valve assemblies shall each be measured as one complete installed unit in operable condition including gate valve, anchor block, and valve box.

1104.3 Fire Hydrants. Fire hydrants shall each be measured as one complete installed unit in operable condition, including hydrant, break-off riser, break-off check valve if specified, bury, thrust block and piping from main to bury.

1104.4 Air Relief, Blow-off Assemblies. Air relief and blow-off assemblies shall each be measured as one complete installed unit in operable condition including valve box, curb stop, copper tubing, corporation stop, service clamp, and any other necessary fittings.

1104.5 Fittings for Water Main. Fittings for water main shall be included in the unit price bid for water main.

1104.6 Trench Surfacing. The surfacing over mains, fire hydrant runs, and stubouts shall be measured by the linear foot on the pavement along the centerline of the trench.

## BASIS OF PAYMENT

1105.1 Water Main. The contract price per linear foot for water main shall constitute full compensation for all labor, materials, including fittings and tests necessary to furnish and install the pipe in accordance with the drawings and specifications.

1105.2 Gate Valve Assemblies. The contract price each for gate valve assemblies shall constitute full compensation for all work and materials including gate valve, anchor block, and valve box necessary to complete installation of gate valves as shown on the plans and herein specified.

1105.3 Fire Hydrants. The contract price each for fire hydrants shall constitute full compensation for all work and materials including hydrant, break-off riser, break-off check valve if required, bury, thrust block and piping from main to bury necessary to complete installation of fire hydrants as shown on the plans and herein specified.

1105.4 Air Relief, Blow-off Assemblies. The contract price each for air relief and blow-off assemblies shall constitute full compensation for all work and materials including valve box, curb stop, copper tubing, corporation stop, service clamp and any other fittings necessary to complete installation of the air relief and blow-off assemblies as shown on the plans and herein specified.

1105.5 Trench Surfacing. The contract price per linear foot for trench surfacing shall constitute full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved for preparing subgrade and constructing trench surfacing, complete in place,

as shown on the plans, as specified herein, and as directed by the Engineer.

1105.6 Estimated Quantities. Estimated quantities are intended to indicate the approximate magnitude of the work to serve as an equitable basis for award of the contract. The actual work performed will be used to compute the total amount due.

detail1

City of Petaluma
Petaluma, California

# SANITARY SEWER INSTALLATION

## DETAIL SPECIFICATION NO. 21

## DESCRIPTION

2101.1 Description. The work shall consist of furnishing and installing sewer mains, manholes, laterals, fittings, and appurtenances and testing, flushing and cleaning the same in accordance with the plans and these specifications. The end result being a complete project ready for use.

## MATERIALS

2102.1 Vitrified Clay Pipe. Vitrified clay pipe and fittings shall be bell and spigot, unglazed, extra strength, conforming to ASTM C200-65T, as amended to date.

2102.1B Asbestos Cement Pipe. Six (6") inch and eight (8") inch Asbestos cement pipe shall be Type II, Strength Class 2400 minimum, conforming to ASTM C428-70 as amended to date. Ten (10") inch and larger Asbestos cement pipe shall be Type II, Strength Class 2400 minimum, conforming to ASTM C428-70 as amended to date and shall be lined with an epoxy plastic in accordance with Criteria C-7 of the National Sanitation Foundation entitled, "Plastic Lines Asbestos Cement Pipe and Couplings for Sewers". The epoxy lining is not required in sewers that serve only residential areas and have design flow velocities of two (2') feet per second or higher.

2102.2 Vitrified Clay Pipe Joints. Vitrified clay pipe joints shall be of the resilient preformed type conforming to ASTM C425-66T, as amended to date.

2102.2A ACRYLONTRILE-BUTADIENE-STYRENE. A.B.S. Pipe and fittings of diameters less than eight (8") inches shall be in accordance with ASTM D-2751, SDR-23.5, (or less). Pipe and fittings of diameters eight (8") inches or greater shall comply with ASTM D-2680.

When measured in accordance ASTM D-2412 at five (5%) percent deflection, the minimum pipe stiffness shall be:

150 psi for pipe manufactured to ASTM D-2751
200 psi for pipe manufactured to ASTM D-2680

Solvent welded jointing of ABS pipe shall be in accordance with the manufacturer's recommendations.

2102.2B Ductile Iron Pipe. Ductile iron pipe used as sanitary sewer shall be Class 50 and shall conform with City of Petaluma Water Main Installation Detail Specification No. 11 except that the pipe inside lining shall be as follows:

Six (6") inch and eight (8") inch ductile iron pipe for sanitary sewers in only residential areas shall have an inside coating of type V Cement mortar a minimum of one-sixteenth (1/16") inch thick and a petroleum asphaltic material a minimum of three (3) mil. thick over the cement mortar both conforming to the requirements of ANSI/AWWA C104/A21.4-80. Ten (10") inch and larger ductile iron pipe used for sanitary sewer in any area and all other ductile pipe regardless of size used in industrial areas shall have an inside coating of polyethylene material a minimum of 40 mil (0.040) thickness. The lining shall be a blend of high density and low density polyethylene powders complying with ASTM D 1248 compounded with an inert filler and carbon black to provide resistance to ultraviolet rays during storage above ground. The pipe shall be preheated in a furnace (to insure uniformity of heat distribution) to an adequate temperature to provide uniform fusing of the polyethylene powders and proper bonding to the ductile iron pipe. Polyethylene lined pipe shall be U.S. Pipe's "polylined" pipe or approved equal.

2102.2C Polyvinyl Chloride (PVC) Sewer Pipe and Fittings: PVC shall conform with ASTM D3034 SDR35 Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings or ASTM F949 Poly (vinyl chloride) (PVC) Corrugated Sewer Pipe with Smooth Interior and Fittings except that service bends shall be long radius sweeps. Bends shown on Table 3 "Laying Lengths of Long Ben Fittings (min)" of ASTM D3034 shall not be used for PVC service sweeps. PVC sweeps shall have a minimum radius of 36 inches. PVC shall have a uniform minimum "Pipe Stiffness" (F/ Y=46 PSI). PVC pipe dimensions shall conform with ASTM D3034 Table 1, or ASTM F949 Table 1.

PVC SDR35 sewer pipe and fittings shall be "ring-tyte" as manufactured by J-M Pipe, "Fluid-Tite" as manufactured by Certainteed or equal.

Minimum wall thickness shall be as follows:

| Nominal Diameter | 4" | 6" | 8" | 10" | 12" |
|---|---|---|---|---|---|
| Minimum Wall Thickness | 0.125" | 0.180" | 0.240" | 0.300" | 0.310" |

PVC Joints. PVC sewer pipe and fittings shall have bell and spigot type joints with elastometric sealing rings all in conformance with ASTM D3212 Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals. Rubber sealing gaskets shall meet the requirements of ASTM designation D-1869. No solvent cement joints will be permitted by Contractor.

Deflection. Maximum allowable deflection for PVC sewer pipe shall be five (5%) percent of the average inside pipe diameter. Deflection shall be measured after trench backfill is in place and compacted and after aggregate subbase (if specified) but prior to installation of aggregate base and/or asphalt concrete.

Mandrel Test. Installed PVC sewer pipe deflection shall be checked in accordance with Clause 2103.10B Mandrel Test of the No. 21 Detail Specifications except that maximum allowable deflection shall be five (5%) percent in lieu of four (4%) percent and the Mandrel shall be ninety-five (95%) percent of the specified average inside pipe diameter in lieu of ninety-six (96%) percent.

2102.3 Precast Reinforced Concrete Manhole Sections. Precast manhole sections shall conform with the plans and with ASTM C478-68 as amended to date. Manhole cones shall be the concentric type unless otherwise shown on the plans or required by the Special Provisions. Manholes shall be constructed without steps. A minimum of eighteen (18") inches and a maximum of twenty-four (24") inches total depth of three (3") inch and six (6") inch grade rings, as shown on the standard drawings, shall be required on all manholes unless otherwise required by the Special Provisions or contract plans.

2102.4 Castings. Castings for manhole ring, cover and other purposes, shall conform accurately to the form and dimensions shown on the detailed drawings. Castings must be of workmanlike finish, free from blow and sand holes or defects of any kind, and shall be made from a superior quality of tough even-grained gray iron and shall posses a tensile strength of not less than twenty thousand (20,000) pounds per square inch.

Before leaving the foundry they shall be thoroughly cleaned and coated by dipping in asphalt applied at a temperature of three hundred (300°) degrees Fahrenheit in such a manner as to provide a firm, durable, tenacious coating.

2102.5 Portland Cement. Portland Cement shall conform to ASTM designation C150-67, Type II.

2102.6 Portland Cement Concrete. Portland Cement Concrete for manhole bases shall conform to the requirements of Section 90 of the Standard Specifications current revision and as herein specified.

The concrete shall be Class "A" containing six (6) sacks of Portland Cement per cubic yard of concrete. The grading of the combined aggregate shall conform with the requirements for one and one-half (1 1/2") inch maximum. The consistency of the fresh concrete shall be such that the slump does not exceed four (4") inches as determined by Test Method No. California 519A or 520. The test method used shall be determined by the Engineer.

2102.7 Mortar. All mortar used in the construction of manholes shall consist of one (1) part Portland Cement and two (2) parts sand, and shall conform to Section 65-1.06A of the Standard Specifications and as herein specified.

2102.8 Select Backfill Material. Select backfill material shall be granular material of the quality herein specified.

Select backfill material shall have a size and a gradation falling within the following limits:

| Sieve Size | % Passing Sieve |
|---|---|
| 1" | 100 |
| 3/4" | 90 to 100 |
| No. 4 | 35 to 55 |
| No. 30 | 10 to 30 |
| No. 200 | 3 to 9 |

The material shall compact to a relative compaction of ninety (90%) percent. The relative compaction is that determined by Test Method No. California 216. The material shall have a minimum sand equivalent value of twenty-five (25) as determined by the test method currently in use by the California Division of Highways.

The in-place density and moisture of soils and aggregates may be determined by the use of nuclear methods and the area concept as per Test Method No. California 231 with the following conditions. The text maximum density shall be determined as specified in Part II of Test Method No. California 216. A minimum of one in-place density test using the sand volume method as prescribed in Part I of Test Method No. California 216 shall be taken to standardize the nuclear gauge for each type of soil or aggregate. After correlation is assured and the equipment standardized, then the nuclear gauge may be used as directed by the Engineer.

## CONSTRUCTION METHODS

2103.1 Handling of Materials. Vitrified clay pipe, fittings, precast concrete manhole sections, and cast iron manhole covers must be carefully handled at all times. Only suitable and proper equipment and appliances shall be used for the safe loading, hauling, unloading, handling and placing of materials. Special care shall be exercised so that the performed resilient joints on pipe and fittings will not be damaged. Any pipe or fitting with a joint damaged or flattened will cause that pipe or fitting to be rejected.

2103.2 Trench Excavation. Any existing pavement over the trench shall be cut, removed and hauled away from the job. Pavement shall be cut as specified in Section 2103.9-C of these specifications. All sewer mains shall be laid in open trench or tunnels and open trench as indicated on the plans or as directed by the Engineer. Trenches having a depth greater than eight (8') feet shall be limited in width at the top of the pipe to the following:

| Pipe | Trench Width |
|---|---|
| 6" | 24" |
| 8" | 27" |
| 10" | 30" |
| 12" | 33" |
| 15" | 36" |

Whenever the maximum allowable trench width is exceeded for any reason, the Contractor shall, at his expense, encase or cradle the pipe in

concrete in a manner satisfactory to the Engineer. In no case shall the free working space on each side of the pipe be less than six (6") inches.

The trench shall be excavated a minimum of four (4") inches below the grade of the bottom of the pipe and sufficient "Select Backfill Material" shall be placed in the trench and tamped to bring the trench bottom up to the grade of the bottom of the pipe. The relative compaction of the tamped material shall not be less than ninety (90%) percent as determined by Test Method No. California 216. It is the intention of these requirements to provide firm, uniform bearing for the pipe.

Material excavated in streets and roadways shall be laid alongside the trench and kept trimmed up so as to cause as little inconvenience as possible to public traffic. All material excavated in streets and roadways not required for backfill shall be immediately removed and disposed of by the Contractor. No surplus material shall be placed on private property unless written permission is furnished the Engineer, signed by the owner of the property.

At street crossings or where existing driveways occur on a street, the Contractor shall make provisions for trench crossings at these points, either by means of backfill or temporary bridges, as the Engineer may direct. Free access must be provided to all fire hydrants, water gate valves and private drives. Means shall be provided whereby all storm and waste water can flow uninterrupted in the gutters or drainage channels.

2103.3 Bracing and Shoring. The Contractor's attention is directed to Section 3(f) "Excavation and Trenching Safety" of the General Provisions. Excavation shall be supported as set forth in the rules, orders and regulations of the State of California Division of Industrial Safety. Failure to comply with any of these rules, orders and regulations shall be sufficient cause for the Engineer to immediately suspend all work. Compensation for losses incurred by the Contractor by such an emergency suspension shall not be allowed. The Contractor shall backfill the ditch in a manner such that the removal of the shoring will not disturb the initial backfill.

2103.4 Control of Dust. The Contractor shall at all times keep the streets sufficiently watered and swept of all loose material produced by his operations in order that traffic and construction does not raise an objectionable amount of dust. When directed by the Engineer, the Contractor shall apply a suitable dust palliative to control dust.

2103.5 Control of Waste Water. The Contractor shall furnish, install and operate all necessary equipment to keep trenches reasonably free from water. All water removed from trenches or flushed from pipes shall be disposed of in a manner that will cause no injury to public or private property or cause no nuisance or menace to the public. Under no circumstances will the laying of pipe or the placing of concrete in water be permitted.

2103.6 Pipe Laying. No pipe shall be laid until the Engineer inspects and approves the condition of the bottom of the trench.

Following the preliminary excavation of the trench, cross-bars with vertical slats nailed thereto shall be placed across the trench at intervals not exceeding twenty-five (25') feet. Points shall be set on each vertical slat at some uniform distances above the flow line of the pipe. A fine string line or wire shall then be stretched along a minimum of three of these points and secured. A measuring pole and plumb bob used in connection therewith shall provide the means to shape the bottom of the trench and to lay the pipe accurately to line and grade.

Pipe laying shall proceed upgrade with the spigot ends of bell and spigot pipe pointing in the direction of flow. Each piece shall be laid true to line and grade and in such a manner as to form a close concentric joint with the adjoining pipe and to prevent sudden offsets in the flow line. As the work progresses, the interior of the sewer shall be cleaned of all dirt and debris of every description. Pipe shall not be laid when the condition of the trench or the weather is unsuitable. At times when work is not in progress, open ends of pipe and fittings shall be closed.

Unless otherwise indicated on the drawings or directed by the Engineer, pipe shall be placed on prepared subgrade of imported material at least four (4") inches deep below the barrel of the pipe. The imported material shall be gravel-sand mixture as specified in Section 2102.8 of these specifications and thoroughly compacted to obtain a final density of at least ninety (90%) percent of maximum at optimum moisture as determined by Test Method No. California 216.

As pipe laying proceeds, bell holes shall then be excavated at each joint to facilitate the jointing operations and shall be only of sufficient size for that purpose. In order that bell holes may be properly located, not more than six (6) bell holes shall be excavated ahead of actual pipe laying. Bell holes shall be excavated so that pipe, when laid, will have a uniform bearing under the full length of the pipe to a width of at least sixty (60%) percent of the internal diameter of the pipe.

All A.B.S. pipe entering or leaving a manhole or concrete structures shall have standard flexible water stop gaskets, as supplied by the A.B.S. pipe manufacturer. The gasket shall be installed as recommended by the manufacturer.

2103.6A Trench Bottom Drainage and Stabilization. When additional gravel or crushed rock is required to stabilize a soft, wet or spongy foundation caused by the operations of the Contractor, such gravel or crushed rock shall be furnished at the Contractor's expense.

The Engineer shall be the sole judge of the suitability of the trench bottom and as to the amount of gravel required to stabilize a soft foundation. The Contractor shall remove any soft material and replace it with gravel or crushed rock when ordered to do so by the Engineer.

Gravel or crushed rock shall have a size and gradation falling within the following limits:

| Sieve Size | % Passing Sieve |
|---|---|
| 2" | 100 |
| 1" | 90 - 100 |
| 3/4" | 5 - 30 |
| 3/8" | 5 - 20 |
| No. 200 | 0 - 4 |

2103.7 Backfilling. When jetting, it is important that proper precautions be taken to prevent floating of and damage to the pipe.

2103.7A Initial Backfill. "Select Backfill Material" as specified in Section 2102.8 of these specifications shall be used for initial backfill. After the pipe has been properly laid and inspected, select backfill material shall be placed on both sides and over the pipe to such a depth that after thorough compaction, the final depth shall be at least twelve (12") inches above the top of the pipe. The Contractor shall be wholly responsible for damage to the pipe.

The initial backfill shall be compacted by hand tamping. The use of machine tampers will not be permitted. The initial backfill material shall be hand tamped in layers not exceeding four (4") inches in uncompacted depth. The final depth of compacted initial backfill shall be at least twelve (12") inches above the top of the pipe.

After hand tamping, the relative compaction of the initial backfill material shall be not less than ninety (90%) percent as determined by Test Method No. California 216.

2103.7B Subsequent Backfill. Above the level of the initial backfill, the trench shall be backfilled with structural backfill (excluding pea gravel) as specified in paragraph 19-3.06 Structure Backfill of the State of California, Department of Transportation, Standard Specifications, dated July 1984. Unless otherwise specified in the Special Provisions or certified by an approved soil testing laboratory that the native trench excavated material meets the requirements of structural backfill as stated above - native excavated trench material shall not be used for backfill in any portion of the trench.

The Contractor shall compact by tamping and/or rolling, the backfill material in layers not exceeding eight (8") inches in loose depth, each layer being thoroughly compacted by tamping and/or rolling before succeeding layers are placed. "Stomper" type equipment for compaction shall not be permitted. Vibrating equipment that does not damage the pipe or adjacent facilities may be used for compaction.

Subsequent backfill compacted by tamping and/or rollings shall be free from stones or lumps exceeding three (3") inches in greatest dimension, vegetable matter, or other unsatisfactory material, and shall be compacted to a relative compaction of not less than ninety (90%) percent as determined by Test Method California No. 216, except that within two and one-half (2 1/2') feet of finished permanent surfacing grade the relative compaction shall not be less than ninety-five (95%) percent.

The Contractor will be charged for the cost of all compaction tests where the test results do not meet the above specifications.

If the Contractor elects to compact by tamping and/or rolling the backfill material shall be placed in layers not exceeding eight (8") inches in loose depth, each layer being thoroughly compacted by tamping and/or rolling before succeeding layers are placed. The use of machine tampers, except manually held types, will not be permitted unless authorized by the Engineer.

Where A.B.S. pipe is installed there shall be at least thirty (30") inches of cover over the top of pipe before the trench is wheel-loaded and when hydro-hammering is authorized by the Engineer for trench compaction, there shall be a minimum of four (4') feet of cover over the top of A.B.S. pipe before utilization of the hydro-hammer.

Compaction of subsequent backfill within two and one-half (2 1/2') feet of finished permanent surfacing grade shall be accomplished by tamping and/or rolling as specified above. Jetting will not be permitted within two and one-half (2 1/2') feet of finished permanent surfacing grade.

Subsequent backfill placed by jetting or by tamping and/or rolling shall be free from stones or lumps exceeding three (3") inches in greatest dimension, vegetable matter, or other unsatisfactory material, and shall be compacted to a relative compaction of not less than ninety (90%) percent as determined by Test Method California No. 216, except that within two and one-half (2 1/2') feet of finished permanent surfacing grade the relative compaction shall not be less than ninety-five (95%) percent. The Contractor shall be charged for the cost of all compaction tests where the results do not meet the above specifications.

2103.7C Re-excavation. If the compaction requirements as specified above are not met, the trench shall be re-excavated. Backfill material shall then be compacted by tamping and/or rolling as specified above until the compaction requirements are satisfied.

2103.8 Subgrade Preparation. The finished subgrade immediately prior to placing base material thereon shall have a relative compaction of not less than ninety-five (95%) percent for a depth of two and one-half (2 1/2') feet below finished permanent surfacing grade, as determined by Test Method California No. 216. Mud or other soft or spongy material shall be removed and the space filled with select backfill material and rolled or tamped in layers not exceeding eight (8") inches in thickness until the above relative compaction requirement is satisfied.

Subgrade preparation is not required in unimproved areas where trench surfacing is not required.

2103.9 Trench Surfacing.

2103.9A General. When an unimproved surface is encountered, the trench shall be restored to its original surface.

Where a gravel surface is encountered, it shall be replaced over the width of the trench with Class 2 aggregate base six (6") inches in depth as specified in Section 26 of the Standard Specifications.

Where the existing surface is some type of asphalt or concrete, it shall be restored with a temporary surface followed by a permanent surface as specified herein.

2103.9B Temporary Surfacing. The temporary surfacing shall be Class 2 aggregate base as specified in Section 26 of the Standard Specifications. The aggregate base shall be equal in depth to the existing pavement structural section, but in any case not less than fourteen (14") inches in depth.

The aggregate base shall be brought within one (1") inch of the top of the existing paving and covered with temporary "cold mix" asphalt paving using an MC-250, MC-800 or approved equal. All temporary surfacing shall be installed the same day as backfilling and shall be level with the existing paving.

The Contractor shall maintain the temporary surfacing level with the existing paved surface at all times. All dirt and gravel and debris of any kind shall be removed from City streets by the end of the day. All temporary asphalt shall comply fully with the Bay Area Air Quality Management District's Regulation 8, Rule 15.

Section 302 of Rule 15 prohibits the use of "cut back" asphalt (including MC-70) during the months of April through October in paving material or in paving and maintenance operations. The Contractor shall use only slow-cure (SC) liquid asphalts for temporary trench paving during April through October.

In the event the Contractor does not comply fully with the above requirements, no further excavation will be permitted until the requirements are met.

2103.9C Permanent Surfacing. Permanent surfacing shall not be constructed until the compaction requirements of Section 2103.7 of these specifications are satisfied. The wearing surface for permanent surfacing shall be replaced "in kind", but in no case shall the new surfacing be less than two (2") inches thick for asphalt concrete or less than six (6") inches thick for Portland cement concrete. A permanent surface shall be installed no later than ten (10) calender days from completion of backfill.

2103.9C1 Asphalt Concrete. The existing pavement shall be neatly cut to a depth of two (2") inches and removed to at least five (5") inches outside each side line of the pipe trench to permit proper keying in the restored pavement. The existing pavement cut shall be straight, vertical and with no ragged edges.

The base course for permanent surfacing shall be Class 2 aggregate base as specified in Section 26 of the Standard Specifications. The aggregate

base shall be equal in depth to the existing pavement structural section, but in any case not less than twelve (12") inches in depth.

The wearing surface for permanent surfacing shall be asphalt concrete two (2") inches minimum in depth. The asphalt shall be "Type B Asphalt Concrete" with one-half (1/2") inch maximum, medium grading aggregate conforming to the requirements of Secti · 39 of the Standard Specifications.

2103.9C2 Portland Cement Concrete Paving. The existing pavement shall be neatly sawcut to a minimum depth of two (2") inches and at least five (5") inches outside each side line of the pipe trench to permit proper keying in the restored pavement. The Contractor shall chip along the edge of the existing concrete pavement and remove all loose pieces prior to replacing the wearing surface for permanent surfacing.

The base course for permanent surfacing shall be Class 2 aggregate base as specified in Section 26 of the Standard Specifications. The aggregate base shall be equal in depth to the existing pavement structural section less than six (6") inches, but in any case not less than six (6") inches in depth.

The wearing surface for permanent surfacing shall be Portland Cement Concrete in conformance with Section 90 of the Standard Specifications.

2103.9D Restoration of Existing Facilities. Whenever existing improvements such as pavements, curbs, gutters, sidewalks, driveways, storm drains, sanitary sewers, laterals, utilities, utility services, etc., have been cut or damaged in order to construct sanitary sewers and appurtenances, the backfill shall be thoroughly compacted and all improvements restored to their original condition. The cost of restoring all original improvements shall be concluded in the unit bid price for sanitary sewer pipe and appurtenances and no additional allowance shall be made therefor.

2103.10 Test for Sanitary Sewers. Sewer pipe joints shall be made in strict conformity to specifications and the workmanship on the entire sewerage project (pipe joints, connections, manholes, etc.) and the backfilling of granular material around the pipe shall be such that the entire project shall be so watertight that leakage into the sewer by ground water infiltration shall not exceed 0.026 gallons per minute, per inch diameter, per one thousand (1,000') feet of main line sewer being tested (200 gallons per inch diameter, per mile of main line, per day).

2103.10A Air Test for Sewers. Low pressure air test may be substituted for hydrostatic test at the option of the Contractor.

Prior to air testing, the sewer main shall be cleaned in accordance with Paragraph 2103.11, "Flushing and Cleaning Sewer Lines" of these specifications. Air testing shall conform with the recommendations of the Bay Area Committee on Air Testing by using the formulas and procedure given on Table 7 - "Recommended Procedure for Conducting Acceptance Test" reprinted from "Low Pressure Air Test for Sanitary Sewers" by Roy E. Ramseier and George C. Rick, Journal of Sanitary Engineering Division A.S.C.E. April 1964: "The pipeline shall be

considered acceptable when tested at an average pressure of 3.0 pounds per square inch greater than the average back pressure of any ground water that may submerge the pipe, of: (1) the total rate of air loss from any section tested in its entirety between manhole and cleanout structures does not exceed 2.0 cubic feet per minute, or (2) the section under test does not lose air at a rate greater than 0.003 cubic feet per minute per square foot of internal pipe surface".

Table 7 - "Recommended Procedure for Conducting Acceptance Test" and Fig. 13 - "Nonomgraph for the solution of $K = 0.011d^2 L$; $c = 0.0003882dL$, $tq = K$ divided by C" shall be used to determine the acceptability of the pipe being air tested.

The measure of the infiltration shall be construed to be the leakage out of the pipe line when the lower end is plugged at the manhole and the upper end is filled at a manhole so as to create a hydrostatic head in the line of a minimum four (4') feet above the invert at the lower end of the line. If ground water is encountered, the head above the invert of the pipe at the lower end of the line shall be increased so that the net hydrostatic head shall be a minimum of four (4') feet. The amount of leakage in one hour, measured through a water meter or other convenience device by bringing the water level back up to the starting level at the upper manhole, shall determine the rate of leakage. The Contractor shall furnish and install the necessary and required plugs for the tests. The length of the house connections entering the section of main line being tested shall not be included.

In no case shall the Contractor place the newly constructed sewer in operation without the approval of the Engineer and without an infiltration or leakage test.

In the even that ground water infiltration or leakage exceeds the limits indicated above, the Contractor shall at his expense immediately proceed to make necessary repairs and no further payment shall be allowed nor shall the project be finally accepted until the tests indicate that the entire project meets the above requirements.

The Contractor shall furnish the necessary pumps, labor, equipment and materials and shall assist the Engineer in making tests of the completed sewerage project before the system is placed in operation or connected to other lines.

The Engineer shall designate the length or section of the sewer to be tested and may approve portions or all of the project without testing.

2103.10B Mandrel Test. The maximum allowable deflection for A.B.S. composite and/or A.B.S. solid wall pipe shall be four (4%) percent. Testing for conformance with the deflection limitation of A.B.S. pipe shall be performed by the Contractor, in the presence of the Engineer, by drawing a ridged mandrel through the installed and backfilled pipe, by hand. The mandrel shall have a cross-sectional diameter equal to at least ninety-six (96%) percent of the specified average inside diameter of the pipe being tested and shall have a minimum of nine (9) contact points equally spaced around the circumstances and shall be constructed in such

a manner so as not to damage the pipe being tested. Mandrels shall be subject to approval of the Engineer.

2103.11 Flushing and Cleaning Sewer Lines. After all backfilling and pavement restoring operations have been completed, the Contractor shall flush and clean all sanitary sewer lines in the following manner under the supervision of the Engineer or Inspector:

A heavy rubber ball, such as "Wayne Ball", manufactured by Sidu Company, Long Beach, California, or approved equal, inflated with air, and having an outside diameter equal to the interior diameter of the pipe to be cleaned, shall be furnished by the Contractor. The ball shall be inflated so that it will fit snugly into the sewer line. The ball shall be placed in the last (upper) manhole on the line and water introduced into the manhole back of the ball. The ball shall pass through the pipe with only the pressure of the water behind it. The rate at which the ball is allowed to pass through the pipe shall be controlled by a rope at all times. Debris flushed out ahead of the ball shall be removed at the lower manhole where its presence is evident. This cleaning shall be conducted on each section of pipe installed. Care shall be exercised not to feed the ball too rapidly in order that all debris can be removed at each manhole.

2103.11A Television Inspection. All new sanitary sewer mains are subject to T.V. inspection by the City of Petaluma. Pipe joint separations, low or high spots, cracked or chipped pipe, deflection, improper lateral connections, infiltration, and all other pipe material and/or installation defects shall be corrected by the Contractor.

The Contractor shall not be charged for televising the mains. The T.V. inspection shall be conducted after all new main and lateral work, including backfill and pipe testing, is completed and all street structural section aggregate subbase is in place and compacted but prior to placement of aggregate base and A.C. paving.

The City Engineer shall be given one week written notice by the Contractor for T.V. inspection.

2103.12 Sewer Lateral. Sewer service laterals shall be constructed at the locations and in accordance with the details shown on the plans and in accordance with these specifications. Four (4") inch diameter sewer service laterals for single family residences and six (6") inch sewer service laterals for multiple and commercial dwellings shall be asbestos cement pipe or vitrified clay pipe or A.B.S. solid wall pipe, or PVC. Four (4") inch and six (6") inch asbestos cement sewer pipe shall be Class 2400, conforming to ASTM C644-69, as amended to date, and shall be assembled in full compliance with the current manufacturer's recommendations. Vitrified clay pipe and fittings shall be extra-strength, unglazed bell and spigot pipe conforming to the ASTM C200-66T, as amended to date, and shall be assembled in full compliance with the current manufacturer's recommendations. The vitrified clay pipe joints shall be of the resilient performed type conforming to ASTM C425-66T, as amended to date. Four (4") inch and six (6") inch A.B.S. sewer pipe shall comply with ASTM D-2751, SDR 23.5 or less

with a maximum of four (4%) percent deflection. PVC sewer laterals shall conform with the same specifications as the main PVC pipe as specified above. All PVC service bends shall be long radius sweeps (R-36" min).

All new sanitary sewer laterals shall connect to new sanitary sewer mains by means of 1/8 bends and wyes.

All sanitary sewer 1/8 bens (except ductile iron) shall be "long radius sweeps". Short radius or mitered bends shall not be permitted.

2103.12A Ductile Iron Sewer Laterals: Ductile iron pipe used as sanitary laterals shall be Class 51 in conformance with paragraph 2102.2B Ductile Iron pipe of this addendum. Laterals in only residential areas shall have cement mortar and petroleum asphaltic material lining but laterals in industrial areas shall have polyethylene lining as described in 2102.2B of this addendum. Sewer lateral fittings shall be (wyes, bends and plugs) cast or ductile iron in conformance with Detail No. 11 Specifications.

2103.13 Sewer Clean Outs. The street clean outs shall be constructed at the locations and in conformance to the details shown on the plan.

2103.14 Connection to Existing Sewer Main. Sewer lateral taps to existing asbestos cement sewer mains shall be either four (4") inch or six (6") inch "T" nipples secured in the proper orientation to the sewer main by epoxy base grouting and packing material for sewer construction. Said grouting material shall be "Joint Master" as manufactured by Johns-Mansville or an approved equal. Spacing between nipples shall not be less than three (3') feet. Tapping of A.C. sewer mains shall be done by the use of a Marchant Pilot or approved equal tapping machine. The epoxy grouting shall be allowed to cure at least six (6) hours before connecting the service lateral and/or before backfilling the trench.

Four (4") inch or six (6") inch service connections to existing six (6") inch and eight (8") inch vitrified clay mains shall be made by installing a vitrified clay wye into the main line using calder couplings at the joints. Where the flow in six (6") inch or eight (8") inch mains is excessive (in the opinion of the Engineer) or on mains larger than eight (8") inches, the main shall be tapped or drilled with an approved machine and fitted with an approved saddle or fitting such as a "Tap-tite" fitting as manufactured and installed by the Tap-tite Company of Oakland, California, or approved equal.

Four (4") inch or six (6") inch services connection to existing A.B.S. mains shall be made in conformance with the A.B.S. manufacturer's recommendations using A.B.S. fittings by installing mainline wyes or solvent welded saddle wyes.

2103.15 Access Road. The Contractor shall construct a paved access road over all new sanitary sewer pipe mains constructed in easements.

The access road shall conform to the City Detail Plans, the City of Petaluma's Street Construction Detail Specification No. 41 and to these specifications.

The access road shall be eight (8') feet wide (centered over the sewer main) with two (2") inches of asphalt concrete on six (6") inches of Class 2 aggregate base, three-quarter (3/4") inch maximum grading. The subgrade shall be prepared as required in the No. 41 Detail Specifications. Asphalt and aggregate shall conform with the No. 41 Detail Specifications.

The finished grade of the access road shall be even (flush) with the existing natural ground surface prior to the installation of the sewer pipe.

2103.16 Traffic Control. Traffic control shall conform with Section 7-108 "Public Convenience" and Section 7-1.09 "Public Safety" of the State of California Standard Specifications dated July 1984; with the City General Provisions; and, with these Detail Specifications.

All costs including flagging shall be borne by the Contractor. The Contractor shall provide safe passage for vehicular and pedestrian traffic through the work at all times.

Traffic on two (2) lane streets may be reduced to one (1) lane and traffic on three (3) or more lanes may be reduced to two (2) lanes provided that, with all restriction of traffic flow, the Contractor shall furnish flagmen, cones, signs and barricades as required by the Engineer and shall permit the traffic equal flow time in each direction.

a. Public Access - Access to public and private buildings, businesses and driveways shall be maintained by the Contractor. The Contractor shall provide approved metal "bridge" or temporary backfill for access when and where required within one-half (1/2) hour after request by the Inspector except that emergency vehicles and personnel shall be provided immediate access at all times.

b. Notification - The Contractor shall notify the property occupant at least twenty-four hours in advance of the trenching across their driveway.

## METHOD OF MEASUREMENT

2104.1 Sewers. Sewers shall be measured horizontally from the centerline of one manhole to the centerline of the next manhole or cleanout.

2104.2 Sewer Lateral. Lateral sewers shall be measured horizontally from the centerline of the main sewer to the end of the lateral. If the Special Provisions indicate the measurement of sewer laterals as a unit then the measurement shall be one complete installed unit as shown on the plans.

2104.3 Manholes. Manholes shall be measured as one complete installed unit including base, precast sections, ring and cover.

2104.4 Sewer Clean Out. The street cleanouts shall be measured as one complete installed unit, including all concrete backing, riser sections, frame and lid.

## BASIS OF PAYMENT

2105.1 Sewer Main. The price per linear foot of sewer main shall include all wye branches and connections shown on the drawing and all labor, materials and pipe necessary to excavate the trench, bed place and joint the pipe, backfill the trench, and all other work necessary to produce a complete and finished job in accordance with the drawings and specifications.

2105.2 Sewer Lateral. The price per linear foot of sewer lateral shall include 1/8 bends, connections to mainline sewers, and all labor, materials and pipe necessary to excavate the trench, bed, place and joint the pipe, backfill the trench and all other work necessary to produce a complete and finished job in accordance with the drawings and specifications. If specified as a complete installed unit, then the contract price per each sewer service shall include full compensation for all cost necessary and incidental to furnishing and installing a sewer lateral, including connection to existing or new sewer main, 1/8 bends, pipe fittings, drawings and specifications.

2105.3 Standard Manhole. The contract unit price per each "Standard Manhole" shall include full compensation for all costs necessary and incidental to furnishing and installing a manhole complete, as herein specified and detailed on the drawings.

2105.4 Trench Surfacing. The contract price per linear foot for trench surfacing shall constitute full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved for preparing subgrade and constructing trench surfacing, complete in place, as shown on the plans, as specified herein, and as directed by the Engineer.

2105.5 Estimated Quantities. Estimated quantities are intended to indicate the approximate magnitude of the work and to serve as an equitable basis for award of the contract. The actual work performed will be used to compute the total amount due.

detail21

Revised 4/92

City of Petaluma
Petaluma, California

# STORM DRAIN INSTALLATION DETAIL SPECIFICATIONS NO. 31

## Description

3101.1 Description. The work shall include the furnishing of all material, labor, tools, implements, and equipment necessary to construct the storm drains, drop inlets, and manholes, complete and ready to operate; all construction to be in accordance with the details shown on the plans and with these specifications.

## Materials

3102.1 Portland Cement Concrete. Portland Cement Concrete shall conform to the requirements of Section 90 of the Standard Specifications and as herein specified. The concrete shall be Class "A" containing size (6) sacks of Portland Cement per cubic yard of concrete. The grading of the combined aggregate shall conform with the requirements for one and one-half (1-1/2) maximum. The consistency of the fresh concrete shall be such that the slump does not exceed four (4") inches as determined by Test Method No. California 519A.

3102.2 Portland Cement. Portland Cement shall conform to ASTM Designation C150.67, Type II, and shall be delivered in the original package with the brand name of the manufacturer plainly marked thereon.

3102.3 Reinforcing Steel. Reinforcing Steel shall be intermediate grade steel of the sizes and spacings called for on the plans. Steel shall meet the requirements of the ASTM Designation A-15-65.

3102.4A Reinforced Concrete Culvert Pipe. The storm sewer shall be constructed in accordance with Section 65-102A of the State Specifications or where called for on the plans shall be centrifugally spun reinforced concrete pipe with self-centering type joints as manufactured by the American Pipe & Construction Company or approved equal. The pipe shall be manufactured in accordance with the design requirements for Class III (unless otherwise indicated on the plans) reinforced concrete pipe, ASTM Designation C76-66T. The wall design shall be at the option of the manufacturer.

3102.4B Cast in Place Concrete Pipe. Cast in place concrete pipe shall conform with Section 63 of the Standard Specifications. After the pipeline has been completed and protected for at least forty-eighty (48) hours and/or the concrete strength reaches one thousand (1000) psi, the subsequent backfill may be installed in accordance with Section 3103.8B of this specifications.

In all cases, the contractor shall be responsible for correcting any damage to cast-in-place concrete pipe caused by premature or excessive loading.

At the option of the contractor, Class III reinforced concrete pipe, conforming to Section 3102.4, may be substituted for cast-in-place concrete pipe. Pipe and installation shall conform to Section 65, "Reinforced Concrete Pipe", of the Standard Specifications, except that backfill shall conform to the provisions under Section 3103.8, "Backfilling", of these specifications. Regardless of which optional material the contractor selects, pipe laid at the locations shown on the plans for cast-in-place concrete pipe will be paid for at the contract price per linear foot for cast-in-place concrete pipe, which includes payment for excavation and backfill, as provided under Section 3103.13A, "Payment", of these provisions.

3102.4C Asbestos Cement Pipe. The storm sewer shall be constructed with asbestos cement pipe culvert conforming to Section 64-1.02 and 64-1.03 of the January 1973 Standard Specifications of the Department of Public Works Division of Highways, State of California. The asbestos cement pipe shall be Class III, unless shown otherwise on the plans or specified in the Special Provisions and designated in the contract item. Section 3103.7 of these specifications shall not apply when asbestos cement pipe is used in a storm drain culvert.

3102.4D Corrugated Aluminum Pipe. The storm sewer shall be constructed with corrugated aluminum pipe conforming to Section 66-2 of the January, 1973, Standard Specifications of the Department of Public Works, Division of Highways, State of California. The pipe shall be either riveted or spirally corrugated.

The gauges shall be in accordance with the U.S. Department of Transportation, Federal Highway Administration, Bureau of Public Roads, 1970 revision, titled, "Corrugated Metal Pipe-Structure Design Criteria & Recommended Installation Practice". Fill Height Table 8 for circular pipe and Fill Height Table 14 for arch pipe.

3102.4E Corrugated Polyethylene Pipe. The storm sewer pipe shall be constructed of high density polyethylene (HDPE) in conformance with AASHTO Specifications M-294 latest addition, nominal diameters 15" through 36".

Minimum pipe stiffness at 5% deflection per ASTM D-2412 shall be as follows:

| Diameter | Stiffness |
|---|---|
| 15" | 42 |
| 18" | 40 |
| 24" | 34 |
| 30" | 28 |
| 36 | 22 |

The HDPE storm pipe shall have outer corrugation with smooth inner liner. The Mannings "n" factor for the interior of the pipe shall be a minimum of 0.012.

Minimum allowable cover shall be 24" to finish grade. Maximum cover shall be in accordance with the HDPE pipe manufacturer's recommendations. Pipe shall be N-12 as manufactured by Advanced Drainage Systems, Inc., or equal.

Joints

Pipe joints for the HDPE corrugated storm drain shall be split couplings with nylon ties. Couplings shall be N-12 as manufactured by Advanced Drainage Systems, Inc., or equal. Pipe and coupling shall be by the same manufacturer.

3102.5 Reinforced Concrete Manhole Sections. These sections shall conform to size, shape and details shown on the plans. Pipe sections shall conform to ASTM Specification C76-66T, Class II. A minimum of one cage of reinforcing is required, the cross-sectional area of which is equal to that specified for the inner cage of the above ASTM Specification.

3102.6 Castings. Castings for manhole rings, cover and other purposes, shall conform accurately to the form and dimensions shown on the detailed drawings. Castings must be of workmanlike finish, free from blow and sandholes or defects of any kind, and shall be made from a superior quality of tough even-grained gray iron, and shall possess a tensile strength of not less than twenty thousand (20,000) pounds per square inch.

Before leaving the foundry, they shall be thoroughly cleaned and coated by dipping in asphalt applied at a temperature of three hundred (300) degrees Fahrenheit in such a manner as to provide a firm, durable, tenacious coating.

3102.7 Mortar. All mortar used in the construction of pipe joints and manholes shall consist of one (1) part by volume of Portland Cement and two (2) parts by volume of clean sand, and shall otherwise conform to Section 65-1.06A of the Standard Specifications.

3102.8 Select Backfill Material. Select backfill shall be granular material of the quality herein specified. Select backfill material shall have a size and gradation falling within the following limits:

| Sieve Size | % Passing Sieve |
|---|---|
| 1" | 100 |
| 3/4" | 90 to 100 |
| No. 4 | 35 to 55 |
| No. 30 | 10 to 30 |
| No. 200 | 2 to 9 |

The material shall compact to a relative compaction of ninety (90) percent. The relative compaction is that determined by Test Method No. California 216 Materials and Research Department, California Division of Highways. The material shall have a minimum sand equivalent value of twenty-five (25) as determined by the test method currently in use by the California Division of Highways.

The in-place density and moisture of solid and aggregates may be determined by the use of nuclear methods and the area concept as per Test Method No. California 231 with the following conditions. The test maximum density shall

be determined as specified in Part II of Test Method No. California 216. A minimum of one in-place density test using the sand volume method as prescribed in Part I of Test Method No. California 216 shall be taken to standardize the nuclear gauge for each type of soil or aggregate. After correlation is assured and the equipment standardized then the nuclear gauge may be used as directed by the Engineer.

## Construction Methods

3103.1 Trench Excavation: Trench excavation shall include the removal of all materials or obstructions of any nature, the installation and removal of all sheeting and bracing and the control of water, necessary to construct the work as shown. Unless otherwise indicated on the drawings or permitted by the Engineer, excavation for storm drains shall be by open cut. Trenching machines may be used, except where their use will result in damage to existing facilities. Trenches shall be excavated to the line and grade shown on the plans.

3103.2 Trench Width. The maximum allowable width of trench measured at the top of the pipe shall be the outside diameter of the pipe exclusive of bells and collars, plus twenty-four (24) inches, and such maximum width shall be inclusive of all trench timbers. Minimum width of trench shall be outside diameter, plus eighteen (18) inches. Whenever the maximum allowable trench width is exceeded for any reason, the contractor shall, at his expense, embed or cradle the pipe in concrete in a manner satisfactory to the Engineer.

3103.3 Bracing & Shoring. The contractor's attention is directed to Section 3(f), "Excavation and Trenching Safely", of the General Provisions. Excavation shall be supported as set forth in the rules, orders and regulations of the California Industrial Accident Commission. Failure to comply with any of these rules, orders and regulations shall be sufficient cause for the Engineer to immediately suspend all work. Compensation for losses incurred by the contractor by such an emergency suspension shall not be allowed. During backfilling the bottom of the shoring shall be kept above the level of the backfill at all times.

3103.4 Control of Water. The contractor shall furnish, install and operate all necessary machinery, pumps and equipment to keep excavations reasonably free from water during construction, and shall dispose of the water so as not to cause injury to public or private property, or to cause a nuisance or a menace to the public. He shall at all times have on hand sufficient pumping equipment and machinery in good working condition for all ordinary emergencies and shall have available at all times competent mechanics for the operation of all pumping equipment. During pouring of concrete and until concrete has set hard, excavations shall be kept free of water.

3103.4A Trench Bottom Drainage & Stabilization. When additional gravel or crushed rock are required to stabilize a soft, wet or spongy foundation caused by the operations of the contractor, such gravel or crushed rock shall be furnished at the contractor's expense.

The Engineer shall be the sole judge of the suitability of the trench bottom and as to the amount of gravel required to stabilize a soft foundation. The

contractor shall remove any soft material and replace it with gravel or crushed rock when ordered to do so by the Engineer.

Gravel or crushed rock shall have a size and gradation falling within the following limits:

| Sieve Size | % Passing Sieve |
|---|---|
| 2" | 100 |
| 1 1/2" | 90 to 100 |
| 3/4" | 5 to 30 |
| 3/8" | 5 to 20 |
| No. 200 | 0 to 4 |

Payment for trench bottom drainage and stabilization shall be made at the contract unit price bid per ton of gravel or crushed rock in place, complete including excavation and disposal of soft material and dewatering the trench.

3103.5 Disposal of Excess Excavated Material. Arrangements for disposing of excess excavated material shall be made by the contractor. Excavated material suitable for backfilling shall be stored temporarily in such a manner as will facilitate work under the contract and not cause undue inconveniences to property owners along the sewer route.

3103.6 Pipe Laying. No pipe shall be laid until the Engineer inspects and approves the condition of the bottom of the trench. Pipe laying shall proceed upgrade with the tongue ends of tongue and groove pipe pointing in the direction of flow. Each piece shall be laid true to line and grade and in such a manner as to form a close concentric joint with the adjointing pipe and to prevent sudden offsets in the flow line.

As the work progresses, the interior of the storm drain shall be cleared of all dirt and debris of every description. Where clearing after laying is difficult because of small pipe size, a suitable swab or squeegee shall be kept in the pipe and pulled forward past each joint immediately after jointing has been completed. Pipe shall not be laid when the condition of the trench or the weather is unsuitable. At time when work is not in progress, open ends of pipe and fittings shall be closed.

Pipe shall be placed on prepared subgrade of imported material at least four (4) inches deep below the barrel of the pipe. The imported material shall meet the requirements specified herein for "initial backfill" and be thoroughly compacted to obtain a final density of at least ninety (90) percent of maximum at optimum moisture as determined by Test Method No. California 216. After compaction, the bottom of the trench shall be shaped so the pipe, when laid, will have a uniform bearing under the full length of the pipe.

3103.7 Pipe Jointing. Joints in pipes eighteen (18) inches in diameter and smaller shall be made prior to closure by buttering with mortar the joint space of the bell end of the pipe section previously laid. After inserting the spigot, the excess mortar squeezed from the joint shall be removed by an inflated swab or squeegee. Joints in pipe twenty-one (21) inches in diameter and larger shall be made by partially filling the inside joint with mortar after the pipe has been laid and before the initial backfill has been placed. No mortar will be required in the

outside joints of tongue and groove pipe. After the final backfill has been placed and completely compacted by jetting, joints in pipe twenty-one (21) inches in diameter and larger shall be finished by completely filling the inside joint with mortar. Before final acceptance, the joints shall be left smooth without any abrupt rise or drop in the flow line and without any cracks which will permit leakage.

The connecting bands for corrugated aluminum pipe shall conform to the requirements of AASHO M-196.

3103.8 Backfilling.

3103.8A Initial Backfill. "Select Backfill Material" as specified in Section 3102.8 of these specifications shall be used for initial backfill. After the pipe has been properly laid and inspected, select backfill material shall be placed on both sides and over the pipe to such a depth that after thorough compaction, the final depth shall be at least twelve (12) inches above the top of the pipe. The contractor shall be wholly responsible for damage to the pipe.

The initial backfill shall be compacted by hand tamping. The use of machine tampers will not be permitted. The initial backfill material shall be hand tamped in layers not exceeding four (4) inches in uncompacted depth. The final depth of compacted initial backfill shall be at least twelve (12) inches above the top of the pipe.

After handtamping, the relative compaction of the initial backfill material shall be not less than ninety (90) percent as determined by Test Method California No. 216.

3103.8B Subsequent Backfill. Above the level of the initial backfill, the trench shall be backfilled with structural backfill (excluding pea gravel) as specified in Paragraph 19-3.06 Structure Backfill of the State of California, Department of Transportation, Standard Specifications, dated January 1988. Unless otherwise specified in the special provisions or certified by an approved soil testing laboratory that the native trench excavated material meets the requirements of structural backfill as stated above - native excavated trench material shall not be used for backfill in any portion of the trench.

The contractor shall compact by tamping and/or rolling, the backfill material in layers not exceeding eight (8) inches in loose depth, each layer being thoroughly compacted by tamping and/or rolling before succeeding layers are placed. "Stomper" type equipment for compaction shall not be permitted. Vibrating equipment that does not damage the pipe or adjacent facilities may be used for compaction.

Subsequent backfill compacted by tamping and/or rollings shall be free from stones or lumps exceeding three (3) inches in greatest dimension, vegetable matter, or other unsatisfactory material, and shall be compacted to a relative compaction of not less than ninety (90) percent as determined by Test Method No. California 216, except that within two and one-half (2 1/2) feet of finished permanent surfacing grade the relative compaction shall not be less than ninety-five (95) percent. The contractor will be charged for the cost of all compaction tests where the test results do not meet the above specifications.

3103.8C Re-excavation. If the compaction requirements as specified above are not met, the trench shall be re-excavated. Backfill material shall then be compacted by tamping and/or rolling as specified above until the compaction requirements are satisfied.

3103.8D Restoration of Existing Facilities. Whenever existing improvements, such as pavements, curbs, gutters, sidewalks, driveways, storm drains, sanitary sewers, laterals, utilities, utility services, etc., have been cut or damaged in order to construct storm drains and appurtenances, the backfill shall be thoroughly compacted and all improvements restored to their original conditions. The cost of restoring all original improvements shall be included in the unit bid price for storm sewer pipe, or appurtenances, and no additional allowance shall be made therefor.

3103.9 Subgrade Preparation. The finished subgrade immediately prior to placing base material thereon shall have a relative compaction of not less than ninety-five (95) percent, for a depth of two and one-half (2 1/2) feet below finished permanent surfacing grade, as determined by Test Method No. California 216. Mud or other soft or spongy material shall be removed and the space filled with select backfill material and rolled or tamped in layers not exceeding eight (8) inches in thickness until the above relative compaction requirement is satisfied. Subgrade preparation is not required in unimproved areas where trench surfacing is not required.

3103.10 Trench Surfacing.

3103.10A General. Where an unimproved surface is encountered the trench shall be restored to its original surface.

Where a gravel surface is encountered, it shall be replaced over the width of the trench with Class 2 Aggregate Base six (6) inches in depth as specified in Section 26 of the Standard Specifications. Where the existing surface is some type of asphalt concrete, it shall be restored with a temporary surface followed by a permanent surface as specified herein.

3103.10B Temporary Surfacing. The temporary surfacing shall be Class 2 Aggregate Base as specified in Section 26 of the Standard Specifications. The aggregate base shall be equal in depth to the existing pavement structural section, but in any case not less than fourteen (14) inches in depth.

The aggregate base shall be given a penetration treatment as specified in Section 36 of the Standard Specifications. Liquid asphalt used for the treatment shall be grade MC-70 or SC-70. The rate of application of the liquid asphalt shall be the maximum that will, under favorably weather conditions, be completely absorbed by the base material within twenty-four (24) hours from the time of application. A sufficient amount of liquid asphalt shall be applied to bind the aggregate base and prevent raveling. Care shall be taken that no liquid asphalt is applied to the adjoining pavement surface.

All temporary surfacing shall be laid within two (2) days after backfilling. Before the street is opened for traffic, all excess dirt, rock and debris shall be removed and the street surface shall be swept clean. Temporary surfacing shall be maintained constantly so that at no time will there be any mudholes nor shall the surface settle below one (1) inch nor be raised more than one (1) inch from

the existing pavement. All temporary asphalt shall comply fully with the Bay Area Air Quality Management District's Regulation 8, Rule 15.

Section 302 of Rule 15 prohibits the use of "cut back" asphalt (including MC-70) during the months of April through October in paving material or in paving and maintenance operations. The contractor shall use only slow-cure (SC) liquid asphalts for temporary trench paving during April through October.

3103.10C Permanent Surfacing. Permanent surfacing shall not be constructed until the compaction requirements of Section 3103.8 of these specifications are satisfied. The wearing surface for permanent surfacing shall be replaced "in kind", but in no case shall the new surfacing be less than two (2) inches thick for asphalt concrete or less than six (6) inches thick for Portland Cement Concrete. A permanent surface shall be installed no later than ten (10) calender days from completion of backfill.

3103.10C1 Asphalt Concrete. The existing pavement shall be neatly cut to a depth of two (2) inches and removed to at least five (5) inches outside each side line of the pipe trench to permit proper keying in the restored pavement. The existing pavement cut shall be straight, vertical and with no ragged edges.

The base course for permanent surfacing shall be Class 2 aggregate base as specified in Section 26 of the Standard Specifications. The aggregate base shall be equal in depth to the existing pavement structural section, but in any case not less than twelve (12) inches in depth.

The wearing surface for permanent surfacing shall be asphalt concrete two (2) inches minimum in depth. The asphalt concrete shall be "Type B Asphalt Concrete" with one-half (1/2) inch maximum, medium grading aggregate conforming to the requirements of Section 39 of the Standard Specifications.

3103.10C2 Portland Cement Concrete Paving. The existing pavement shall be neatly sawcut to a minimum depth of two (2) inches and at least five (5) inches outside each side line of the pipe trench to permit proper keying in the restored pavement. The contractor shall chip along the edge of the existing concrete pavement and remove all loose pieces prior to replacing the wearing surface for permanent surfacing.

The base course for permanent surfacing shall be Class 2 aggregate base as specified in Section 26 of the Standard Specifications. The aggregate base shall be equal in depth to the existing pavement structural section less six (6) inches, but in any case not less than six (6) inches in depth.

The wearing surface for permanent surfacing shall be Portland Cement Concrete in conformance with Section 90 of the Standard Specifications.

3103.11 Storm Sewer Manholes. Storm manholes shall be reinforced concrete, constructed at the locations shown on the plans and to the form and dimensions shown on the detailed plans.

In the construction of reinforced concrete manholes, joints shall be made in the same manner and sequence as heretofore specified for reinforced concrete pipe, tongue and groove jointed.

The storm sewer pipe shall be carried through the manhole structure and the concrete base of the manhole shall be constructed around the pipe. The top of the pipe shall be broken out flush with the inside of the manhole wall and top of platform. Pipe stubs for main and lateral sewers shall be built into the structure as shown on the plans.

3103.12 Drop Inlets. Drop inlets shall be constructed to the lines and grades shown on the plans and in accordance with the provisions of Sections 51 and 70 of the Standard Specifications as herein modified. Inlet boxes shall conform to "Type A Inlets" as detailed on the plans, or as otherwise specified.

The floor and the walls of the inlet box may be poured monolithically using Class "A" Concrete. "Ordinary Surface Finish" shall be applied to all the inside surfaces of the box. No concrete shall be poured when subgrade is excessively wet. The interior of the box shall be kept free of dirt, excess mortar and other foreign materials and shall be left clean at the completion of the inlet lateral.

Backfill around the completed drop inlet shall be thoroughly tamped into place by use of pneumatic tamper where possible, or other means approved by the Engineer. The relative compaction shall be ninety-five (95) percent.

3103.13 Payment.

3103.13A Storm Sewer Pipe. Quantities for payment shall be made by measuring horizontally along the centerline of the storm drain less the design distance between the ends of the pipe in manholes through which the pipe does not pass. Whenever split pipe is required through a manhole, such pipe shall be included in the measurement.

The contract unit price per linear foot for reinforced concrete pipe or cast-in-place concrete pipe shall include full compensation for all costs necessary and incidental to the complete installation of the concrete pipe storm sewer of the designated size and class, as specified herein and as designated on the plans.

3103.13B Storm Sewer Manholes. The contract unit price per each for "Storm Sewer Manholes" of the applicable diameter, four (4) feet or five (5) feet shall include full compensation for all costs necessary and incidental to furnishing and installing a storm sewer manhole complete including excavation, backfill, ring and cover, has herein specified and detailed on the plans. The cost or setting the manhole cover to grade after the asphalt concrete pavement is placed shall not be included in the contract unit price per each for storm sewer manhole, but paid for under asphalt concrete paving.

3103.13C Drop Inlets. The contract unit price for each "Drop Inlet" in place shall include full compensation for furnishing all labor, materials, tools, equipment and performing all work necessary to complete the drop inlet, including backfilling, and no additional allowance will be made.

3103.13D Cast In Place Payment. The contract unit price per linear foot measured along the centerline of the pipe shall include full compensation for the pipe in place including excavation, curing and backfill.

detail31

(Revised 2/16/95)

City of Petaluma
Petaluma, California

# STREET CONSTRUCTION
# DETAIL SPECIFICATION NO. 41

## Description

4101.1 Description. The work to be done consists of furnishing machinery and materials, except as otherwise specified, which are required to construct and complete the work in a good and workmanlike manner, including the removal of any abandoned underground facilities, maintenance of any existing underground utilities, the disposal of excess excavation and final clean-up, to the satisfaction of the Engineer. Reference to the Standard Specifications shall mean the California Department of Transportation, (CALTRANS), July 1992, (or current revision) Standard Specifications.

## Construction Methods

4102.1 Clearing and Grubbing and Concrete Removal. Clearing and grubbing shall consist of removing brush, trees and stumps, fences and all other obstructions to be removed for which a pay item has not been included in the proposal, within the construction limits indicated on the plans, and shall conform to the Division of Highways Standard Specifications, Section 15 and 16, as herein modified.

Attention is directed to Sections 7-1.11, 7-1.12 and 7-1.13, "Preservation of Property," "Responsibility for Damages," and "Disposal of Materials," of the Standard Specifications. Existing improvements, facilities, adjacent property, and trees and shrubbery that are not to be removed shall be protected from injury by the Contractor's operations. The Contractor shall give ample notification to and cooperate during clearing and grubbing operations with public utility companies or others having overhead and/or underground facilities within the limits of work. Existing traffic, directional, and street signs shall be maintained until final relocation after sidewalks are constructed.

Fencing, mail boxes, and signs not removed by property owners prior to this work shall be carefully removed and left for the re-use of the owner. All other materials cleared and/or grubbed shall become the property of the Contractor and shall be disposed of outside the limits of the work at a location to be provided by the Contractor and satisfactory to the Engineer.

Mail boxes that are designated for relocation on the plans shall be moved to the new locations as shown on the plans or as designated by the Engineer. Access, satisfactory to the Post Office Department, shall be maintained at all times to the new locations and to those mail boxes that are not moved.

Property fences which are designated for replacement or relocation shall be constructed at the new locations as designated on the plans or as directed by

the Engineer. Replacement fences shall be of the same quality and design as the original fence fronting the property.

The contract lump sum price for clearing and grubbing and concrete removal shall be full compensation for all costs necessary and incidental to clearing, grubbing and concrete removal, all as specified herein and as shown on the plans. Watering required for processing the work or mixing materials shall be furnished by the Contractor. The cost of water and watering shall be considered included in the various other items of work and no additional allowance will be made therefor.

If required by the Engineer, a dust palliative conforming to Section 18 of the Standard Specifications shall be used for the prevention of dust nuisance. Payment for the binder for dust palliative and all of the work involved in the application shall be considered included in the various other items of work and no additional allowance will be made therefor.

4102.2 Earthwork and Subgrade Preparation for Roadbed. Earthwork and subgrade preparation for roadbed shall consist of performing all operations necessary to prepare a suitable subgrade for roadbed conforming to the applicable provisions of Section 19 of the Standard Specifications, except as modified herein; to excavate all materials from the street right-of-way, roadway prism, or adjacent thereto when shown on the plans or ordered by the Engineer; to excavate all material of whatever nature necessary for construction of foundations for structures and drainage facilities; to excavate trenches for sewers, drainage pipes, water facilities, and electrical facilities; to place backfill around structures and drainage facilities and over underground pipes; to backfill ditches and depressions resulting from the removal of obstructions; to backfill holes, pits and other depressions within the roadway area; to remove unsuitable roadway material and replace with suitable material; to excavate and grade driveway approaches and connections; all as shown on the plans and typical cross sections or directed by the Engineer and as specified; and to furnish all labor, materials, tools and equipment, and do all the work of whatsoever nature which may be required to grade the roadway, curbs, gutters, sidewalks, prepare the roadbed subgrade and maintain them in the form specified until the acceptance of the contract.

All work shall conform to the applicable provisions of Section 19 of the Standard Specifications except as modified herein:

Relative Compaction. Shall conform with Section 19 of the State Standard Specification except as modified herein.

Relative compaction of subgrade in expansive soils shall be a minimum of 92 percent and be between 4 and 6 percentage points above optimum moisture content. Relative compaction of non-expansive soils shall be 95 percent at optimum moisture content.

Expansive soils are herein defined as soils with a "free-swell" of 50 or greater - non-expansive soils 50 or less.

Street Proof Rolling. After the street subgrade has been brought to the proper moisture content, compacted and fine graded, the Contractor shall

furnish subgrade "Proof Rolling" equipment equivalent to an "H-20" wheel load, subject to the approval of the Engineer, and thoroughly "proof-roll" the street subgrade in the presence of and to the satisfaction of the Engineer. Soft or yielding local subgrade spots shall be marked by the Engineer for repair by the Contractor. Subgrade in non-expansive soils shall be "unyielding." Subgrade in expansive soils may have a "temporary blanket yielding" not to exceed one-half (1/2) inch. Subgrade cracking or permanent indentation of wheel tracks shall be unacceptable.

Order of Subgrade Work. Unless otherwise specified in the special provisions, or on the plans, the street subgrade shall be completed and approved within the City right-of-way property line to property line, prior to placement of any aggregate on the subgrade.

Maintenance of Street Subgrade. The specified geometric shape, relative compaction and moisture content of the street subgrade shall be continuously maintained by the contractor and is subject to testing by the Engineer at any time prior to final acceptance of work by the City.

All rocks or solid lumps of material over four (4) inches in greatest dimension shall be broken up and removed from the upper six (6) inches of the graded roadbed and the resulting spaces refilled with approved material.

The cost of excavation, backfill, and subgrade preparation for structures and underground facilities shall be considered included in the contract price paid for the appropriate items of work.

The contract lump sum price for earthwork and subgrade preparation for roadbed shall be full compensation for all costs necessary and incidental to excavating and compacting the roadway prism and preparing the roadbed subgrade all as specified herein and as shown on the plans.

Watering and dust palliative, as specified in Section 4102.1 of these specifications, shall be considered included in the various other items of work and no additional allowance will be made therefore. (For the purpose of these "Detail Specifications," the term "roadbed" is used as defined in Section 1-1.34 of the Standard Specifications.)

4102.3 Aggregate Subbase. Aggregate subbase shall be Class 2 aggregate subbase conforming to the applicable provision of Section 25 of the Standard Specifications, and these special provisions. Test samples of the proposed material shall be taken by the Engineer. Sufficient time shall be provided to permit evaluation of the samples. No material may be placed without approval by the Engineer.

Measurement and Payment. Quantities of aggregate subbase shall be measured and paid for by the square foot unless specified otherwise in the Special Provisions or Bid Schedule.

The contract unit price for aggregate subbase, in place, shall include full compensation for furnishing all materials, labor, equipment, and performing all work necessary, including water and watering, to complete the road subbase as specified and where shown on the plans, and no additional allowance will be made.

4102.4 Aggregate Base. Aggregate base shall be Class 2, three-quarter (3/4) inch maximum, aggregate base conforming to the applicable provisions of Section 26 of the Standard Specifications, and these Detail Specifications.

Measurement and Payment. Quantities of aggregate base shall be measured and paid for by the square foot unless specified otherwise in the Special Provisions or Bid Schedule.

The contract unit price for aggregate base, in place, shall include full compensation for furnishing all materials, labor, equipment, and performing all work necessary including water and watering, to complete the aggregate base as specified and where shown on the plans, and no additional allowance will be made.

4102.5 Plant Mixed Cement Treated Base. Plant mixed cement treated base shall be Class A cement treated base conforming to the applicable provisions of Section 27 of the Standard Specifications.

Test samples of the proposed material shall be taken by the Engineer. Sufficient time shall be provided to permit evaluation of the samples. No material may be placed without approval by the Engineer.

Measurement and Payment. Quantities of plant mixed cement treated base will be measured and paid for at the contract price per square foot.

4102.6 Asphalt Concrete. Asphalt concrete shall be Type A and shall conform to the applicable provisions of Section 39 of the Standard Specifications as herein modified. A Certificate of Compliance from an independent testing laboratory shall be submitted to the Engineering Department for review and approval prior to construction.

The surface course of the asphalt concrete shall consist of one-half (1/2) inch maximum medium grading aggregate. Where the plans show the asphalt concrete surfacing greater than twenty one- hundredths (0.20) feet in thickness, then it shall be placed in more than one lift as per Section 39-6.01 of the Standard Specifications. The base course or courses shall be three-quarter (3/4) inch or if designated by the Engineer, one-half (1/2) inch maximum aggregate and the surface course shall be an eight one-hundredths (0.08) foot minimum thickness of one-half (1/2) inch maximum aggregate. Where the plans show the asphalt concrete surface seventeen one-hundredths (0.17) feet or less in thickness, then the entire section shall consist of one-half (1/2) inch maximum medium grade aggregate.

Asphalt binder shall be steam-refined, paving asphalt having a viscosity grade of AR 4000 conforming to the requirements of Section 92 of the Standard Specifications. A prime coat of liquid asphalt SC-70 shall be applied as directed by the Engineer. As much liquid asphalt shall be applied to the prepared base as will soak in during a twenty-four (24) hour period without puddling.

All asphalt shall comply fully with the Bay Area Air Quality Management District's Regulation 8, Rule 15.

Section 302 of Rule 15 prohibits the use of "MC-70 prime coat during the months of April through October in paving material or in paving and maintenance operations. The Contractor shall use only slow-cure (SC) liquid asphalts for prime coat during April through October."

Paint binder shall be applied to vertical surfaces of concrete gutter and existing surfacing that will come into contact with asphalt concrete. Paint binder shall consist of penetration type asphaltic emulsion in conformity with Section 94 of the Standard Specifications.

The Contractor shall set or reset all existing and new manhole rings and covers, valve boxes and other boxes to grade of the finished surfacing after placing of the surfacing. A Class "A" concrete collar shall be poured around each ring or box as detailed on the plans.

Asphalt concrete shall be spread, compacted and finished with the equipment and methods specified in Section 39 of the Standard Specifications, except that the procedure whereby material is deposited in a windrow, then picked up and placed in the asphalt paver with loading equipment, will not be permitted.

Measurement and Payment. Asphalt concrete shall be measured and paid for by the square foot unless specified otherwise in the Special Provisions or Bid Schedule. The contract unit price for asphalt concrete, in place, shall include full compensation for furnishing all materials, labor, equipment, and performing all work necessary, including the prime coat and paint binder, to complete the asphalt concrete as specified and where shown on the plans, and no additional allowances will be made.

4102.7 Fog Seal Coat. A fog seal coat as specified in Section 37 of the Standard Specifications shall be applied to the finished pavement surface.

The contract lump sum price for mixing type asphaltic emulsion shall be full compensation for all costs necessary and incidental to placing the fog seal coat, including material, labor and equipment, all as specified herein and as shown on the plans.

4102.8 PCC Concrete Curbs, Gutters, Sidewalks, Driveways, Islands, Valley Gutters. Shall conform with Section 73 of the State Standard Specifications as modified herein and shall be as shown on the plans and described on the "City of Petaluma, Department of Public Works, Standard Street Details," Drawing Sheet 1 of 1, current revision.

The Contractor shall adjust all existing and new water meter boxes and any other service castings falling within the limits of work (except existing structures belonging to PG&E and Pacific Bell) to exact grade at the same time the concrete improvements are being constructed and shall maintain these appurtenances to true and exact grade until concrete is thoroughly set. The Contractor shall mark on the face of the curb and location of each sewer lateral with an "S" and each water service with a "W". Letters shall be approximately two and one-half (2-1/2) inches high, neatly stamped while the concrete is still green, and to the Engineer's satisfaction.

PCC - Placement by Extrusion Machine.

Portland Cement Concrete curbs, gutters, sidewalks and driveway approaches may, at the option of the Contractor, be placed using an approved extrusion machine provided:

1. All work shall conform with Section 73 of the State Standard Specifications as modified herein.

2. The PCC curb, gutter, sidewalk and driveway approaches shall conform with "City of Petaluma, Department of Public Works, Standard Street Details," Sheet 1 of 1, Current Revision, plans except as herein modified.

3. The aggregate base or subbase under the curb, gutter, sidewalk and driveway approaches shall be extended to the back of the sidewalk with a minimum thickness of 12 inches, under the sidewalk or driveway approach, compacted to a minimum of 90% relative compaction.

4. Subgrade shall have 95% compaction.

5. No expansion joints will be required.

6. Deep (1-1/2" minimum) transverse score marks shall be made at ends and center of driveways and at a maximum of 10-foot intervals along the sidewalk.

7. Four #4 x 20" reinforcing bar dowels and 4 - #4 bars shall be installed at drop inlet or other "block-out" locations.

8. Four #4 x 20" reinforcing steel dowels shall be placed at the location each placement "cut-off" where placement of PCC curb, gutter and sidewalk is to continue at a later date.

9. Other than as required above, no reinforcing steel, wire mesh or dowels will be required.

10. Concrete shall be 5 1/2 sack 3/4 maximum aggregate graded as required in Paragraph 73-1.01 of the 1984 State Standard Specifications.

Measurement and Payment - Curb and Gutter. Payment for PCC curb and gutter including island curb and gutter measured along and at the face of curb shall be made at the contract unit price per linear foot, in place, and shall be full compensation for furnishing and placing concrete gutter and integral curb, including reinforcing steel (where required) weakened plane and construction joints, "S" and "W" letters and subgrade preparation. Unless stipulated elsewhere in the contract documents, payment for curb and gutter shall also include furnishing, placing and compacting six (6) inches of aggregate base material under the curb and gutter.

Sidewalk, Driveway, PCC Island and Valley Gutter. Payment for sidewalks, driveways, island PCC paving and valley gutters shall be made at

the contract unit price per square foot measured six (6) inches behind face of curb for all but valley gutters which shall be measured from lip of gutter to lip of gutter. Payment shall be full compensation for furnishing and placing PCC sidewalk, driveways, islands and valley gutters complete, in place, and shall include subgrade preparation, reinforcing bars and wire mesh where required, weakened place and construction joints and scoring. Unless stipulated elsewhere in the contract documents, payment for PCC sidewalk, driveways, islands and valley gutters shall also include furnishing, placing and compacting Class 2 aggregate base material under the facility.

4102.9 Redwood Headerboards. Headers shall be installed in locations indicated on drawings, and where specified. All headers shall be held in place with two (2) inch by three (3) inch stakes of lengths necessary to extend a minimum of twelve (12) inches into solid ground. All stakes shall be of sound material, neatly pointed, driven vertically and securely nailed to the headers.

Headers shall have a continuous bearing on undisturbed earth or compacted base rock. The backfill on the unimproved side of the header shall be compacted to the density of the undisturbed adjoining earth.

All headers and stakes shall be of heart structural redwood or dense structural redwood.

Additional stakes and anchorage required to hold the headers in place to true line and grade during construction shall be provided and placed by the Contractor at no extra cost.

The contract unit price per lineal foot for redwood headers, in place, shall include full compensation for furnishing all materials, labor, equipment, and performing all work necessary to complete the headerboards as shown on the plans and as herein specified.

4102.10 Monuments. Standard City monuments shall conform with the "City of Petaluma, Department of Public Works, Standard Street Details" Drawing Sheet 1 of 1, current revision and shall be constructed where shown on the plans and located by the Engineer for the Contractor.

Concrete shall be Class "A" conforming to the provisions of Section 90 of the Standard Specifications. The monument shall be constructed after placing of the asphaltic concrete street surface.

The solid brass monument marker, as shown on the plans, shall be set in the concrete before the concrete begins to set. The Engineer shall stamp the marker for the Contractor.

The contract unit price for each monument, in place, shall include full compensation for furnishing all materials, labor, equipment, and performing all work necessary to complete the monuments, but not including locating and stamping the marker, and no additional allowance will be made.

4102.11 Standard City Street Barricade. Standard City Street Barricade shall be constructed as shown on "City of Petaluma, Department of Public Works, Standard Street Details" Drawing Sheet 1 of 1 current revision.

The contract unit price per lineal foot measured horizontally from end of railing to end of railing shall be full compensation for furnishing and placing the barricade complete in place including the redwood rails, posts, post holes, concrete, reflectors, paint, bolts, nuts, and traffic signs.

4102.12 Signing. Under this item the Contractor shall provide all the necessary equipment, labor and materials required to salvage, relocate and install new street signs and directional signs, complete in accordance with the Plans and as specified herein.

1. Traffic Sign Material

The base metal of all signs shall be new sheet aluminum of alloys 6061-T6 or 5052-H38 conforming to the requirements of ASTM Designation B 209.

Unless otherwise specified by the Engineer, the thickness of all signs shall be .080 inches, except for mast-arm mounted signs which shall be 0.125 inches.

All regulatory and warning signs shall be constructed to the standard size and specifications of the State of California, Department of Transportation. Signs larger than the standard sign may be required or may be granted approval by the Engineer.

All mast-arm mounted street name signs, advance street name signs and street name signs shall be constructed to Caltrans dimensions and specifications or as specified by the Engineer.

The following signs shall be constructed using High Intensity encapsulated lens sheeting and lettering: Stop signs (R1), yield signs (R1-2), keep right signs (R7), no u-turn (R34), stop ahead signs (W17), chevron signs (W81), mast-arm mounted street name signs, advanced street name signs, street name signs and Type N markers. This sheeting and lettering shall hold a minimum warranty of ten (10) years. All other traffic signs shall be high intensity sheeting and lettering.

2. Traffic Signs Installation

Signs shall be placed in a concrete foundation in a fashion as shown on the City Standard Plans. Foundation concrete shall be Class "A". The sign posts sleeves shall have a minimum of two (2) inch clear space between post and native earth to be filled with concrete. Selected signs shall be placed on the street light standards at the designed height.

Signs shall be installed as per these specifications and facing traffic in the lane adjacent to which the sign is installed. "No Parking" signs shall be installed at a 30° angle toward the traveled way. All other signs shall be installed at an angle toward the traveled way. All other signs shall be installed at an angle toward the traveled way per the sign manufacturer's reflective requirements.

Signs in the median area shall be placed midway between curbs. These signs shall be mounted no closer than six (6) inches to, and no farther than six (6) feet from, the edge of the traveled way which the sign faces.

The minimum mounting height for signs shall be seven (7) feet measured from the bottom of the sign to the near edge of the pavement, except as otherwise noted below, or as specifically approved by the Engineer.

The height to the bottom of a secondary sign mounted below a primary sign shall be a minimum of six (6) feet measured from the bottom of the sign to the near edge of the pavement.

In areas not subject to pedestrian traffic, the Chevron (W81) and one way signs (R10) shall be mounted at a height of three (3) feet, measured from the bottom of the sign to the near edge of the pavement.

4102.13 Quality Test. The Contractor will be charged for the cost of all Quality Control Tests - i.e., compaction, sand equivalent, R. value, gradation, etc. - where the test results do not meet the required specifications.

Testing of aggregate bases shall be performed for every 500 cubic yards or one day's production, whichever is smaller. Testing of asphalt concrete shall be performed for every 500 tons or one day's production, whichever is smaller. Testing of Portland Cement Concrete shall be performed for every 300 cubic yards or one day's production, whichever is smaller.

4102.14 Adjusting Utility Structures to Grade. Work includes adjusting to finish grade any and all new or existing manholes, sewer cleanouts, water valve boxes, survey monument boxes, etc., which are included in the contract.

The Contractor shall mark the location of all structures to be adjusted to grade and shall be responsible for the location after paving operations are completed.

After surfacing or resurfacing is completed, the Contractor shall construct or reconstruct the structures to grade as shown on the plans.

Payment for adjusting structures to grade shall be by the unit price bid per each and shall be full compensation for adjusting and furnishing new or salvaging existing manhole frames and covers, water valve boxes, sewer clean out frames and cover, and monument covers.

4102.15 Permanent Surfacing. Permanent surfacing shall not be constructed until the compaction requirements are satisfied. The wearing surface for permanent surfacing shall be replaced "in kind", but in no case shall the new surfacing be less than two (2") inches thick for asphalt concrete or less than six (6") inches thick for Portland cement concrete. A permanent surface shall be installed no later than ten (10) calender days from completion of backfill.

4102.16 Slurry Seal. Slurry seal shall be Type II and shall conform to the provisions in Section 37-2, "Slurry Seal", of the Standard Specifications and these special provisions.

At least five (5) days prior to the slurry seal operation, the Contractor shall hand out written notices to all local residents and/or businesses advising them of the operation and road and/or lane closures. The notices shall include the type of work, limits, date and the time period of road closure and/or no parking. Details of the notice shall be reviewed and approved by Director of Engineering at least five (5) working days prior to posting and/or delivery. "No parking" signs shall be placed behind the curbs at least 48 hours in advance of work and shall include date and time.

The Contractor's failure to comply with the requirements of this section will be sufficient cause for the Engineer to suspend work at no costs to the City.

In addition to providing the mix design, the Contractor shall provide the Engineer with a Certificate of Compliance certifying that the materials meet the specifications.

The Contractor shall replace existing striping and/or pavement markers covered by the slurry operation at the Contractor's expenses.

Slurry seal shall be measured by and paid for per square yard.

Slurry seal shall not be placed when the atmospheric temperature is below 70 degrees F., during unsuitable weather, or after 1:00 p.m.

Before placing the slurry seal, the pavement surface shall be cleaned by sweeping, flushing or other means necessary to remove all loose particles of paving, all dirt and all other extraneous material.

Immediately prior to commencing the slurry seal operations, all surface metal utility covers (including survey monuments) and pavement markers shall be protected with appropriate adhesive and oiled or plastic paper. No adhesive material shall be permitted to cover, seal or fill the joint between the frame and cover of the structure. Covers and markers are to be uncovered and cleaned of slurry material by the end of the same work day.

If necessary, the Contractor may pre-wet the existing surface immediately prior to the application of the slurry seal with water at the rate of 0.05 to 0.10 gallon per square yard of surface as approved by the Engineer.

Detail#1

DEPARTMENT OF WATER
CONSTRUCTION STANDARDS

WATER SERVICES

I. MATERIALS

A. Corporation stops shall be one of the following patterns, complete with coupling nut:

1. McDonald E-4701
2. James Jones J-1500
3. Mueller H-15000
4. Hays 5200

B. Pipe shall be type "K" soft copper tubing. The size and location are as shown on the plans or as directed by the Engineer.

At the contractor's option water service pipe may be flexible plastic tubing conforming with ASTM D2666 and AWWAC902. Plastic service tubing shall be minimum 160 PSI, SDR 13.5 polubutylene PB2110 as manufactured by Wesflex Co., Richmond, CA or approved equal. Only approved brass or copper compression type fittings and stainless steel compression tubes shall be used with plastic tubing.

C. Curb stops shall be the following patterns or approved equal:

1. Mueller H-14270 (3/4" to 2")
2. Mueller H-14280 for dual services where H-15530 bronze 1/4 bends are installed.

D. Meters - Neptune meter Co. - Triden, split case, with standard concrete meter box, size as specified in plans.

E. Meter boxes shall be equal to Brooks Products, Inc., boxes as follows:

2" service - Box #65 with #65-S cover and #65-S lid, or when installed in driveways, a steel cover and #65 cast iron removable lid.

1 1/2" service - Box #38 with #38-S cover and lid, or when installed in driveways, a steel cover and #38 cast iron removal lid.

1" service - Box #37 with one (1) piece cover, or when installed in driveways, #37 - 1 piece cast iron cover.

3/4" service - Box #36 with one (1) piece cover.

F. All service clamps shall have corporation stop threads. All bronze service clamps shall be Smith Blair 321, Rockwell 310 or equal. Ductile iron service clamps shall be Romac hylon covered ductile iron with stainless steel strap, nuts and bolts. Ductile iron castings on service

clamps shall be high tensil ductile (nodular) iron ASTM 536-71 covered by black hylon fused coat approximately 10 - 12 mils thick with approximate dielectric strength of 1000 v/mil. Straps for ductile iron clamps shall be stainless steel band 2" wide. Nuts, bolts and washers shall be stainless steel. Nuts and bolts shall be teflon coated. All welding shall be consistent with corrosion proof joining of stainless steel. All stainless steel shall be Type 304 (18-8) or better.

Gaskets shall be Virgin SBR compounded for water service.

II. CORPORATION STOP INSTALLATION

The water main shall be tapped or the service saddle installed at a position perpendicular to the axis of the main and 45 degrees to the horizontal at a location as nearly opposite of the curb stop location as possible.

A single strap service clamp with corporation stop threads shall be used on all 1" to 1-1/2" services from A.C.P. mains and a double strap service clamp shall be used for 2" services.

The cast iron main shall be tapped with an approved type combination 3/4" or 1" diameter drilling and tapping machine equipped with a Mueller thread tap.

The drill and tap shall be properly lubricated during the drilling and tapping process to insure true, clean cut threads.

Prior to threading the corporation stop into the main, the treads of the stop shall be thoroughly coated with an approved type thread lubricant.

The corporation stop shall be turned to a final position which will prevent any leakage or weeping and which will locate the operating key above the horizontal.

III. INSTALLATION OF COPPER TUBING

Copper tubing shall be installed beneath all sidewalk, curb, gutter and roadway areas by means of boring. In the event that excavation of any sidewalk, curb, gutter or roadway area becomes necessary, all such excavation shall be backfilled with sand, or other approved granular material, and thoroughly water tamped. The use of excavated material for backfill will not be permitted.

In locations where sidewalks are adjacent to the curb the copper tubing shall be located a minimum of 42" below the finished top of sidewalk at the curb line, and 36" below the finished roadway surface at the water main. When the sidewalk is not adjacent to the curb, the tubing shall be located 42" below the top of the curb at the curb line.

The diameter of the drill to be used shall be no larger than is necessary to provide sufficient clearance for the copper tubing.

Prior to inserting the copper tubing the end shall be plugged in a manner that will prevent any material from entering the pipe.

When installing the copper tubing, care shall be taken to prevent kinking, flattening, or in any other way damaging the tubing.

Between the side of the water main trench and the corporation stop an "S" type curve shall be introduced into the tubing in order to provide flexibility between the service and the water main. Extreme care shall be exercised in the bending operation to prevent kinking or flattening the tubing.

## IV. CONNECTION OF COPPER TUBING TO CORPORATION STOP

The coupling on the corporation stop shall be removed and the end of the copper tubing inserted through the stop. The end of the tubing shall be flared by the use of an approved type flaring tool. Care shall be taken to provide a flare which will securely fasten the copper tubing to the stop. Threads on the corporation stop shall be lubricated with an approved type thread lubricant. When the tubing is connected there shall be no strain exerted by the tubing on the corporation stop.

## V. CONNECTION OF COPPER TUBING TO CURB STOP

The copper tubing shall be cut to such a length as will locate the curb stop back of the sidewalk, or back of the curb if sidewalks are not adjacent to the curb. The curb stop shall be connected to the copper tubing in the same manner as outlined in Section IV. When the curb stop has been connected, the operating key shall be upright and the axis through the stop perpendicular to the edge of the sidewalk.

## VI. FLUSHING AND ADJUSTING

When the service has been completely connected, water from the main shall be flushed through the service with the operating key on the corporation and curb stops in a maximum open position.

All connections shall be thoroughly inspected and wiped clean of any dirt or mud in order that any "weeping" may be detected. Any and all leaks must be completely stopped and the Engineer notified before backfilling either end of the service.

## VII. SERVICE TRACER WIRE

Where flexible plastic tubing is used for water services, the contractor shall furnish and install a twelve (12) gauge copper wire in the trench with and adjacent to the service pipe. The end of the wire shall be exposed in the meter box and the other end (metal-to-metal) connected to the tracer wire in the water main trench.

Tracer wire shall be insulated and all splices shall be made (metal-to-metal) with brass mechanical connector.

Flexible plastic water service tubing shall not be used in areas where soils are contaminated with petroleum based products or where the intended use of the site may so contaminate the soil.

watersrv

Notification No. 305-95 THP No. _____

# AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and Jennifer Barrett representing the City of Petaluma, of Petaluma, State of Calif., hereinafter called the operator, is as follows:

WHEREAS, pursuant to Division 2, Chapter 6 of California Fish and Game Code, the operator, on the 14 day of April, 1995, notified the Department that he intends to substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of, the following water: Adobe creek, unnamed creeks, in the County of Sonoma, State of California, S___ T___ R___.

WHEREAS, the Department (represented by Wayne Howe) has made an inspection of subject area on the 5 day of May, 1995, and) has determined that such operations may substantially adversely affect existing fish and wildlife resources including: nongame fish, wetland vegetation.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife during the operator's work. The operator hereby agrees to accept the following recommendations as part of his work: Numbers 1, 2, 9, 21, 22 from the list of recommendations on the back of this page and the following special recommendations:

A. All work in or near the stream or lake shall be confined to the period May 15, 1995 to October 31, 1995.

B- This permit covers the work necessary to construct Phase 1 of the Petaluma Marsh Enhancement Project.

C- LANDFILL CLOSURE SITE:

1) Broken concrete used for slope protection shall be of sufficient size so that high storm flows do not wash the concrete down stream.

2) The area where the new drainage ditch is to be excavated shall be free of flowing water. If water is present in the ditch to be diverted, the operator shall bypass the flow of water around the work area through a temporary culvert. Water shall not be directed to the new ditch until its construction has been completed.

3) The boundaries of excavation adjacent to the wetlands shall be clearly flagged or staked. Equipment shall not be operated outside the marked boundaries.

D- ADOBE CREEK WETLANDS MITIGATION SITE:

1) Excavation and/or grading equipment shall not be operated in flowing water. Diversions shall be constructed where necessary to keep equipment out of flowing

The operator, as designated by the signature on this agreement, shall be responsible for the execution of all elements of this agreement. A copy of this agreement must be provided to contractors and subcontractors and must be in their possession at the work site.

If the operator's work changes from that stated in the notification specified above, this agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this agreement and with other pertinent Code Sections, including but not limited to Fish and Game Code Sections 5650, 5652 and 5948, may result in prosecution.

Nothing in this agreement authorizes the operator to trespass on any land or property, nor does it relieve the operator of responsibility for compliance with applicable federal, state, or local laws or ordinances.

THIS AGREEMENT IS NOT INTENDED AS AN APPROVAL OF A PROJECT OR OF SPECIFIC PROJECT FEATURES BY THE DEPARTMENT OF FISH AND GAME. INDEPENDENT REVIEW AND RECOMMENDATIONS WILL BE PROVIDED BY THE DEPARTMENT AS APPROPRIATE ON THOSE PROJECTS WHERE LOCAL, STATE, OR FEDERAL PERMITS OR OTHER ENVIRONMENTAL REPORTS ARE REQUIRED.

This agreement becomes effective on signature of the City of Petaluma and Fish and Game.

| | |
|---|---|
| Operator _____ | _____ (Department Representative) |
| Title _____ | Title _____ |
| Organization _____ | Department of Fish and Game, State of California |
| Date _____ | Date _____ |

Notification No 305-95 THP No. _____

# AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and Refer to Page 1 of _____, State of _____, hereinafter called the operator, is as follows:

WHEREAS, pursuant to Division 2, Chapter 6 of California Fish and Game Code, the operator, on the _____ day of _____, 19____, notified the Department that he intends to substantially divert or obstruct the natural flow of, or substantially change the bed channel, or bank of, or use material from the streambed of, the following water: _____, in the County o _____, State of California, S _____ T _____ R _____.

WHEREAS, the Department (represented by _____ has made an inspection of subject area on th _____ day of _____, 19 ___, and) has determined tha such operations may substantially adversely affect existing fish and wildlife resources including _____

THEREFORE, the Department hereby proposes measures to protect fish and wildlife during the operator's work. The operator hereby agrees to accept the following recommendations as part of his work: Numbers _____ from the list of recommendations on the back of this page and the following special recommendations:

1. All work in or near the stream or lake shall be confined to the period _____

D- ADOBE CREEK WETLANDS MITIGATION SITE- continued:

water. Instream diversions shall be constructed using sand bags or clean gravel and plastic sheeting.

2) Before construction begins for the placement of the two 36 inch culverts and the placement of the temporary culverts for the temporary stream crossing, the operator shall dewater each work area. The flow of water in the creek shall be blocked with a temporary dam constructed with sand bags or clean rock and plastic sheeting. With a dam in place, sufficient water shall at all times be allowed to pass down stream to maintain fish life below the dam. A temporary culvert may be used to bypass the flow of water around the work area.

3) If it is necessary to pump water from areas of excavation, that water shall not be pumped directly into the stream channel. Silt laden water shall be pumped off site to an area where it can not enter State waters.

The operator, as designated by the signature on this agreement, shall be responsible for the execution of all elements of this agreement. A copy of this agreement must be provided to contractors and subcontractors and must be in their possession at the work site.

If the operator's work changes from that stated in the notification specified above, this agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this agreement and with other pertinent Code Sections, including but not limited to Fish and Game Code Sections 5650, 5652 and 5948, may result in prosecution.

Nothing in this agreement authorizes the operator to trespass on any land or property, nor does it relieve the operator of responsibility for compliance with applicable federal, state, or local laws or ordinances.

THIS AGREEMENT IS NOT INTENDED AS AN APPROVAL OF A PROJECT OR OF SPECIFIC PROJECT FEATURES BY THE DEPARTMENT OF FISH AND GAME. INDEPENDENT REVIEW AND RECOMMENDATIONS WILL BE PROVIDED BY THE DEPARTMENT AS APPROPRIATE ON THOSE PROJECTS WHERE LOCAL, STATE, OR FEDERAL PERMITS OR OTHER ENVIRONMENTAL REPORTS ARE REQUIRED.

This agreement becomes effective on _____

Operator _____ _____ (Department Representative)

Title _____ Title _____

Organization _____ Department of Fish and Game, State of California

Date _____ Date _____

Notification No. 305-95 TFP No. _____

# AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and Refer to Page 1 of _____, State of _____, hereinafter called the operator, is as follows:

WHEREAS, pursuant to Division 2, Chapter 6 of California Fish and Game Code, the operator, on the _____ day of _____, 19____, notified the Department that he intends to substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of, the following water: _____, in the County of _____, State of California, S_____ T_____ R_____.

WHEREAS, the Department (represented by _____ has made an inspection of subject area on the _____ day of _____, 19____, and) has determined that such operations may substantially adversely affect existing fish and wildlife resources including: _____

THEREFORE, the Department hereby proposes measures to protect fish and wildlife during the operator's work. The operator hereby agrees to accept the following recommendations as part of his work: Numbers _____ from the list of recommendations on the back of this page and the following special recommendations:

1. All work in or near the stream or lake shall be confined to the period _____

D- ADOBE CREEK MITIGATION SITE- continued:

4) All environmentally sensitive areas within the stream channel of Adobe creek that are not to be disturbed shall be clearly marked so that equipment operators do not stray into those areas.

The operator, as designated by the signature on this agreement, shall be responsible for the execution of all elements of this agreement. A copy of this agreement must be provided to contractors and subcontractors and must be in their possession at the work site.

If the operator's work changes from that stated in the notification specified above, this agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this agreement and with other pertinent Code Sections, including but not limited to Fish and Game Code Sections 5650, 5652 and 5948, may result in prosecution.

Nothing in this agreement authorizes the operator to trespass on any land or property, nor does it relieve the operator of responsibility for compliance with applicable federal, state, or local laws or ordinances.

THIS AGREEMENT IS NOT INTENDED AS AN APPROVAL OF A PROJECT OR OF SPECIFIC PROJECT FEATURES BY THE DEPARTMENT OF FISH AND GAME. INDEPENDENT REVIEW AND RECOMMENDATIONS WILL BE PROVIDED BY THE DEPARTMENT AS APPROPRIATE ON THOSE PROJECTS WHERE LOCAL, STATE, OR FEDERAL PERMITS OR OTHER ENVIRONMENTAL REPORTS ARE REQUIRED.

This agreement becomes effective on _____

| | |
|---|---|
| Operator _____ | _____ (Department Representative) |
| Title _____ | Title _____ |
| Organization _____ | Department of Fish and Game, State of California |
| Date _____ | Date _____ |

[illegible] inspection was not made, proceed with the agreement.

## RECOMMENDATIONS

1. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. The disturbed portions of any stream channel or lake margin within the high water mark of the stream or lake shall be restored to its near natural original condition as possible.

2. Restoration shall include the revegetation of stripped or exposed areas.

3. Rock, riprap, or other erosion protection shall be placed in areas where vegetation cannot reasonably be expected to become reestablished.

4. Installation of bridges, culverts, or other structures shall be such that water flow is not impaired and upstream or downstream passage of fish is assured at all times. Bottoms of temporary culverts shall be placed at or below stream channel grade. Bottoms of permanent culverts shall be placed below stream channel grade.

5. Plans for design of concrete sills and other features that could potentially impede fish migrations must be approved by Department engineers.

6. When any dam (any artificial obstruction) is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain suitable below the dam.

7. Adequate fish passage facility must be incorporated into any barrier that obstructs fish passage.

8. Any temporary dam (any artificial obstruction) constructed shall only be built from material such as clean gravel which will cause little or no siltation.

9. No equipment will be operated in live stream channels.

10. Equipment shall not be operated in the stream channels of flowing live streams except as may be necessary to construct crossings or barriers and fills at channel changes.

11. When work in a flowing stream is unavoidable, the entire streamflow shall be diverted around the work area by a barrier, temporary culvert, and/or a new channel capable of permitting upstream and downstream fish movement. Construction of the barrier and/or the new channel shall normally begin in the downstream area and continue in an upstream direction, and the flow shall be diverted only when construction of the diversion is completed. Channel bank or barrier construction shall be adequate to prevent seepage into or from the work area. Channel banks or barriers shall not be made of earth or other substances subject to erosion unless first enclosed by sheet piling, rock riprap, or other protective material. The enclosure and the supportive material shall be removed when the work is completed and the removal shall normally proceed from downstream in an upstream direction.

12. Temporary fills shall be constructed of noncrodible materials and shall be removed immediately upon work completion.

13. Equipment shall not be operated in the lake or its margin except during excavation and as may be necessary to construct barriers or fills. If work in the lake is unavoidable, a curtain enclosure to prevent siltation of the lake beyond the immediate working area shall be installed. The enclosure and any supportive material shall be removed when the work is completed.

14. Silt settling basins shall be located away from the stream or lake to prevent discolored, silt-bearing water from reaching the stream or lake.

15. Preparation shall be made so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion.

16. Wash water containing mud or silt from aggregate washing or other operations shall not be allowed to enter a lake or flowing streams.

17. a) A silt catchment basin shall be constructed across the stream immediately below the project site. This catchment basin shall be constructed of gravel which is free from mud or silt.

b) Upon completion of the project and after all flowing water in the area is clear of turbidity, the gravel along with the trapped sediments shall be removed from the stream.

18. If operations require moving of equipment across a flowing stream, such operations shall be conducted without substantially increasing stream turbidity. For repeated crossings, the operator shall install a bridge, culvert, or rock-fill crossing as specified in comments below.

19. If a stream channel has been altered during the operations, its low flow channel shall be returned as nearly as possible to its natural state without creating a possible future bank erosion problem, or a flat wide channel or shallow area. If a lake margin has been altered, it shall be returned as nearly as possible to its natural state without creating a future bank erosion problem. The gradient of the streambed or lake margin shall be as nearly as possible the same gradient as existed prior to disturbance.

20. Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.

21. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any logging, construction, or associated activity of whatever nature shall be allowed to enter into or placed where it may be washed by rainfall or runoff into, waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.

22. The operator will notify the Department of Fish and Game of the date of commencement of operations and the date of completion of operations at least five days prior to such completion.

**This notice of authorization must be conspicuously displayed at the site of work.**

United States Army Corps of Engineers

1995

A permit to construct various highway improvements

at Lakeville Highway, between Caulfield and Fealers Road

has been issued to City of Petaluma on 16 May 1995

Address of Permittee Planning Department, P.O. Box 61, Petaluma, CA 94953

Permit Number

19798439

MICHAEL J. WALSH
*District Commander*

ENG FORM 4336, Jul 81 (33 CFR 320-330) EDITION OF JUL 70 MAY BE USED

(Proponent: CECW-O)

## NOTICE TO PERMITTEE

Please use the forms below to report the dates when you start and finish the work authorized by the enclosed permit. Also if you suspend work for an extended period of time, use the forms below to report the dates you suspended and resumed work. The second copy is for your records. If you find that you cannot complete the work within the time granted by the permit, please apply for a time extension at least one month before your permit expires. If you materially change the plan or scope of the work, it will be necessary for you to submit new drawings and a request for a modification of your permit.
(cut out as needed) ----------

Date:_____

**NOTICE OF COMPLETION OF WORK** under Department of the Army permit No. -019798-0N-39
TO: District Engineer, US Army Corps of Engineers, Regulatory Branch, 211 Main Street, San Francisco, CA 94105

In compliance with the conditions of the permit dated 16 May 1995 to construct various improvements to Lakeville Highway, this is to notify you that the work was completed on _____.

Permittee: City of Petaluma
Address: Planning Department, P.O. Box 61, Petaluma, CA 94953

---

Date:_____

**NOTICE OF RESUMPTION OF WORK** under Department of the Army permit No. -019798-0N-39
TO: District Engineer, US Army Corps of Engineers, Regulatory Branch, 211 Main Street, San Francisco, CA 94105

In compliance with the conditions of the permit dated 16 May 1995 to construct various improvements to Lakeville Highway, this is to notify you that work was resumed on _____.

Permittee: City of Petaluma
Address: Planning Department, P.O. Box 61, Petaluma, CA 94953

---

Date:_____

**NOTICE OF SUSPENSION OF WORK** under Department of the Army permit No. -019798-0N-39
TO: District Engineer, US Army Corps of Engineers, Regulatory Branch, 211 Main Street, San Francisco, CA 94105

In compliance with the conditions of the permit dated 16 May 1995 to construct various improvements to Lakeville Highway, this is to notify you that work was suspended on _____.

Permittee: City of Petaluma
Address: Planning Department, P.O. Box 61, Petaluma, CA 94953

---

Date:_____

**NOTICE OF COMMENCEMENT OF WORK** work under Department of the Army permit No. -019798-0N-39
TO: District Engineer, US Army Corps of Engineers, Regulatory Branch, 211 Main Street, San Francisco, CA 94105

In compliance with the conditions of the permit dated 16 May 1995 to construct various improvements to Lakeville Highway, this is to notify you that work was commenced on _____.

Permittee: City of Petaluma
Address: Planning Department, P.O. Box 61, Petaluma, CA 94953

---

1 Aug 84

# DEPARTMENT OF THE ARMY PERMIT

Permittee: City of Petaluma

MAY 16 1995

Permit No: 19798N39

Issuing Office: San Francisco District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: The permittee is authorized to construct various structures and discharge fill material into waters of the United States associated with proposed roadway improvements to Lakeville Highway. Authorized work includes the following activities: (a) Incidental discharges associated with excavation work below ordinary high water, requiring the removal of 3,937 cubic yards (cys) of material from 0.72 acres of brackish drainage swales adjacent to the road; (b) Construction of new travel lanes and shoulders, requiring the discharge of 5,862 cys of engineered backfill into 0.94 acres of brackish drainage swales and freshwater wetlands adjacent to the road; (c) Construction of a 35-foot extension to an existing box culvert, replacement of tide gate, and construction of a new concrete headwall and temporary coffer dam in McDowell Creek, requiring the discharge of 298 cys of earthen backfill, concrete, and rock riprap below the high tide line of the creekbed; (d) Construction of a 27-foot extension to an existing concrete bridge structure, new concrete headwall, and temporary coffer dam in Adobe Creek, requiring the discharge of 166 cys of earthen backfill, concrete, and rock riprap below ordinary high water of the creekbed; and (e) Reconstruction of access road to mitigation site and construction of a temporary coffer dam in a tributary drainage channel to Adobe Creek, requiring the discharge of 35 cys of earthen fill material below ordinary high water of the creekbed. This work will be performed in accordance with the attached drawings labeled: "PROPOSED ROAD WIDENING, IN McDOWELL AND ADOBE CREEKS AND ADJACENT DRAINAGE SWALES, AT LAKEVILLE HIGHWAY, COUNTY OF SONOMA, CALIFORNIA, APPLICATION BY CITY OF PETALUMA," in twenty-one sheets dated May 1994.

Project Location:

Lakeville Highway (State Route 116), between Caulfield and Frates Road, City of Petaluma, Sonoma County, California.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on 1 January 2001. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: **Refer to Page 2A for special conditions to Permit No. 19798N39.**

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344)

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413)

2. Limits of this authorization

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

## SPECIAL CONDITIONS TO PERMIT NO. 19798N39

1. To compensate for the loss of 0.94 acres of jurisdictional wetlands and other waters of the United States associated with the widening of Lakeville Highway, mitigation, maintenance, and monitoring work shall be performed in the manner set forth in the *Final Wetland Mitigation Plan and Monitoring Program for Lakeville Highway Widening, Channelization, and Signalization Project*, dated April 1995, prepared by Questa Engineering (Exhibit A). This plan calls for the creation of approximately one acre of brackish wetlands along the middle reach of Adobe Creek and approximately one acre of riparian habitat along the middle and lower reaches of Adobe Creek to provide buffer habitat for the created wetlands. In addition, this plan satisfies a non-compliance order for the Petaluma Marina (Permit No. 16511N39) by creating 0.07 acres of salt marsh habitat on the lower reach of Adobe Creek as compensation for the loss of salt marsh habitat in the marina basin.

2. Required mitigation work shall be performed prior to or concurrent with any fill discharge into jurisdictional waters and wetlands associated with the road widening project.

3. Maintenance and monitoring of the mitigation site shall continue for a minimum of five (5) years following initial planting or until such time as the specified final success criteria have been met, subject to the written confirmation of the Corps. If any corrective contingency measure is required to ensure compliance with final success criteria, the Corps, in consultation with other Federal and State resource agencies, may exercise its discretionary authority and extend the maintenance and monitoring period for that measure beyond the initial five-year period.

4. An annual monitoring report shall be prepared which includes an overall assessment of the mitigation program in accordance with the annual and final success criteria specified in *Figure 12* of the Mitigation Plan; photodocumentation of the mitigation site; maintenance activities conducted during the previous growing season; and remedial planting and maintenance recommendations requiring the concurrence of the Corps. Annual monitoring reports shall be submitted by 30 July of each year of the monitoring period, beginning the year following the first growing season after planting. Annual monitoring reports shall be distributed to the following Federal and State resource agencies for review and comment, concurrent with the Corps receipt of this information:

a. U.S. Army Corps of Engineers, San Francisco District, Regulatory Branch, 211 Main Street, San Francisco, CA 94105-1905

b. U.S. Fish and Wildlife Service, Ecological Services, Room E-1803, 2800 Cottage Way, Sacramento, CA 95825-1846

c. National Marine Fisheries Service, 777 Sonoma Avenue, Room 325, Santa Rosa, CA 95404

d. U.S. Environmental Protection Agency, Region IX, Attn: W-7-2, 75 Hawthorne Street, San Francisco, California 94105

e. California Department of Fish and Game, Region III, P.O. Box 47, Yountville, California 94559

5. To provide further enhancement and protection of created wetland habitat, fencing shall be erected, as appropriate and necessary, along the levee/trail and adjacent properties within the Lakeville Business Park to deter human and vehicular access to the mitigation site.

6. To minimize disturbance to migratory steelhead populations in Adobe Creek, project-related construction and mitigation work occurring in the creekbed shall be confined to the period of 1 June through 31 October.

7. Mitigation construction, maintenance, and monitoring work shall be subject to inspection by the Corps and other Federal and State resource agencies, upon notification of the permittee.

8. Upon completion of project-related construction and mitigation work, all cofferdams shall be removed from the creekbeds and the affected areas restored to the pre-construction condition. Fill materials associated with cofferdam construction shall be disposed at an upland site not subject to Corps regulatory authority.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit or for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

CITY OF PETALUMA

(Permittee) CITY MANAGER (Date) 5-3-95

CITY CLERK

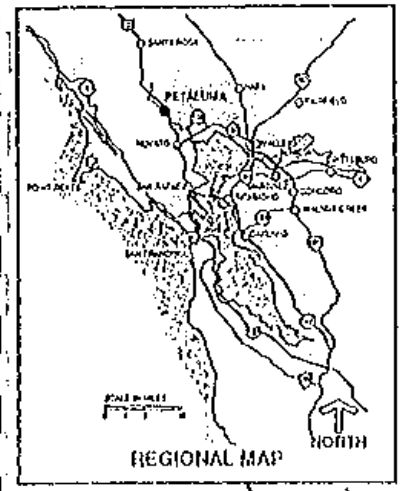
This permit becomes effective when the federal official, designated to act for the Secretary of the Army, has signed below.

(District Engineer) Michael J. Walsh, Chief, EN (Date) 5-11-95

When the structures authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(Transferee) (Date)

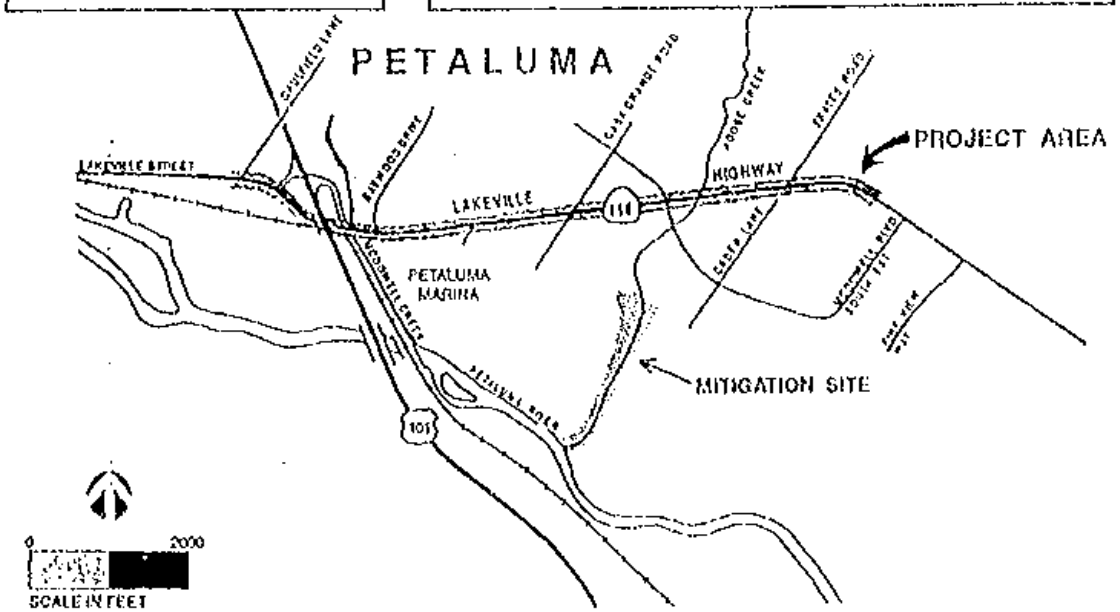
No. 19798N39




## INDEX OF SHEETS


1. LOCATION MAP
2. PROJECT LIMITS
3. SUMMARY OF JURISDICTIONAL AREAS
4. PLAN VIEW - AREAS 1-4*
5. PLAN VIEW - AREAS A, B, C*
6. SECTION - AREAS A AND B
7. PLAN VIEW, MCDOWELL CREEK CULVERT EXTENSION - AREA C
8. MCDOWELL CREEK CULVERT PROFILE - AREA C
9. PLAN VIEW - AREA 7*
10. PLAN VIEW - AREA 8*
11. PLAN VIEW - AREAS 9, 10, 11*
12. PLAN VIEW - AREA 12*
13. ADOBE CREEK BRIDGE EXTENSION AT AREA 12*
14. ADOBE CREEK BRIDGE ESTENSION PROFILE - AREA 12*
15. PLAN VIEW - AREA 13*
16. PLAN VIEW - AREAS 14 AND 15*
17. PLAN VIEW - ACCESS ROAD TO MITIGATION SITE - AREA D
18. CULVERT REPLACEMENT FOR ACCESS ROAD - AREA D
19. WETLAND MITIGATION SITE - (MIDDLE ADOBE) AREAS 4A THROUGH 4J
20. SECTIONS - WETLAND MITIGATION SITE - AREAS 4A THROUGH 4K
21. WETLAND MITIGATION SITE (LOWER ADOBE) - AREA 4K


*DENOTES AREAS OF WETLAND FILL




**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

LOCATION MAP

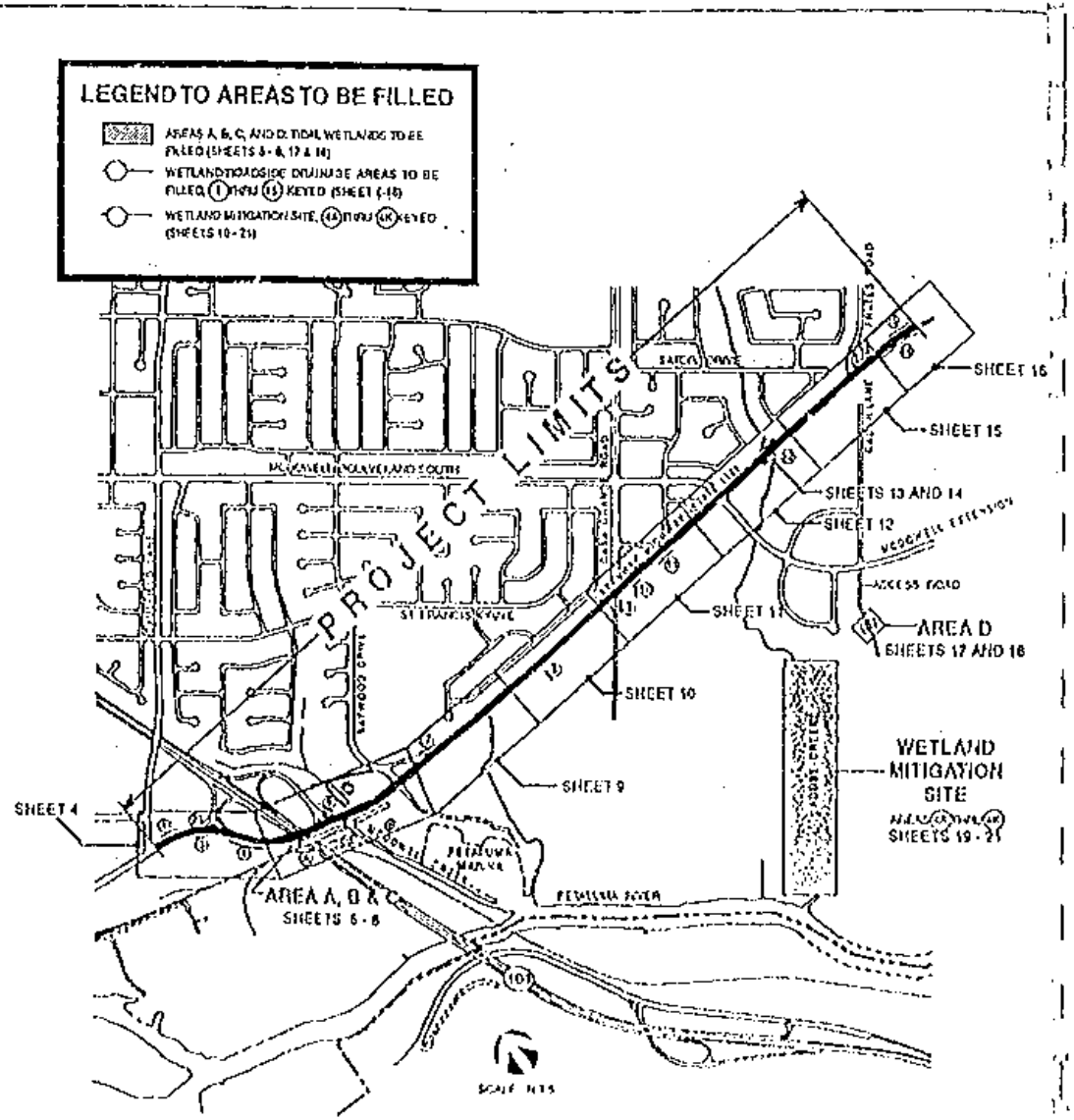
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND FRATES ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 1 OF 21 DATE: MAY 1994

No. 19798N39




**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PROJECT LIMITS

**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CABRILLO LANE AND PETALUMA HILL ROAD (POST MILE 36.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET: 2 OF 21 DATE: MAY 1994

# SUMMARY OF JURISDICTIONAL AREAS (VOLUME OF EXCAVATION AND FILL)

SECTION 404 JURISDICTION

| | AREA ($FT^2$) | EXCAVATION (C.Y.) | FILL (C.Y.) |
|---|---|---|---|
| TIDAL WETLAND AREAS<br>• ADJACENT ROADSIDE SWALES, MCDOWELL CREEK CHANNEL, AND COFFER DAM AREAS A, B, AND C. (SHEETS 5 - 8) | 31,824 | 3,977 (1) | 6160 (1) |
| • DRAINAGE CHANNEL INCLUDING COFFER DAM AREA D (SHEETS 17 AND 18) | 600 | N / A | 98 |
| NON TIDAL WETLANDS<br>• ROADSIDE DRAINAGE AREAS TO BE FILLED AREAS 1 THRU 15 (SHEETS 4 - 16) | 9,004 | N / A | 526 |
| WETLANDS MITIGATION SITE<br>• ADOBE CREEK SITE AREAS 4A THRU 4K (SHEETS 19 - 21) | 46,660 | 4701 | 0 |
| TOTAL EXCAVATION | 46,660 ($FT^2$) | 4701 (C.Y.) | |
| TOTAL FILL | 41,428 ($FT^2$) | | 6784 (C.Y.) |

(1) INCLUDES 3,977 C.Y. OF OVER EXCAVATION AND ENGINEERED BACKFILL

PROPOSE
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA
SUMMARY OF JURISDICTIONAL AREAS (VOLUME OF EXCAVATION AND FILL)

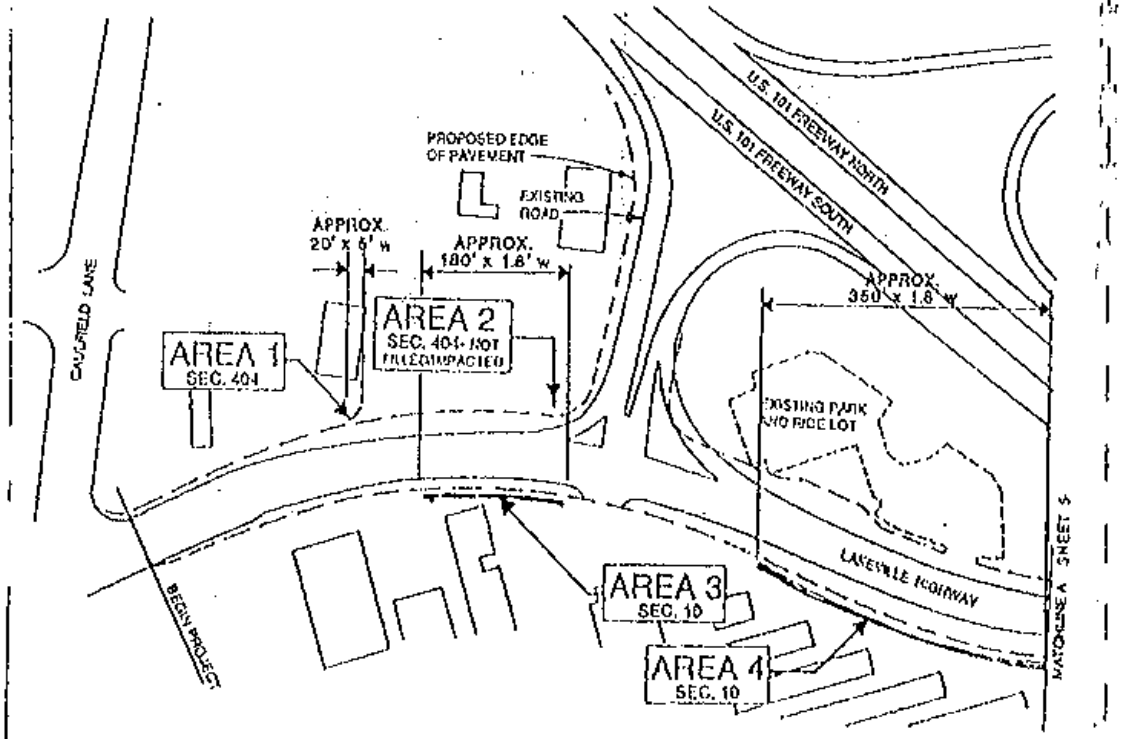
PROPOSED WORK
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

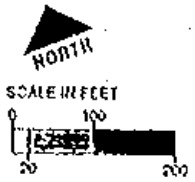
AT: LAKEVILLE HIGHWAY BETWEEN CADFIELD LANE AND PETALUMA ROAD (POST MILE 35.0 TO 39.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET: 3 OF 21 DATE: MAY 1994

No. 19790N39




ROADSIDE DRAINAGE AREAS

LENGTH AND WIDTH OF IMPACTED WETLAND, TYP.

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

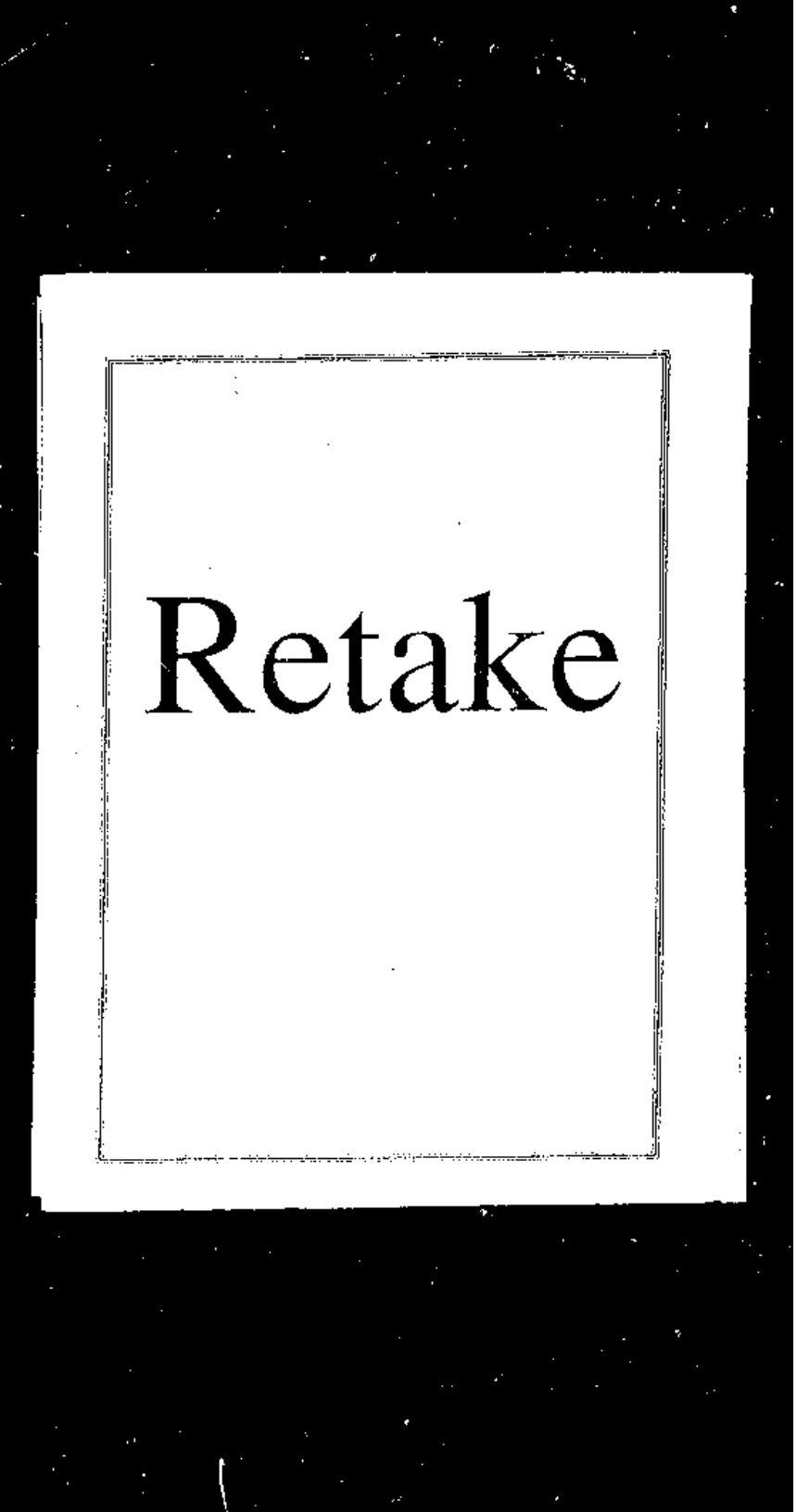
PLAN VIEW
AREAS 1 - 4

**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

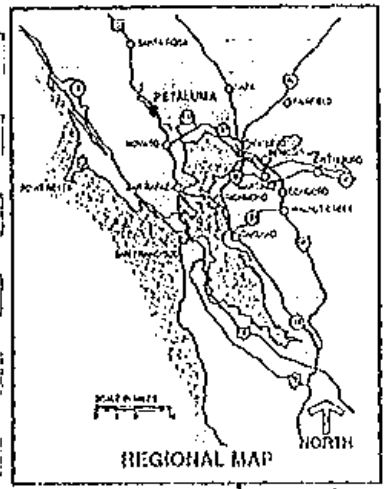
AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND PETALUMA HILL ROAD (POST MILE 35.0 TO 36.5), CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET: 4 OF 21 DATE: MAY 1994


Retake

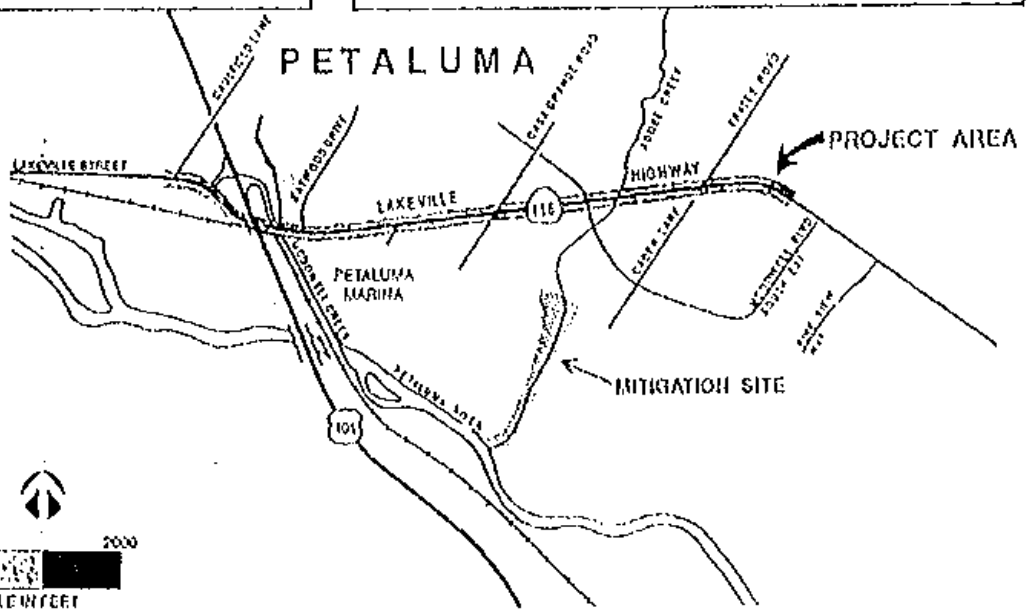
No. 19708N39




## INDEX OF SHEETS


1. LOCATION MAP
2. PROJECT LIMITS
3. SUMMARY OF JURISDICTIONAL AREAS
4. PLAN VIEW - AREAS 1-4*
5. PLAN VIEW - AREAS A, B, C*
6. SECTION - AREAS A AND B
7. PLAN VIEW, MCDOWELL CREEK CULVERT EXTENSION - AREA C
8. MCDOWELL CREEK CULVERT PROFILE - AREA C
9. PLAN VIEW - AREA 7*
10. PLAN VIEW - AREA 8*
11. PLAN VIEW - AREAS 9, 10, 11*
12. PLAN VIEW - AREA 12*
13. ADOBE CREEK BRIDGE EXTENSION AT AREA 12*
14. ADOBE CREEK BRIDGE ESTENSION PROFILE - AREA 12*
15. PLAN VIEW - AREA 13*
16. PLAN VIEW - AREAS 14 AND 15*
17. PLAN VIEW - ACCESS ROAD TO MITIGATION SITE - AREA D
18. CULVERT REPLACEMENT FOR ACCESS ROAD - AREA D
19. WETLAND MITIGATION SITE - (MIDDLE ADOBE) AREAS 4A THROUGH 4J
20. SECTIONS - WETLAND MITIGATION SITE - AREAS 4A THROUGH 4K
21. WETLAND MITIGATION SITE (LOWER ADOBE) - AREA 4K


*DENOTES AREA OF WETLANDS FILL




**PROPOSE:**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

LOCATION MAP

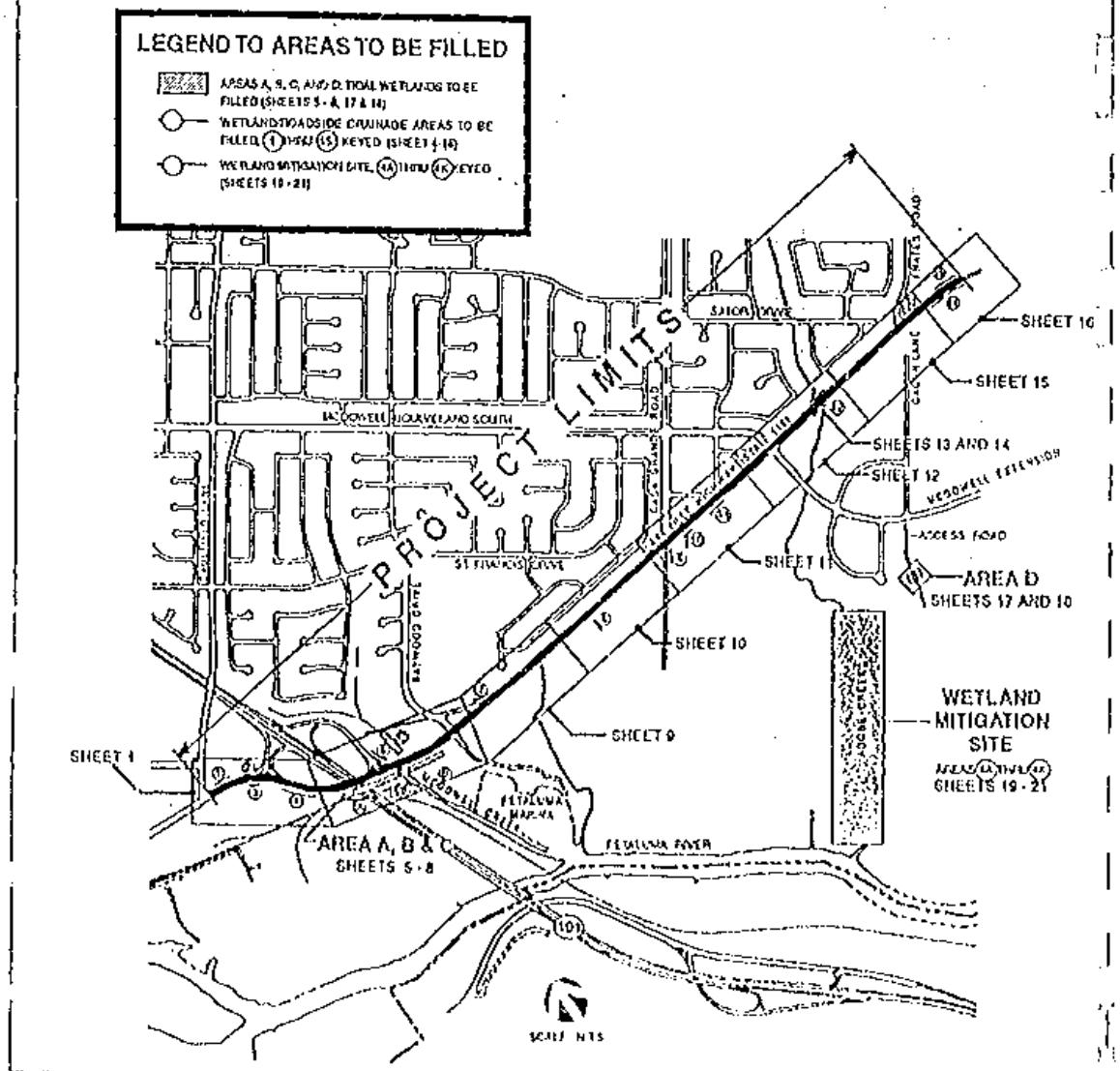
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND FRATES ROAD (POST MILE 35.0 TO 36.1) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 1 OF 21 DATE: MAY 1994

No. 19798N39




**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PROJECT LIMITS

**PROPOSED WORK**
AT: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CADLFIELD LANE AND PAUL'S ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET: 2 OF 21 DATE: MAY 1994

# SUMMARY OF JURISDICTIONAL AREAS (VOLUME OF EXCAVATION AND FILL)

SECTION 404 JURISDICTION

| | AREA ($FT^2$) | EXCAVATION (C.Y.) | FILL (C.Y.) |
|---|---|---|---|
| TIDAL WETLAND AREAS<br>• ADJACENT ROADSIDE SWALES, MCDOWELL CREEK CHANNEL, AND COFFER DAM AREAS A, B, AND C. (SHEETS 5 - 8) | 31,824 | 3,977 (1) | 6160 (1) |
| • DRAINAGE CHANNEL INCLUDING COFFER DAM AREA D (SHEETS 17 AND 18) | 600 | N / A | 98 |
| NON TIDAL WETLANDS<br>• ROADSIDE DRAINAGE AREAS TO BE FILLED AREAS 1 THRU 16 (SHEETS 4 - 16) | 9,004 | N / A | 626 |
| WETLANDS MITIGATION SITE<br>• ADOBE CREEK SITE AREAS 4A THRU 4K (SHEETS 19 - 21) | 46,660 | 4701 | 0 |
| TOTAL EXCAVATION | 46,660 ($FT^2$) | 4701 (C.Y.) | |
| TOTAL FILL | 41,428 ($FT^2$) | | 6784 (C.Y.) |

(1) INCLUDES 3,977 C.Y. OF OVER EXCAVATION AND ENGINEERED BACKFILL

PURPOSE
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA
SUMMARY OF JURISDICTIONAL AREAS (VOLUME OF EXCAVATION AND FILL)

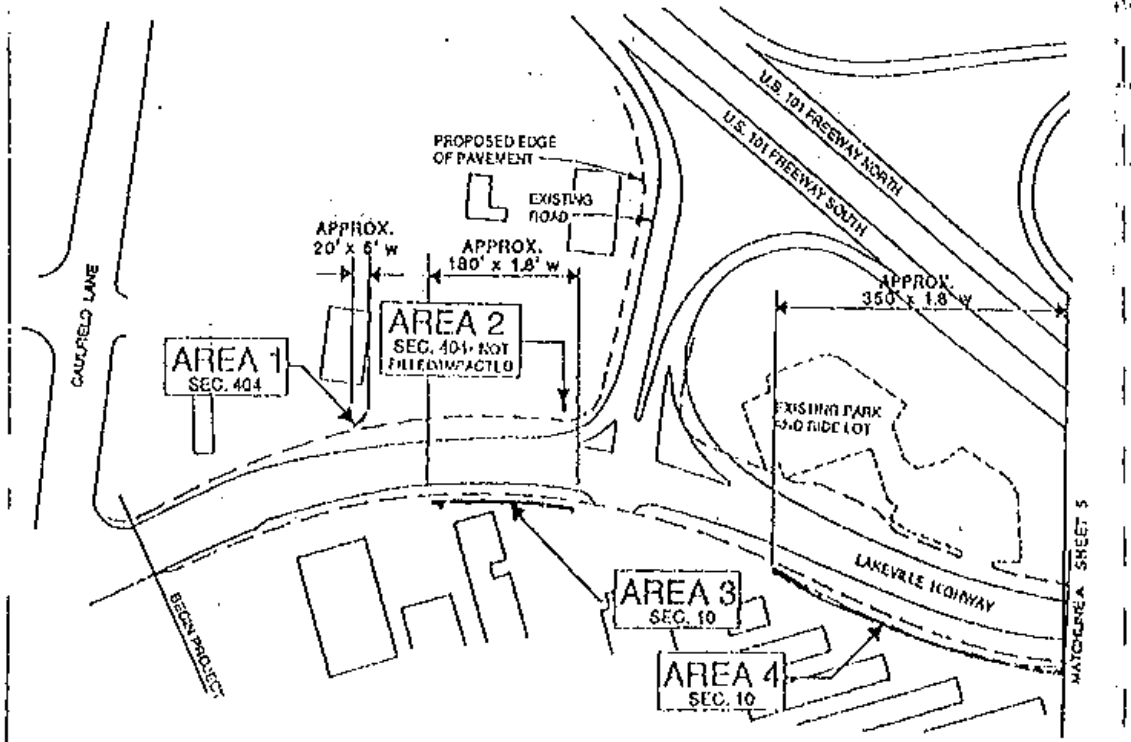
PROPOSED WORK
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND FRATES ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET: 3 OF 21 DATE: MAY 1994

No. 19790N39




NORTH

SCALE IN FEET

0 100 200

ROADSIDE DRAINAGE AREAS

LENGTH AND WIDTH OF IMPACTED WETLAND, TYP.

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PLAN VIEW AREAS 1 - 4

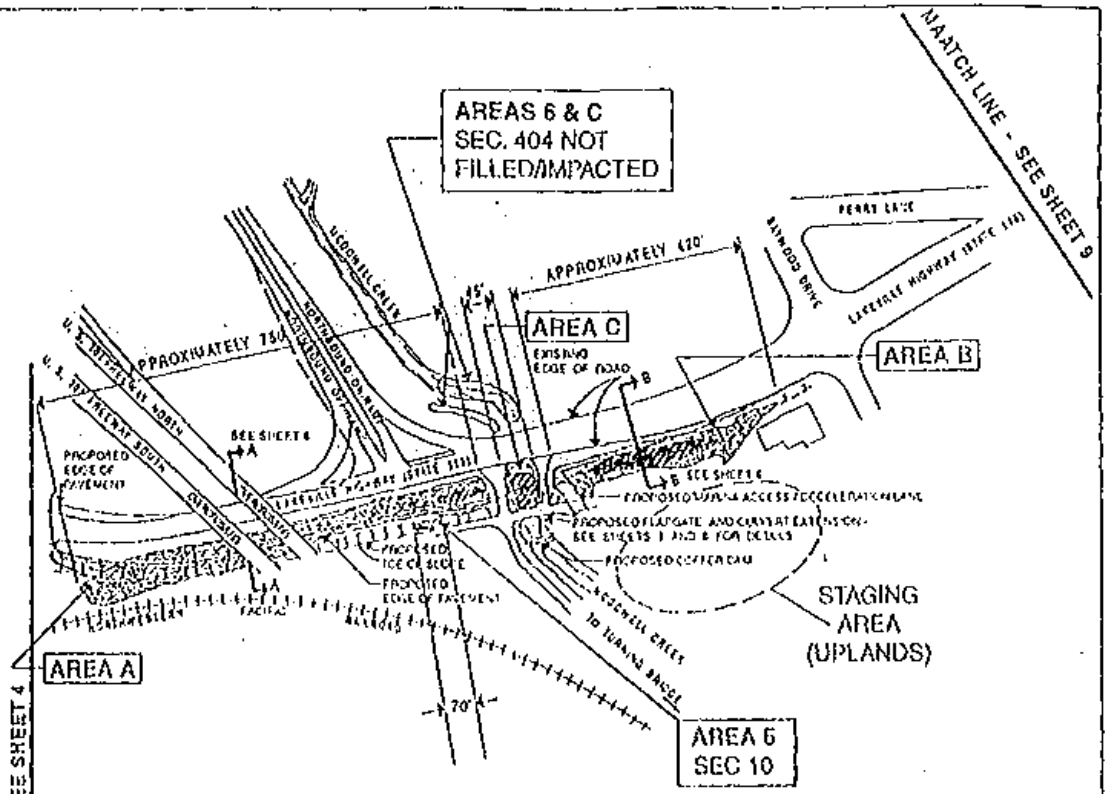
**PROPOSED WORK**
IN: McDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND PETALUMA ROAD (POSTMILE 35.6 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICANT BY: CITY OF PETALUMA

SHEET: 4 OF 21 DATE: MAY 1994

No. 19798N39




NOTE:
DREDING ALONG HIGHWAY DITCH WETLANDS CONSISTS OF OVER EXCAVATION OF SOFT SOILS AND BACKFILL WITH IMPORTED SOIL/ENGINEERED FILL. SPOIL DISPOSAL AT CITY DREDGING DISPOSAL SITE AS SHOWN ON SHEET 19.

SECTION 404 JURISDICTION (AREAS AT OR BELOW 4.7 NGVD, HIGH TIDE LINE)

SECTION 10 JURISDICTION (AREAS AT OR BELOW 2.9 NGVD, MEAN HIGH WATER)

ROADSIDE DRAINAGE AREAS / LENGTH AND WIDTH OF IMPACTED WETLANDS, TYP

ROADSIDE DRAINAGE NOT FILLED

NORTH

0 100 150 300

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE
HIGHWAY
(STATE ROUTE 116)
WIDENING PROJECT
PETRIE
CITY OF PETALUMA

PLAN VIEW
AREAS A, B, AND C

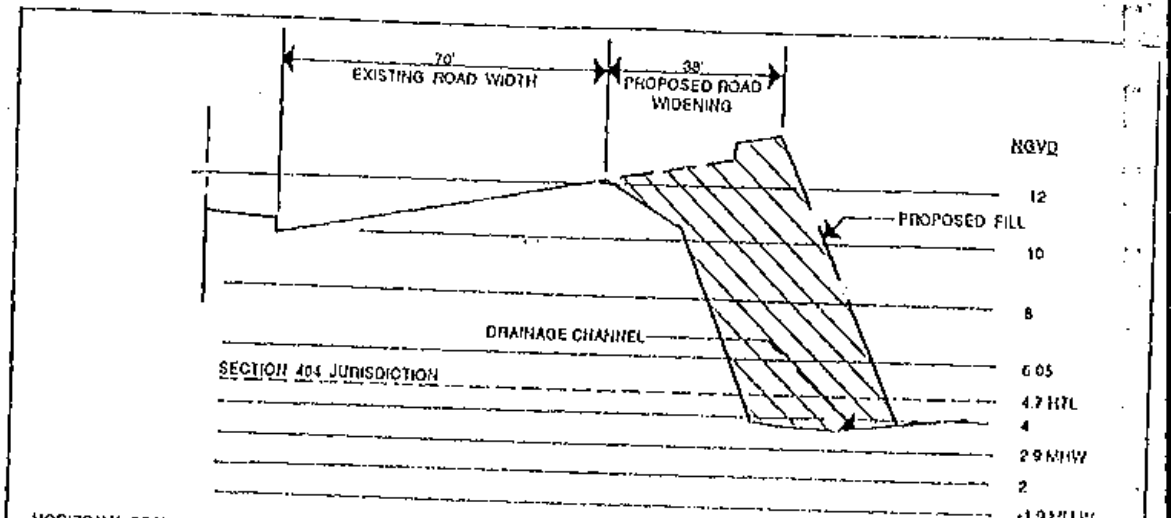
**PROPOSED WORK**
IN: McDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CADFIELD LANE AND PETALUMA ROAD (POST MILE 35.0 TO 36.9) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

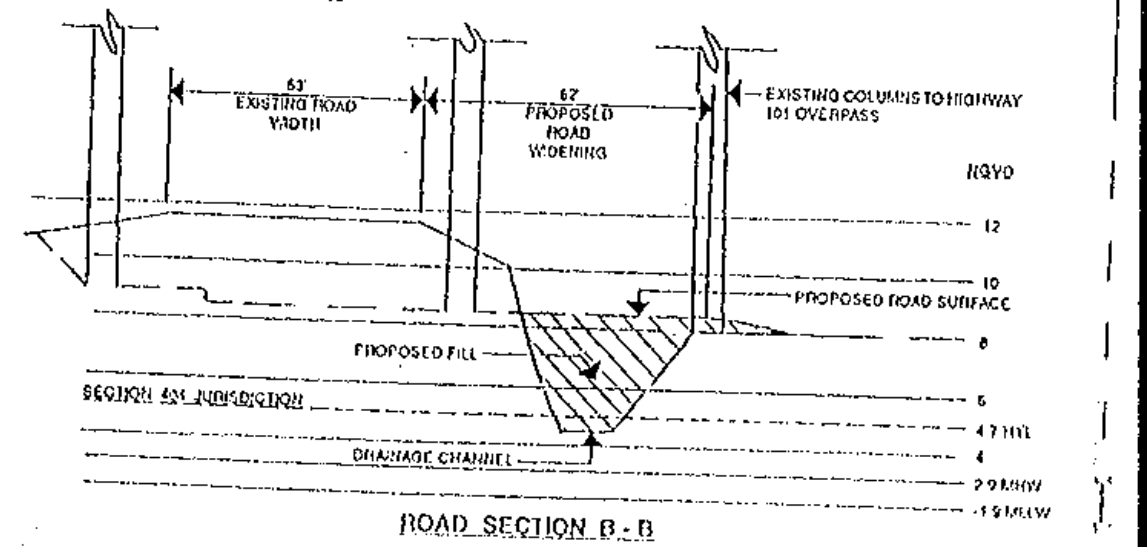
APPLICATION BY: CITY OF PETALUMA

SHEET 5 OF 21 DATE: MAY 1994

No. 19798N39




ROAD SECTION A - A




ROAD SECTION B - B

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

SECTION AREAS, A AND B

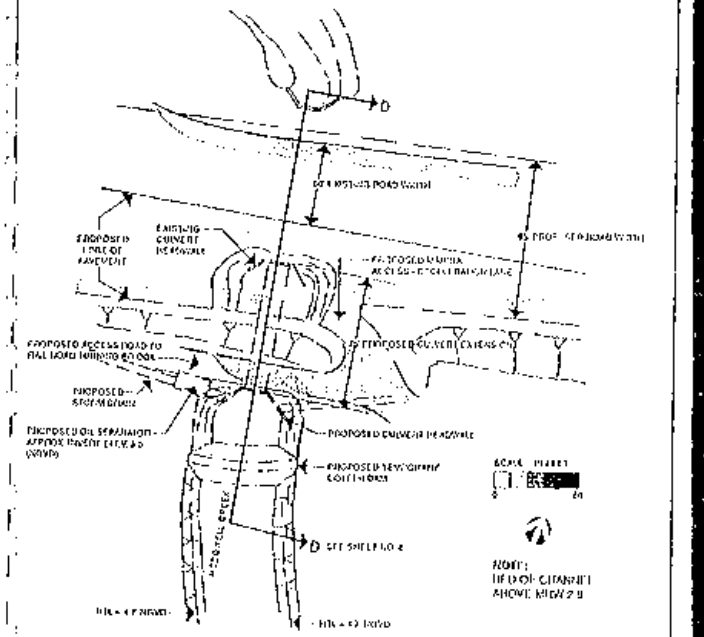
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND ETHAN'S ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 6 OF 21 DATE: MAY 1994

No. 19798439




**PURPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
(STATUS: PWWD (ASH))

PROPOSED ROAD WIDENING AREA IN ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ARROYO CREEK

LAKEVILLE
HIGHWAY
(STATE ROUTE 116)
WIDENING PROJECT
WITHIN
CITY OF PETALUMA

PLAINVIEW
MEADOWELL CREEK
CULVERT EXTENSION
AREA D

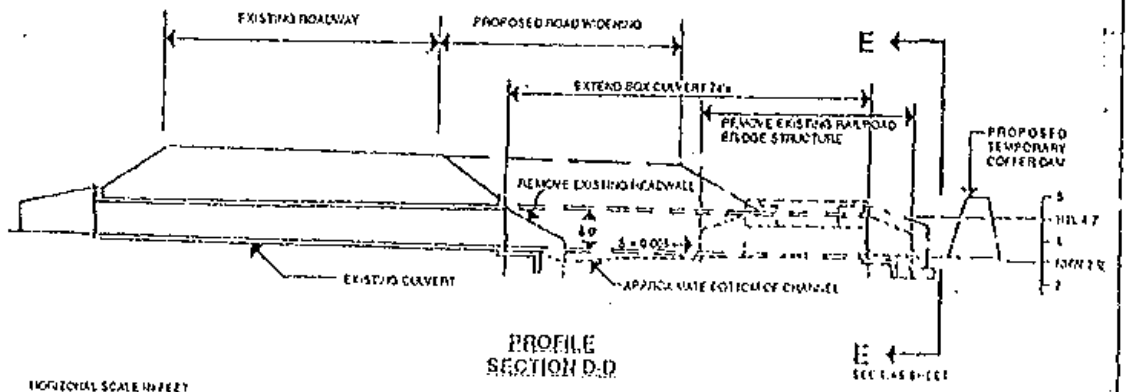
**PROPOSED WORK**
OF MEADOWELL CREEK, ARROYO CREEK AND ADJACENT ORCHARD AREAS

AS LAKEVILLE HIGHWAY BETWEEN EXISTING [illegible] AND PETALUMA SOUTH CITY LIMITS, SONOMA COUNTY, CALIFORNIA

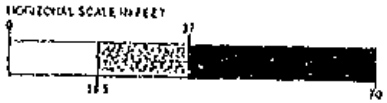
ASSESSABILITY: CITY OF PETALUMA

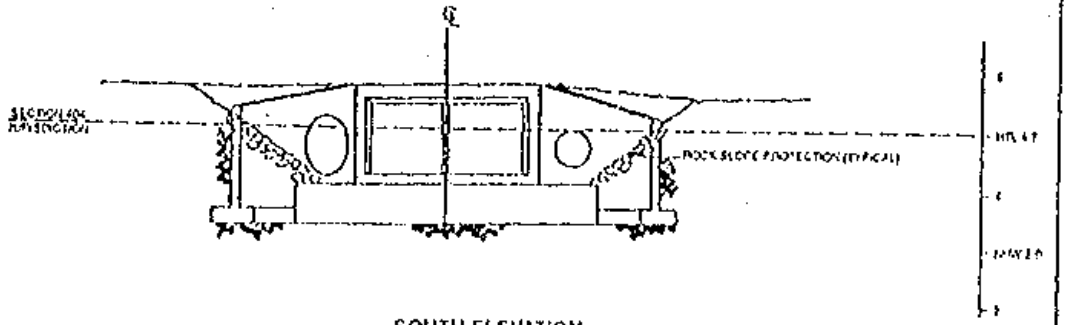
SHEET 3 OF 21 SHEETS DATE: MAY 1979

No. 19798N39




PROFILE
SECTION D-D




SOUTH ELEVATION
SECTION E-E

NOTE:
CHANNEL BED
ABOVE MHW 2.9'

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

MCDOWELL CREEK CULVERT PROFILE AREA C

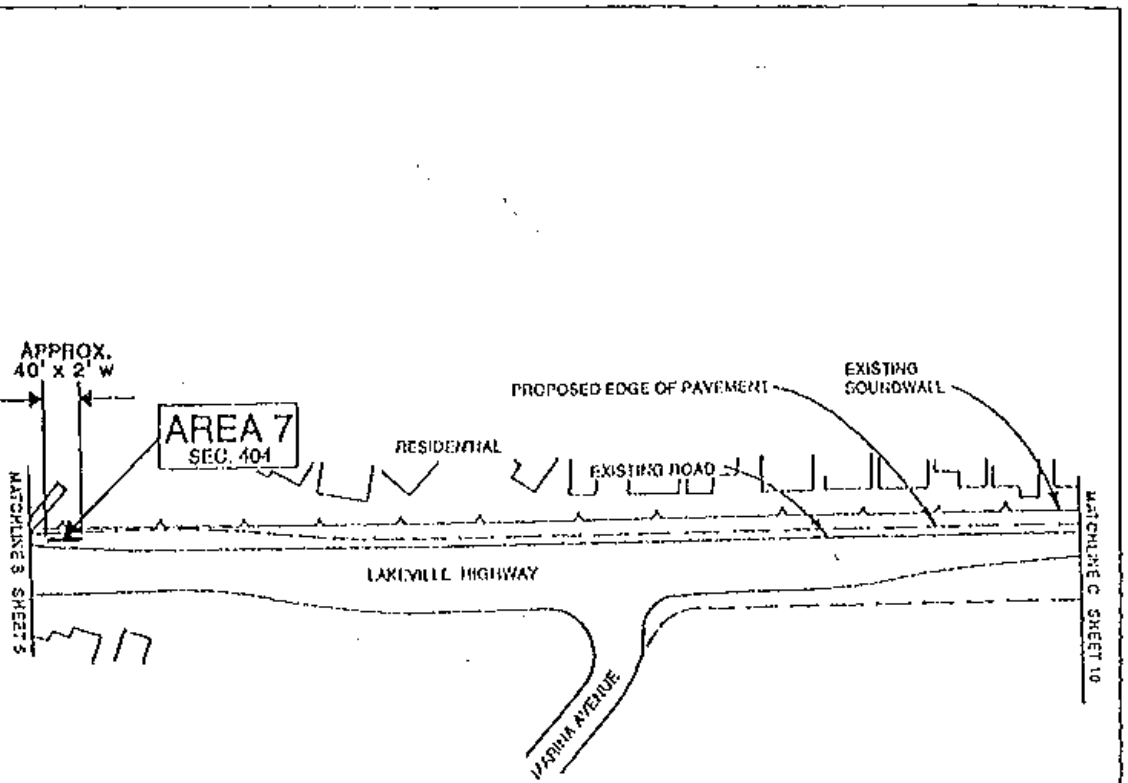
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND PAYRAN'S ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 6 OF 21 DATE: MAY 199-

No. 19798#39




**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA
PLAN VIEW AREA 7

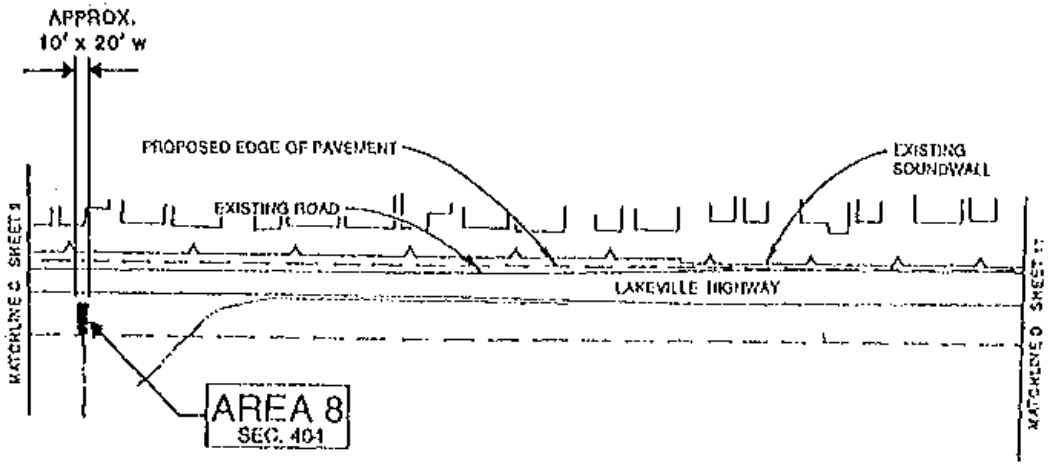
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND FRATES ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

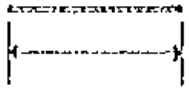
SHEET: 9 OF 21 DATE: MAY

No. 19798N39









ROADSIDE DRAINAGE AREAS
LENGTH AND WIDTH OF IMPACTED WETLAND, TYP.

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PLAN VIEW AREA 8

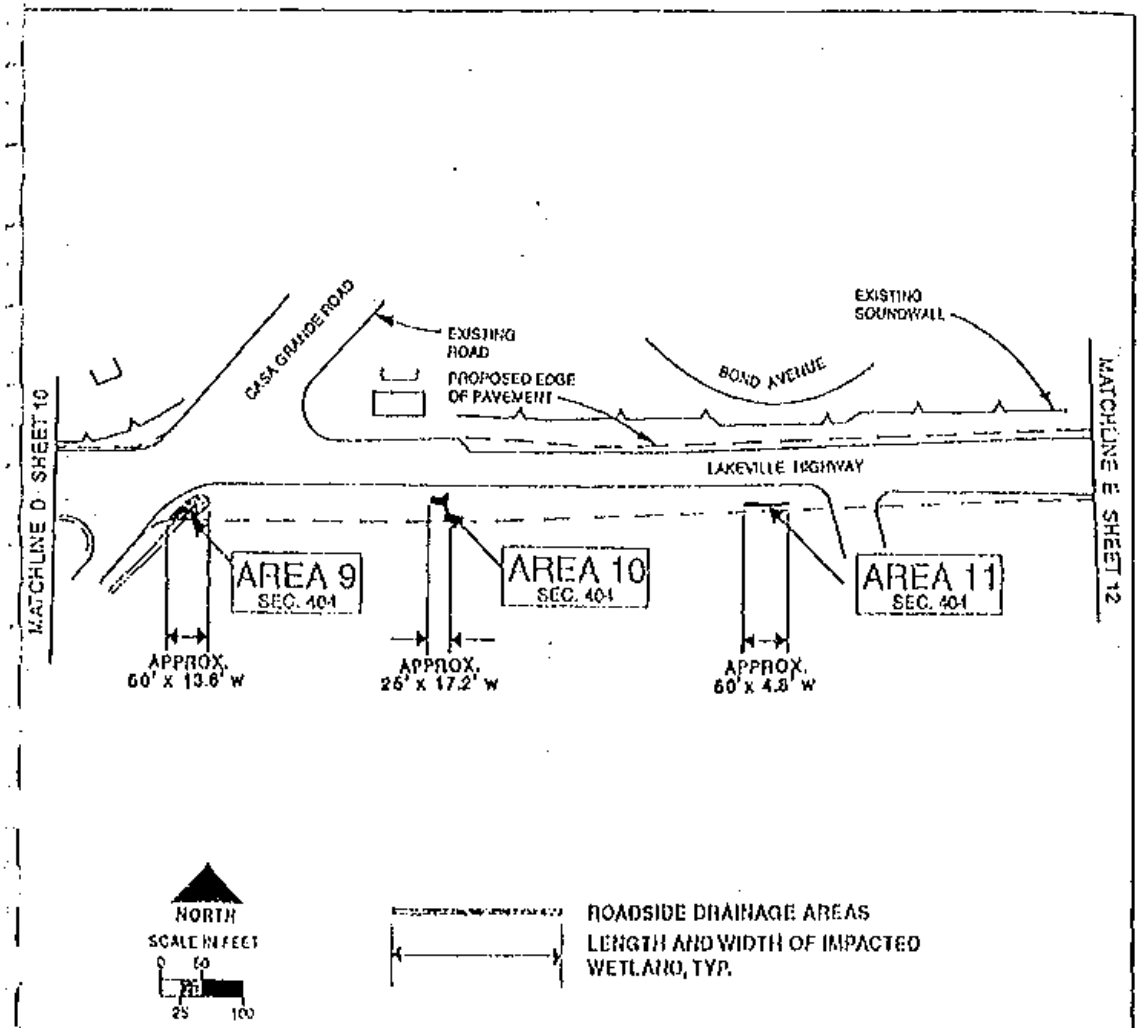
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND ELAINE'S ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 10 OF 21 DATE: MAY 1994

No. 19798N39




**PROPOSE:**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PLAN VIEW
AREAS 9 - 10 - 11

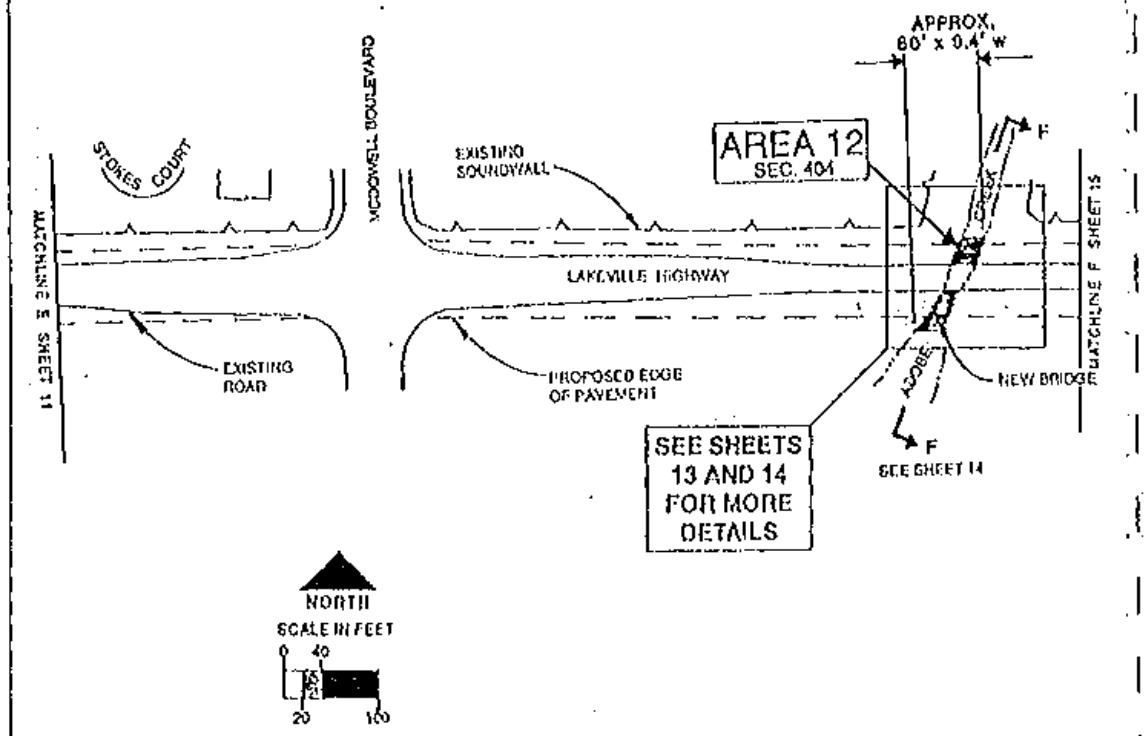
**PROPOSED WORK**
WI: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND FRATES ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET: 11 OF 21 DATE: MAY 1994

No. 19798N39




**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PLAN VIEW AREA 12

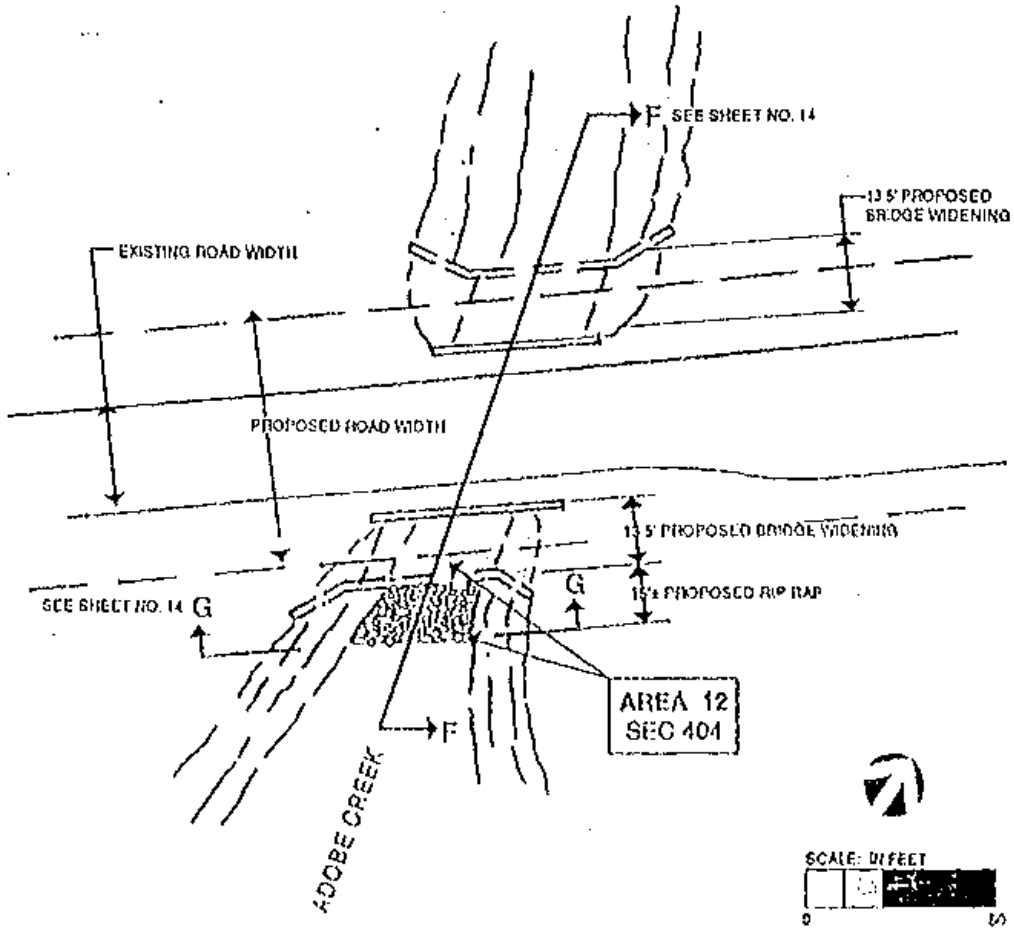
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND FRATES ROAD (POST MILE 35.0 TO 36.6), CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 12 OF 21 DATE: MAY 1994

No. 19798N39




NOTE:
CHANNEL BED AT ELEVATION OF +12'; ABOVE HTL OF +4.7' NGVD.

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM; NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

ADOBE CREEK BRIDGE EXTENSION AT AREA 12

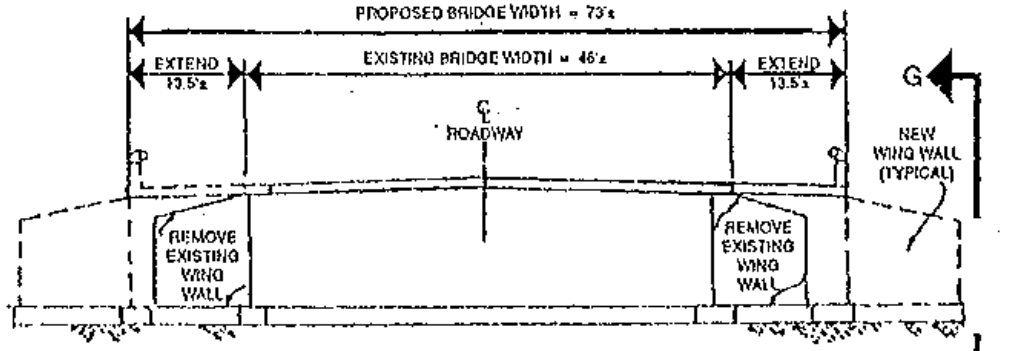
**PROPOSED WORK**
IN: ADOBE CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND PAYRAN STREET (POST MILE 35.0 TO 35.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

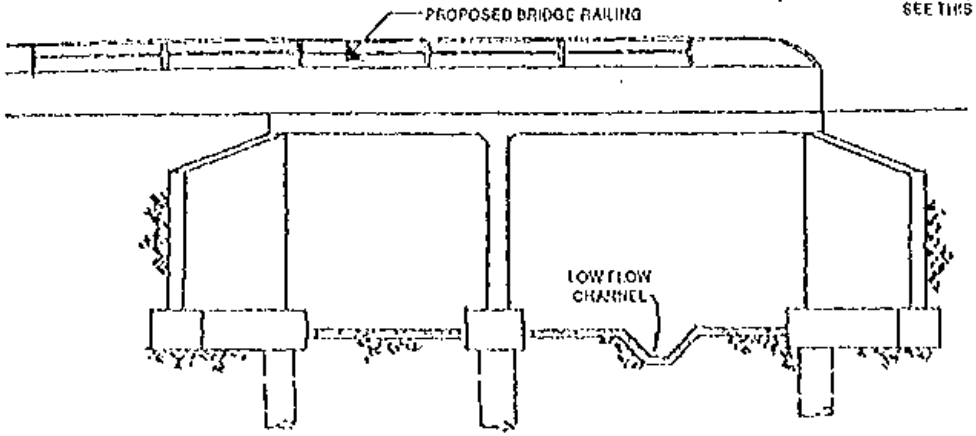
SHEET 13 OF 21 DATE: MAY 1994

No. 19798#39




PROFILE
SECTION E-E

G
SEE THIS SHEET




SCALE IN FEET
0 10
5 25

SOUTH ELEVATION
SECTION G-G

NOTE:
CHANNEL BED AT ELEVATION OF +12.0; ABOVE IRL OF +4.7' NGVD.

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY
(STATE ROUTE 116)
WIDENING PROJECT
WITHIN
CITY OF PETALUMA

ADOBE CREEK BRIDGE
EXTENSION PROFILE
AREA 12

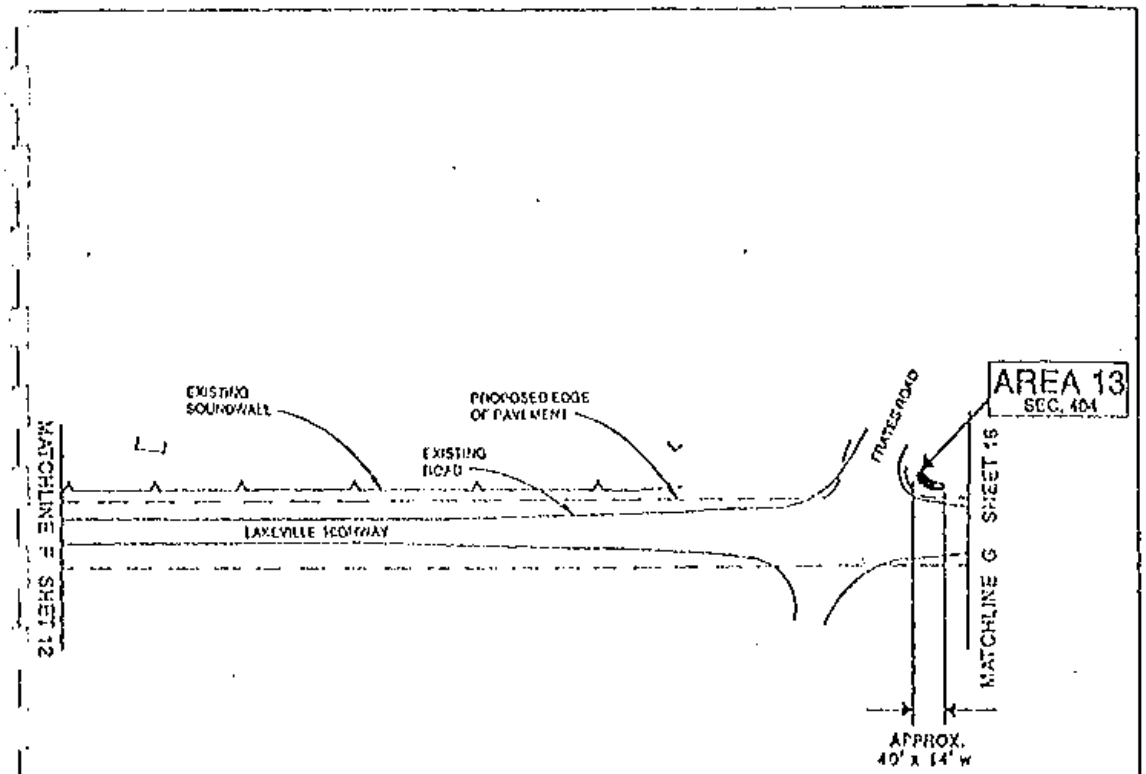
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND PETALUMA ROAD (POSTMILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 14 OF 21 DATE: MAY 1994

No. 19798N39




PROPOSE
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PLAN VIEW AREA 13

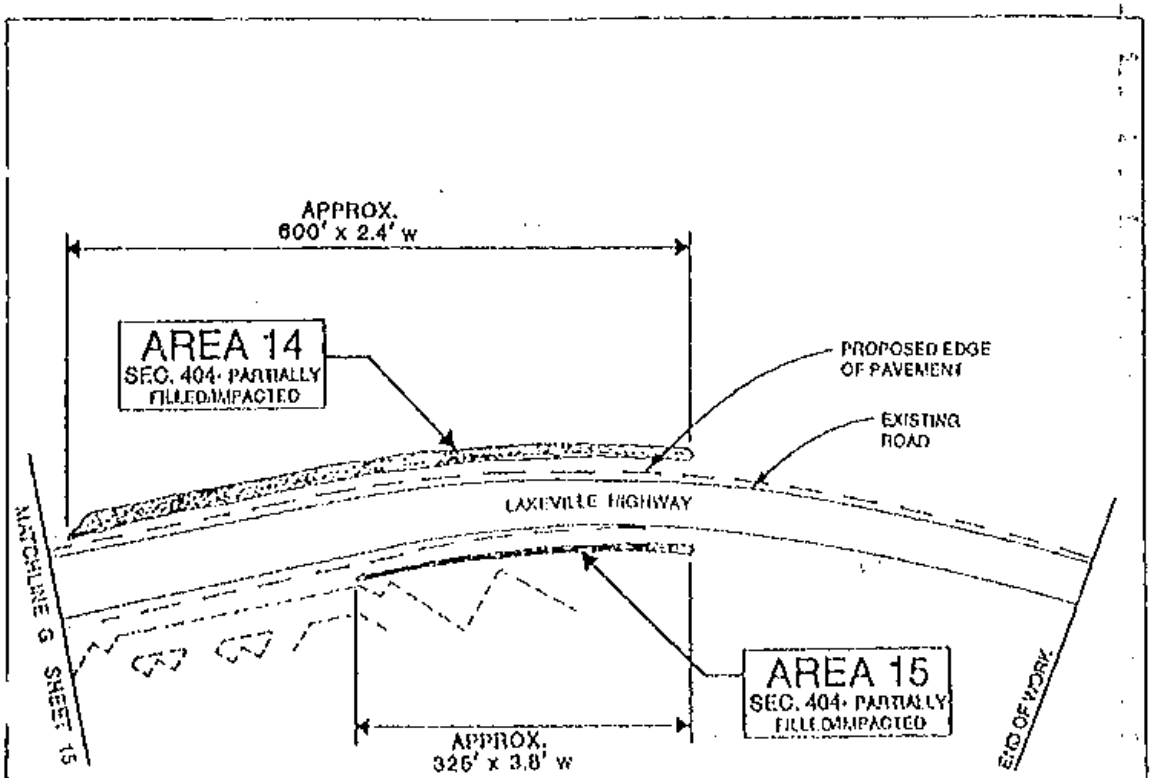
PROPOSED WORK
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CADDLEFIELD LANE AND PETALUMA HILL ROAD (POST MILE 35.0 TO 36.5) IN CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 15 OF 21 DATE: MAY 1994

No. 19798139




**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PLAN VIEW AREAS 14 AND 15

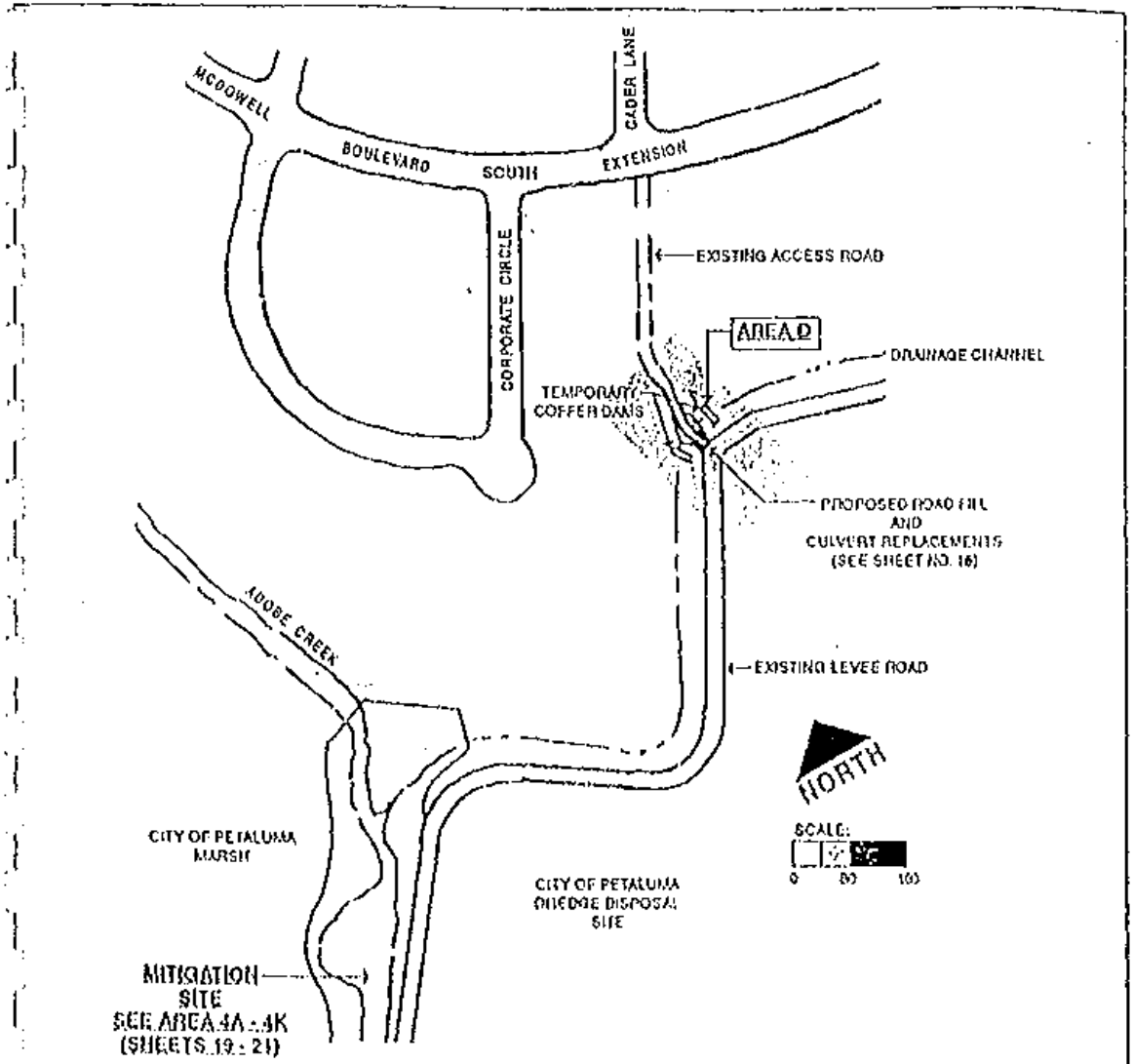
**PROPOSED WORK**
IN: McDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CADDIE LANE AND PETALUMA ROAD (POST MILE 35.0 TO 36.7) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET 10 OF 23 DATE: MAY 1994

No. 19798N39




**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

PLAINVIEW ACCESS ROAD TO MITIGATION SITE AREA D

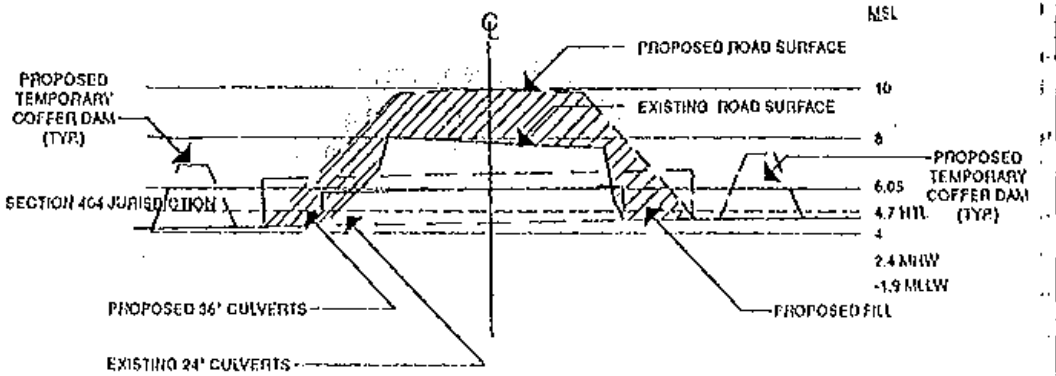
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND PAYRAN ROAD (POSTMILE 35.9 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

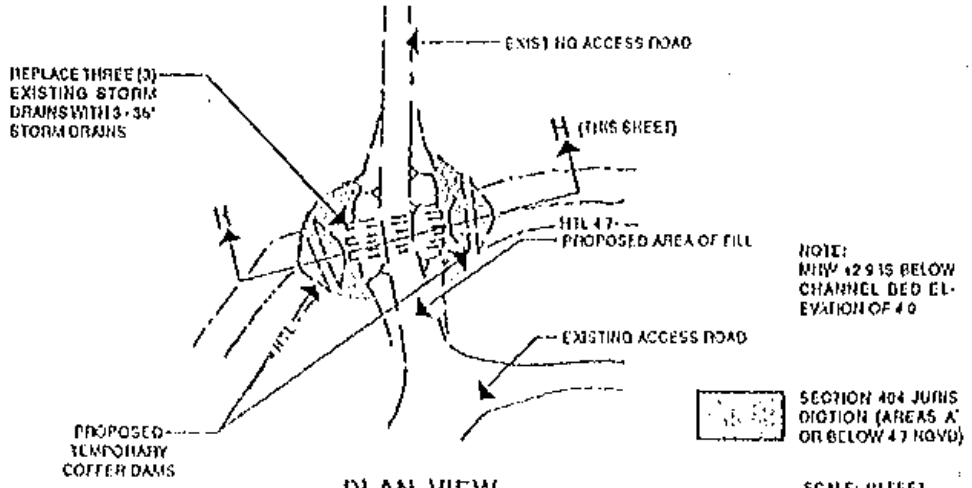
SHEET: 17 OF 21 DATE: MAY 1994

No. 19798039




SECTION H - H

SCALE: N.T.S.




PLAN VIEW

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

CULVERT REPLACEMENT FOR ACCESS ROAD AREA D

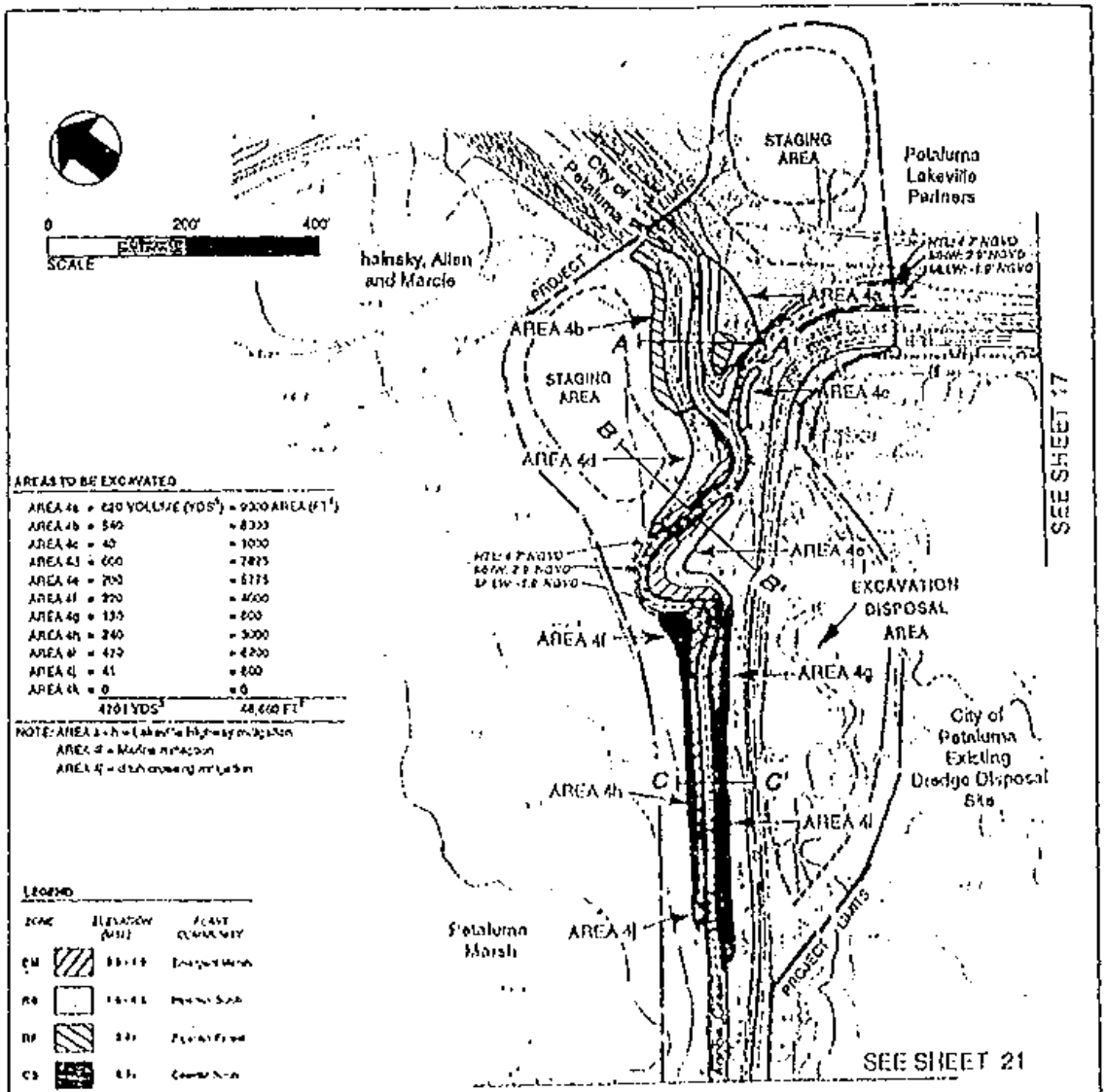
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND PETALUMA-SCHOOL ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET: 18 OF 21 DATE: MAY 1994

No. 19798N39




AREAS TO BE EXCAVATED

| | | |
|---|---|---|
| AREA 4a | = 620 VOLUME (YDS³) | = 9300 AREA (FT²) |
| AREA 4b | = 540 | = 8300 |
| AREA 4c | = 40 | = 1000 |
| AREA 4d | = 600 | = 7825 |
| AREA 4e | = 200 | = 6775 |
| AREA 4f | = 920 | = 4600 |
| AREA 4g | = 135 | = 800 |
| AREA 4h | = 240 | = 3000 |
| AREA 4i | = 470 | = 4200 |
| AREA 4j | = 41 | = 800 |
| AREA 4k | = 0 | = 0 |
| | 4701 YDS³ | 48,600 FT² |

NOTE: AREA 4a-h = Lakeville Highway mitigation
AREA 4i = Marsh mitigation
AREA 4j = ditch crossing mitigation

LEGEND

| ZONE | ELEVATION (MSL) | PLANT COMMUNITY |
|---|---|---|
| CM | | Coastal Marsh |
| FM | | Freshwater Marsh |
| RF | | Riparian Forest |
| CS | | Coastal Scrub |

**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

WETLAND MITIGATION SITE (MIDDLE ADOBE) AREAS 4A THRU 4J

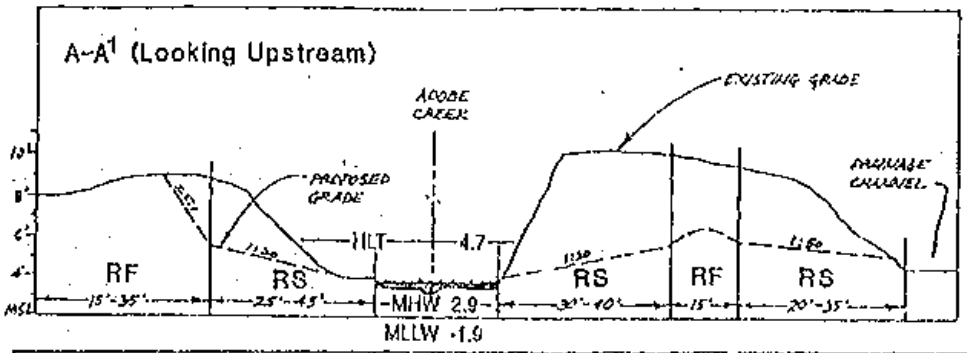
**PROPOSED WORK**
BY: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

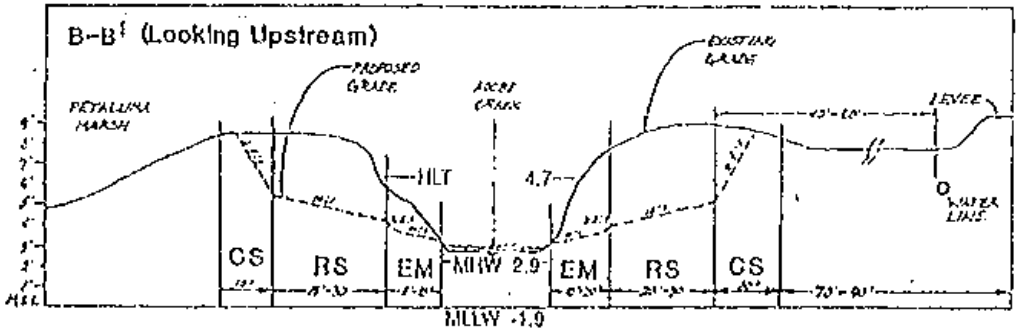
AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND FRATES ROAD (POST MILE 35.0 TO 36.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

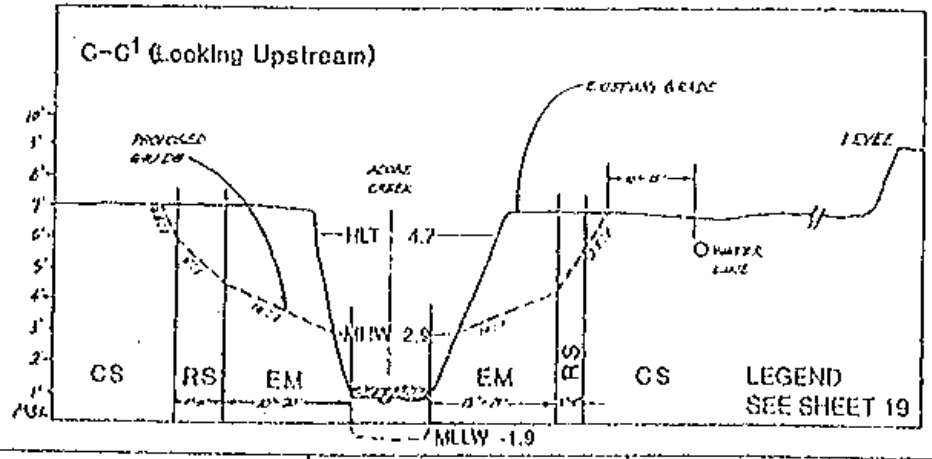
APPLICATION BY: CITY OF PETALUMA

SHEET 19 OF 21 DATE: MAY 1994

No. 1979SN39




**PROPOSE**
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK.

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

SECTIONS
WETLAND MITIGATION SITE AREAS AA THRU AK

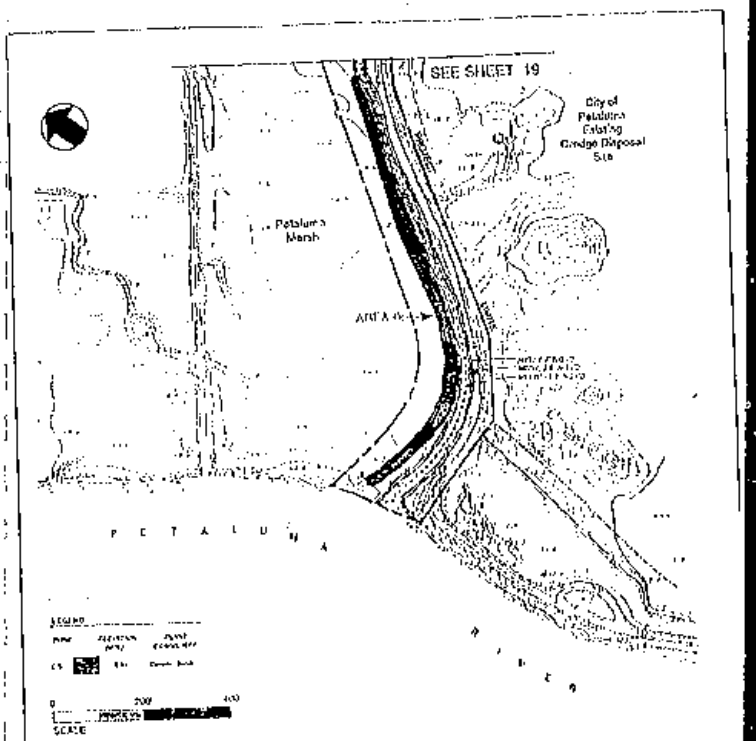
**PROPOSED WORK**
IN: MCDOWELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

AT: LAKEVILLE HIGHWAY BETWEEN CADFIELD LANE AND FRATES ROAD (POST MILE 35.0 TO 36.0) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

APPLICATION BY: CITY OF PETALUMA

SHEET: 20 OF 21 DATE: MAY 1994

No. 19793039




PROPOSE
REDUCE TRAFFIC CONGESTION AND IMPROVE HIGHWAY SAFETY
DATUM: NGVD (MSL)

PROPOSED ROAD WIDENING AND FILL ALONG LAKEVILLE HIGHWAY AND WETLAND MITIGATION ALONG ADOBE CREEK

LAKEVILLE HIGHWAY (STATE ROUTE 116) WIDENING PROJECT IN THE CITY OF PETALUMA

WETLAND MITIGATION SITE (LOWELL ADOBE) AREA 4K

PROPOSED WORK

IN: SCHOPPELL CREEK, ADOBE CREEK AND ROADSIDE DRAINAGE AREAS

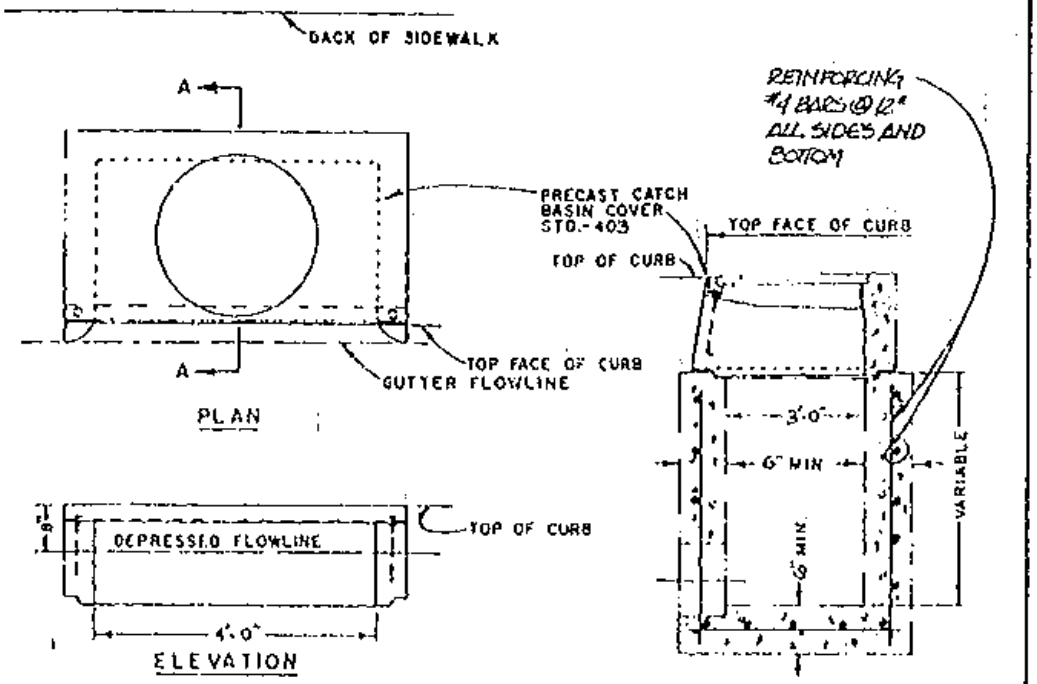
AT: LAKEVILLE HIGHWAY BETWEEN CAULFIELD LANE AND CASA GRANDE (POST MILE 25.0/26.5) CITY OF PETALUMA, SONOMA COUNTY, CALIFORNIA

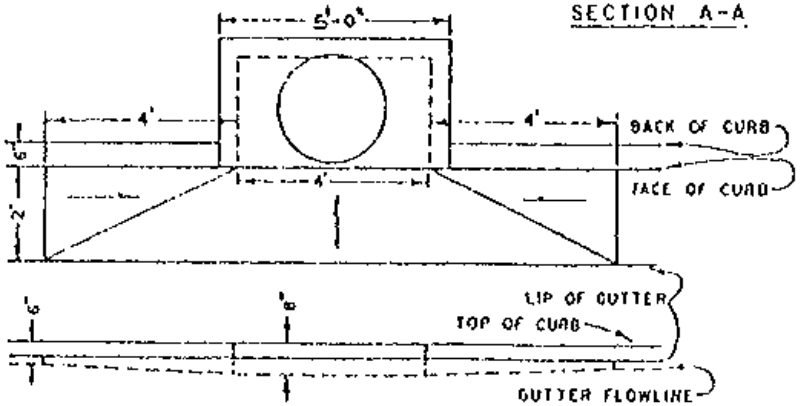
APPLICATION BY: CITY OF PETALUMA

SHEET 21 OF 21 DATE MAY 1979

SECTION V

# CITY OF PETALUMA STANDARD PLANS



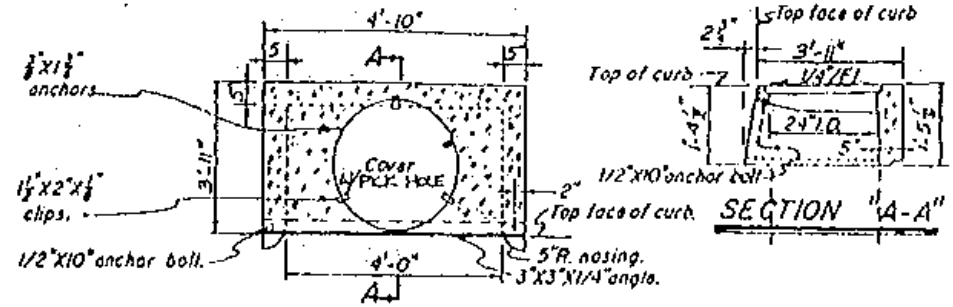




CURB CONFORM

# CITY OF PETALUMA

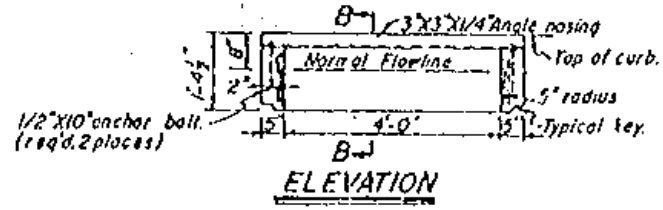
TYPE "A"
CATCH BASIN

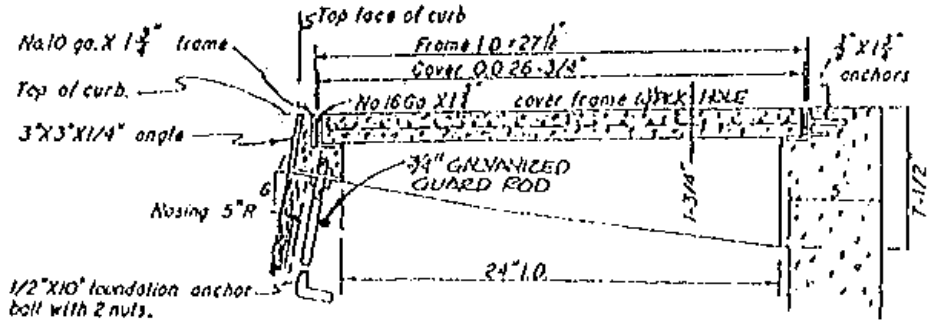
| | |
|---|---|
| SCALE N.T.S. | DATE 4/15/92 |
| DRAWN BY S.R. | APPROVED |
| | DRAWING NO. 401 |





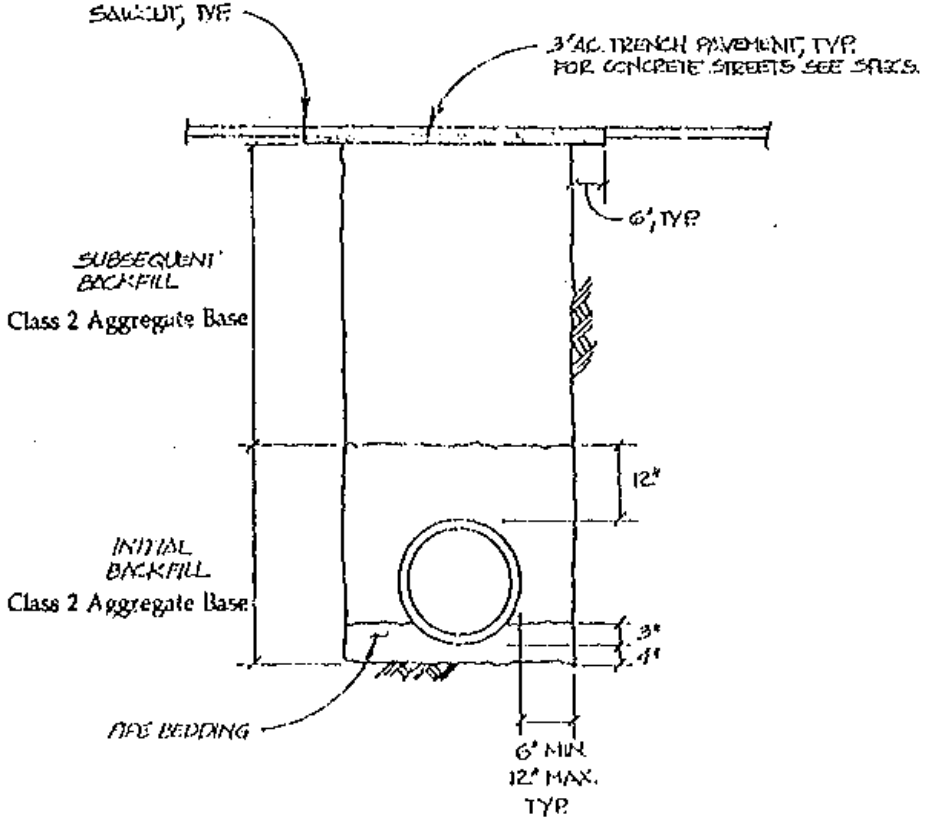





NOTES
1. The Contractor, at his option, may use a fiberglass liner and cast the catch basin top in place.
2. A cast iron frame ring may be substituted for the galvanized frame for the cover opening provided that the frame fit, resting as shown.

| CITY OF PETALUMA | | |
|---|---|---|
| PRECAST CATCH BASIN COVER | | |
| SCALE N.T.S. | DATE 4/15/92 | |
| DRAWN BY S.R. | APPROVED | DRAWING NO. 403 |

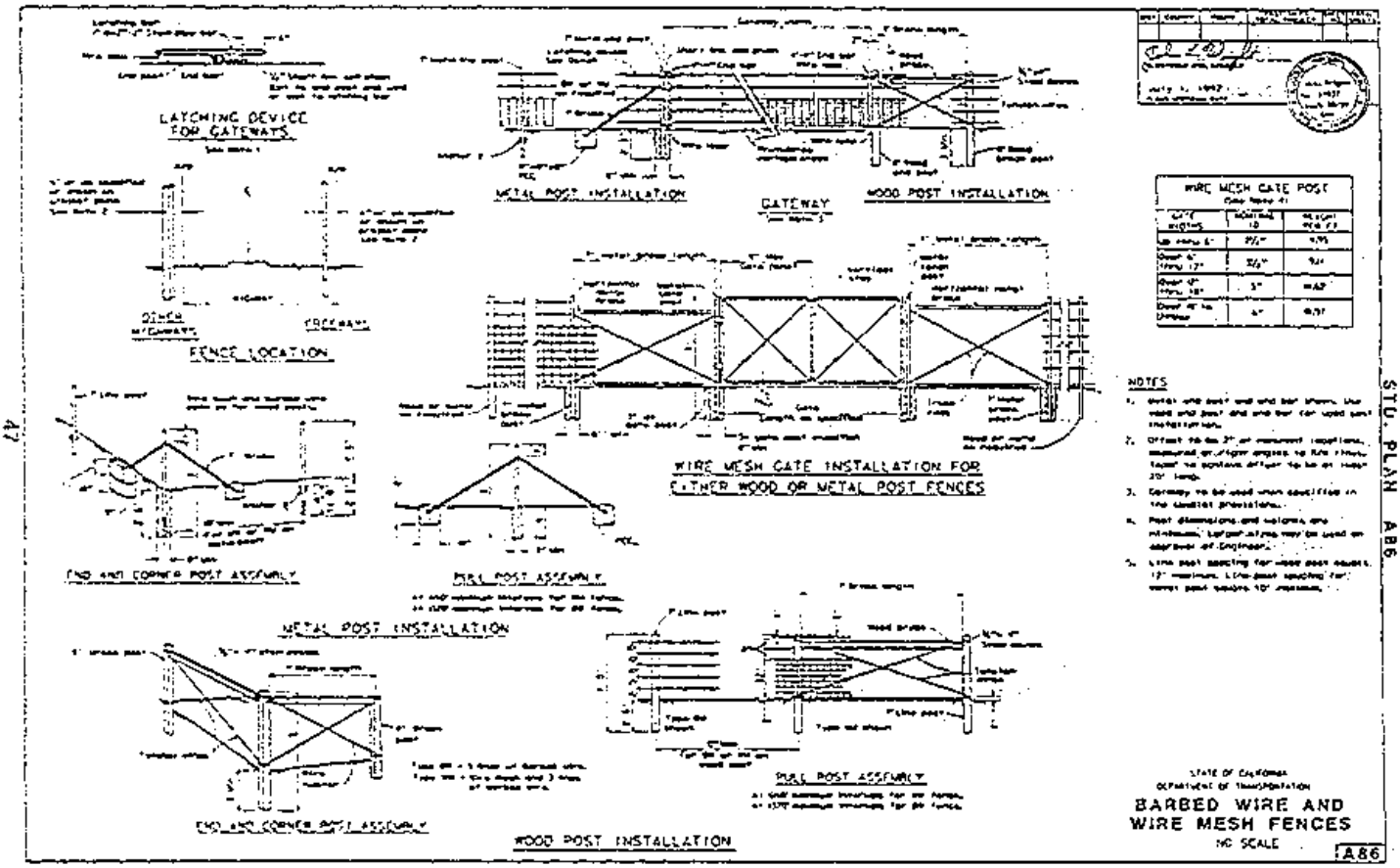



CITY OF PETALUMA

TRENCH DETAIL

| SCALE | DATE |
|---|---|
| N.T.S. | 4/17/92 |

| DRAWN BY | APPROVED | DRAWING NUMBER |
|---|---|---|
| C.H.S. | | 408 |




| WIRE MESH GATE POST (See Note 4) | | |
|---|---|---|
| GATE WIDTH | NOMINAL I.D. | NOMINAL WEIGHT PER FT. |
| | | |
| | | |
| | | |
| | | |
| | | |

NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]

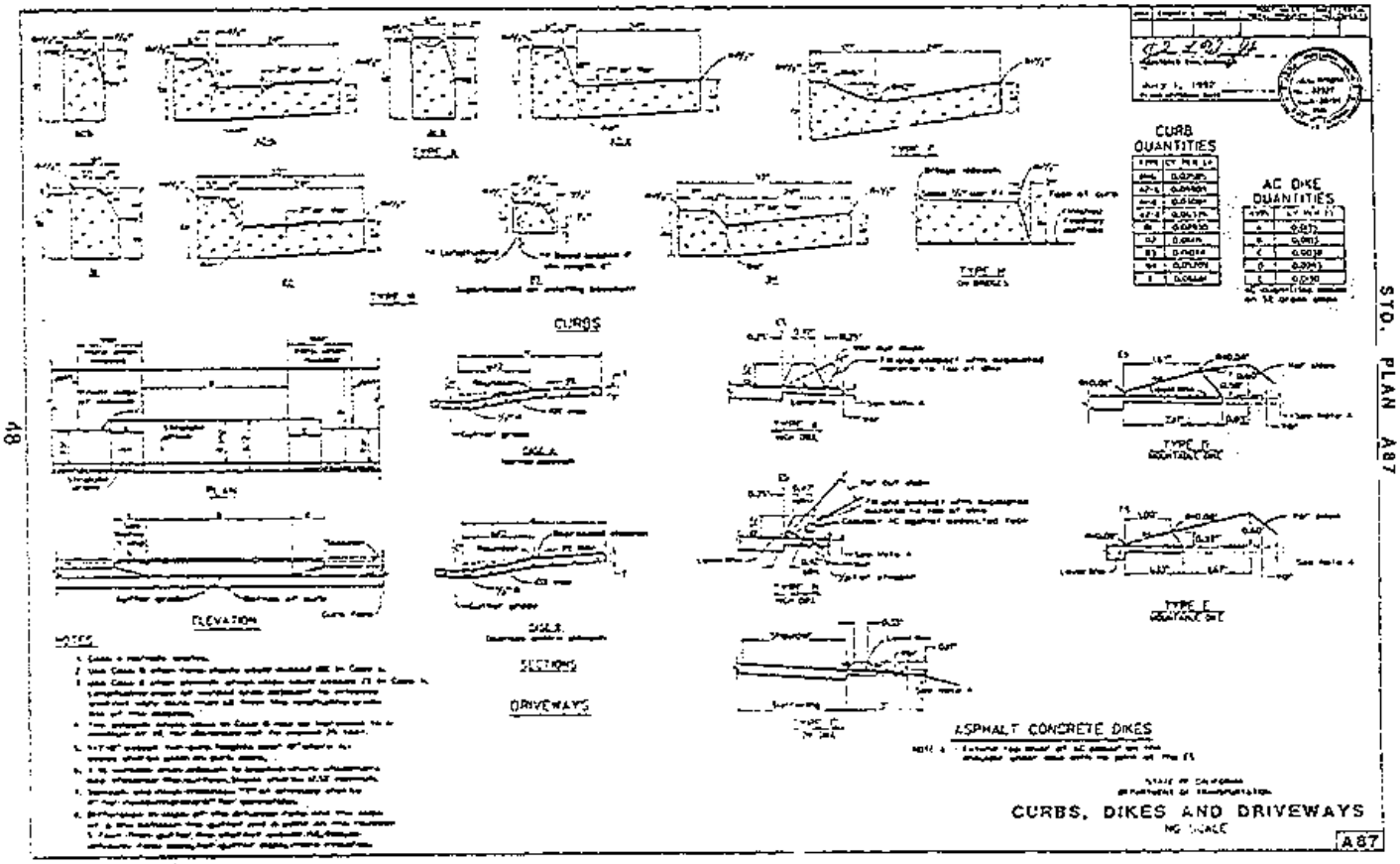
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# BARBED WIRE AND WIRE MESH FENCES

NO SCALE

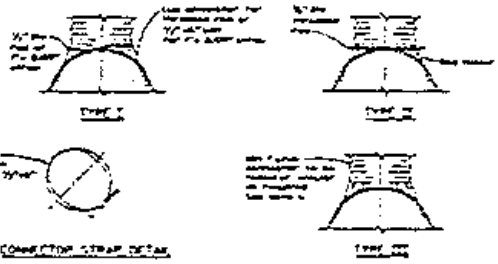
A86

STD. PLAN A86

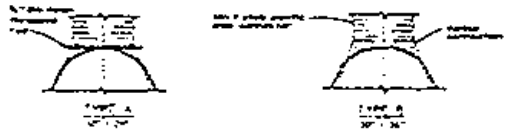



STD. PLAN A87

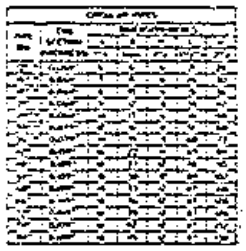
48

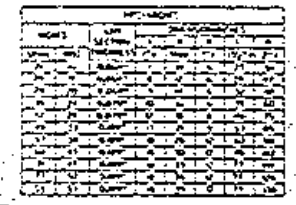


ALTERNATIVE CONNECTIONS FOR
PIPE TO METAL FLARED END SECTIONS

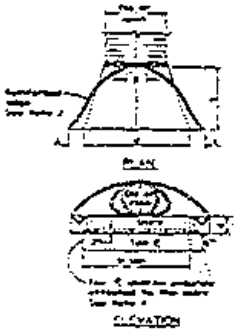


ALTERNATIVE CONNECTIONS FOR
PIPE TO PLASTIC FLARED END SECTIONS

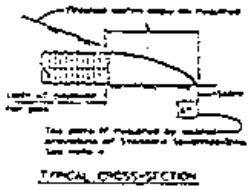




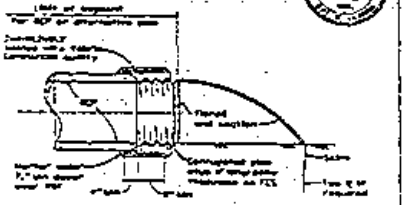
FLARED END SECTIONS FOR
CORRUGATED METAL AND PLASTIC PIPE CULVERTS



ELEVATION



TYPICAL CROSS-SECTION



FLARED END SECTION
CONNECTION TO RCP

NOTES

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# METAL AND PLASTIC FLARED END SECTIONS

NO SCALE

D94A

STD. PLAN D94A

GENERAL NOTES:

1. All wiring methods and equipment construction shall conform to the national Electrical Code.

2. All conduit to be used shall be a minimum of 2" diameter, except from each street light to the adjacent pull box which may be 1" diameter PVC or metal, and shall have the following cover from top of conduit.

   A. Within sidewalk of parkway areas: 2" - 0" min. Schedule 40 P.V.C.
   B. Within roadway areas: 3' - 0" min. Schedule 80 P.V.C.

3. All metal conduit and other metal parts shall be continuously bonded and grounded.

4. All bends and/or offsets shall be made with factory sections.

5. Unless otherwise approved by the City Engineer, a No. 5 pull box (State Standard ES-8) shall be used at all street light standards.

6. All pull boxes shall be per State Standard ES-8.

7. Junction boxes to be not more than 200' apart on long runs.

8. When pull boxes are subject to vehicular traffic, they shall be set on concrete footings and cast iron traffic covers shall be installed.

9. All splices to be approved solderless waterproof connectors of proper size. (Example: split bolt plus tape plus coating).

10. All empty conduits shall have a 1/4" nylon pull rope provided inside.

11. All conduits shall be sealed with an approved duct seal. Conduits stubbed for future extensions shall be capped.

CITY OF PETALUMA

GENERAL NOTES

SCALE: NONE | DATE: JAN.1991

| | | |
|---|---|---|
| | 3/5/91 | 500 |

12. All street lighting projects are subject to approval by the City Traffic Engineer.

13. All pull box covers shall be secured with brass hold down bolts and inscribed, "Street Lighting".

14. Street light spacing shall be maintained per design criteria. Street light spacing shall be located at property lines when possible.

15. The minimum-average maintained foot-candles and uniformity ratio of all street lighting shall comply with design criteria.

16. All street lights equipped with a photocell control shall have the photocell oriented to the north.

17. All wire shall be THHN A.W.G. with the minimum size to be #8 except within Street Lighting Standards, shall be #10.

THE FOLLOWING NOTES TO NOT APPLY TO CITY-FUNDED PROJECTS:

18. Light poles on all streets other than minor streets or cul-de-sacs shall be galvanized steel standards in accordance with City standard plans. The pole heights shall be as delineated on the City Standards.

19. The developer/engineer shall make arrangements for service points with PG&E. The developer shall be responsible for all costs associated therewith which shall be paid directly to PG&E. The contractor shall verify the street light service point location(s) with PG&E prior to installation.

20. Developer shall install, in accordance with City Standards.

21. New developments within an existing developed area shall install the entire lighting system, including luminaires.

22. All street light systems shall be designed for 120 volt service.

CITY OF PETALUMA

GENERAL NOTES

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| CHK | APPROVED |
| DR | |

DWG NO. 600

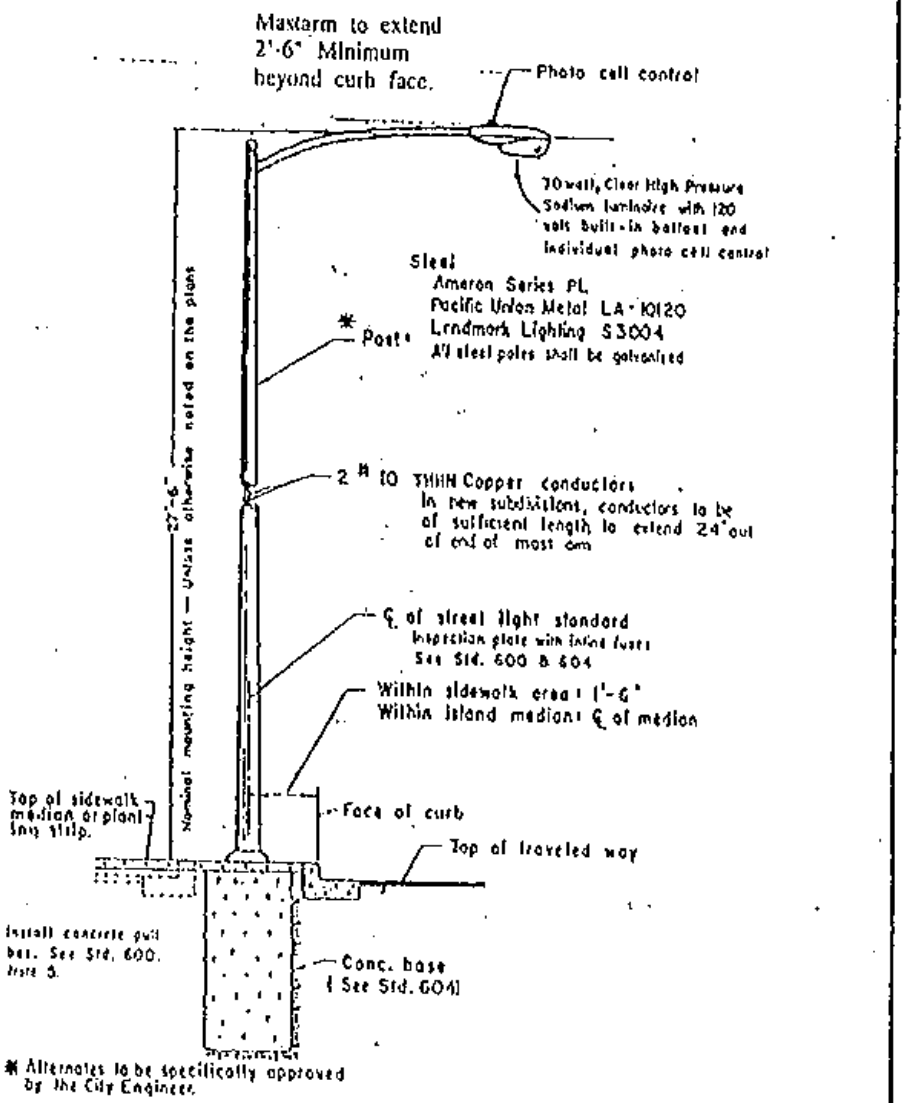
23. The current to be used to determine conductor sizes shall be determined as follows:

$$\frac{\text{Total Wattage of Fixtures Served}}{\text{Service Voltage}} \times 3.5$$

CITY OF PETALUMA

GENERAL NOTES

| SCALE: NONE | DATE: JAN.1991 |
|---|---|
| DWN / DES | APPROVED 9/3-2/91 |
| STD NO. 600 | |




# CITY OF PETALUMA

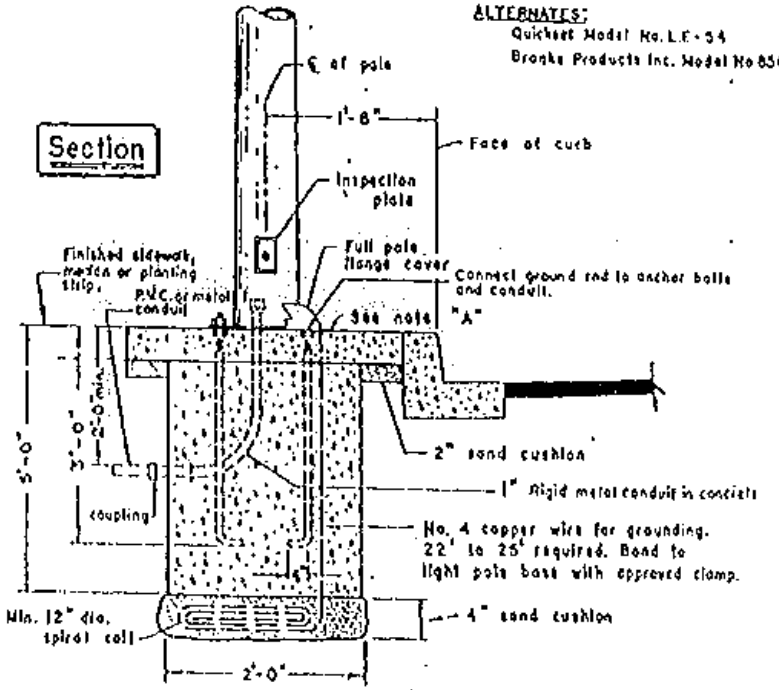
## STREET LIGHT STANDARD

MINOR STREET

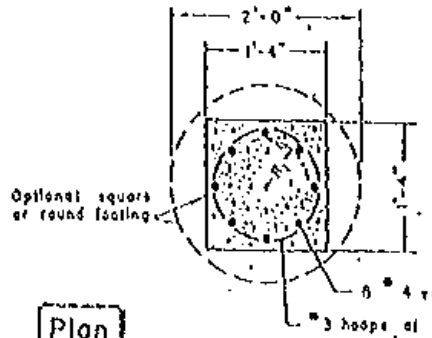
| SCALE: NONE | DATE: Sept 1993 |
|---|---|
| CE | APPROVED |
| CE | 601 |

ALTERNATES:
Quickset Model No. L.F.-54
Bronke Products Inc. Model No 85C-109

Section




Concrete shall be class "A" P.C.C. Pour against undisturbed soil.




Plan

$R_1$ = Anchor bolt dia. Dimension R and bolt pattern to suit pole base furnished.

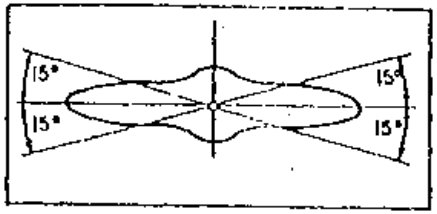
NOTES:

A. In undeveloped areas, construct a 2'x 2' conc. pad. (4" thick) If round footing is poured, stop at the elevation of bottom of the sidewalk.

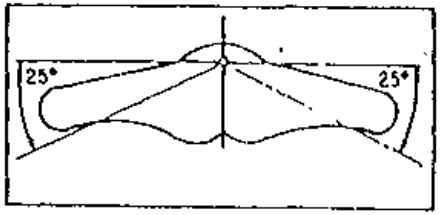
CITY OF PETALUMA

CONCRETE FOOTING DETAILS

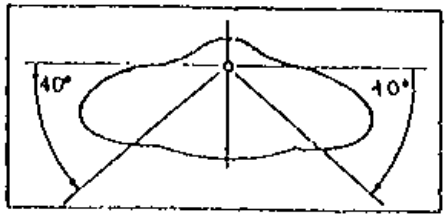
| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| Dwn | Approved |
| Chk | Dwg no. 604 |



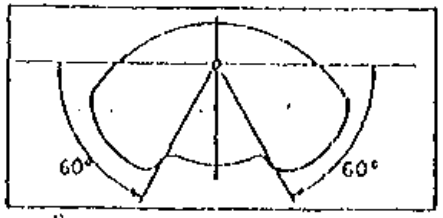

TYPE 1
CENTER OF STREET



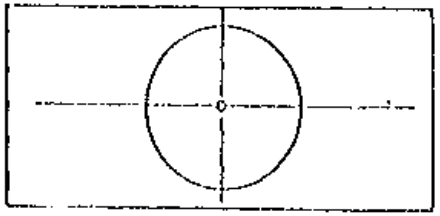

TYPE 2
SIDE MOUNTING
Standard for Minor Street unless noted otherwise




TYPE 3
SIDE MOUNTING
Standard for Collector and Major Streets unless noted otherwise




TYPE 4
SIDE MOUNTING

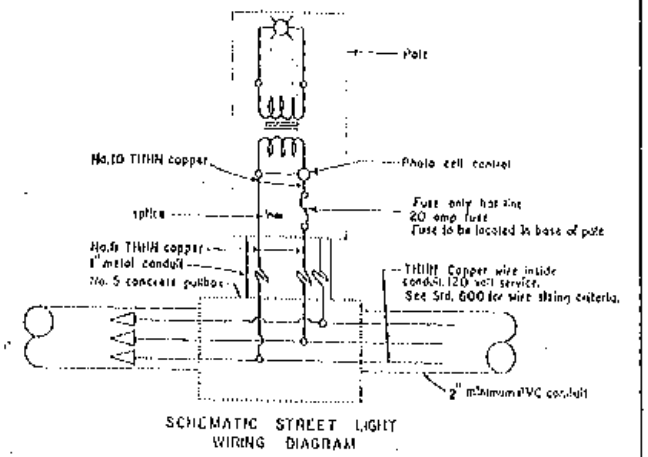


TYPE 5

CITY OF PETALUMA

I.E.S. LIGHT PATTERNS

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | DWG. NO. 605 |




SCHEMATIC STREET LIGHT
WIRING DIAGRAM

©

CITY OF PETALUMA

STREET LIGHT WIRING DIAGRAM

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | 606 |

| AREA CLASS | ROADWAY CLASS | MIN. AVG. MAINTAINED F.C. | UNIFORMITY RATIO AVG.F.C./MIN.F.C. |
|---|---|---|---|
| RESIDENTIAL | LOCAL | 0.2 | 4:1 |
| | COLLECTOR | 0.3 | 5:1 |
| | MAJOR | 0.75 | 3:1 |
| URBAN | LOCAL | 0.2 | 4:1 |
| | COLLECTOR | 0.3 | 5:1 |
| | MAJOR | 0.75 | 3:1 |
| COMMERCIAL | COLLECTOR | 0.3 | 5:1 |
| | MAJOR | 0.75 | 3:1 |

AVERAGE MAINTAINED F.C. IS: $F.C. = \frac{(LL)(MF)(CU)}{(W)(S)}$

FC= illumination in footcandles
LL=rated initial lamp lumens
MF = maintenance factor
CU = coefficient of utilization
W = street width, curb to curb
S = spacing of luminaires

MINIMUM F.C. IS: $FCmin. = (fc)(LF)(MF)(CF)$
FCmin. = minimum point footcandles
fc = raw total footcandles (at darkest point)
LF = lamp factor
MF = maintenance factor
CF = mounting height correction factor

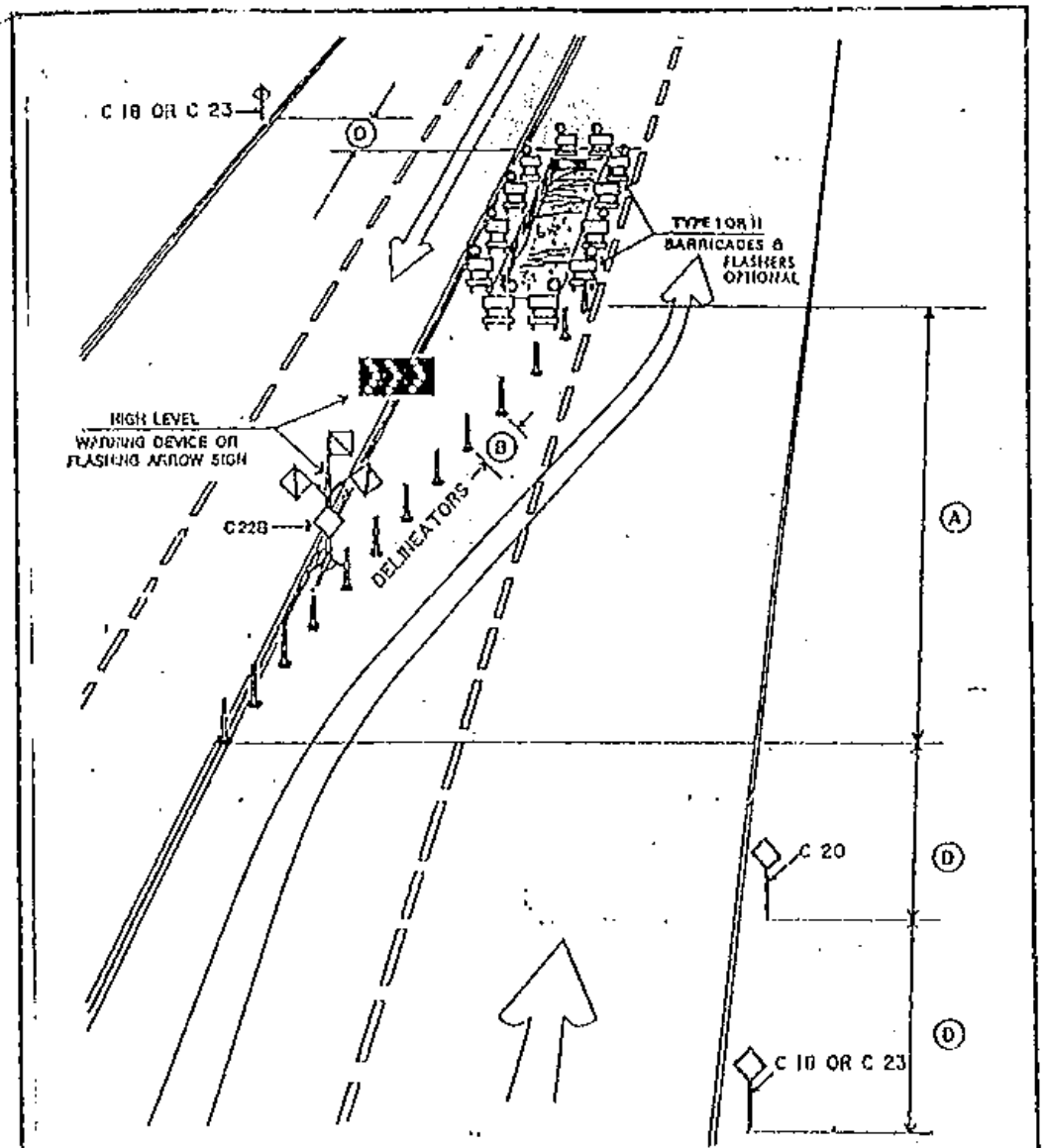
UNIFORMITY RATIO = $\frac{\text{AVERAGE FOOTCANDLES}}{\text{MINIMUM FOOTCANDLES}}$

# CITY OF PETALUMA

## ROADWAY ILLUMINATION

SCALE: NONE | DATE: JAN.1991

DWG NO. 607




NOTES:

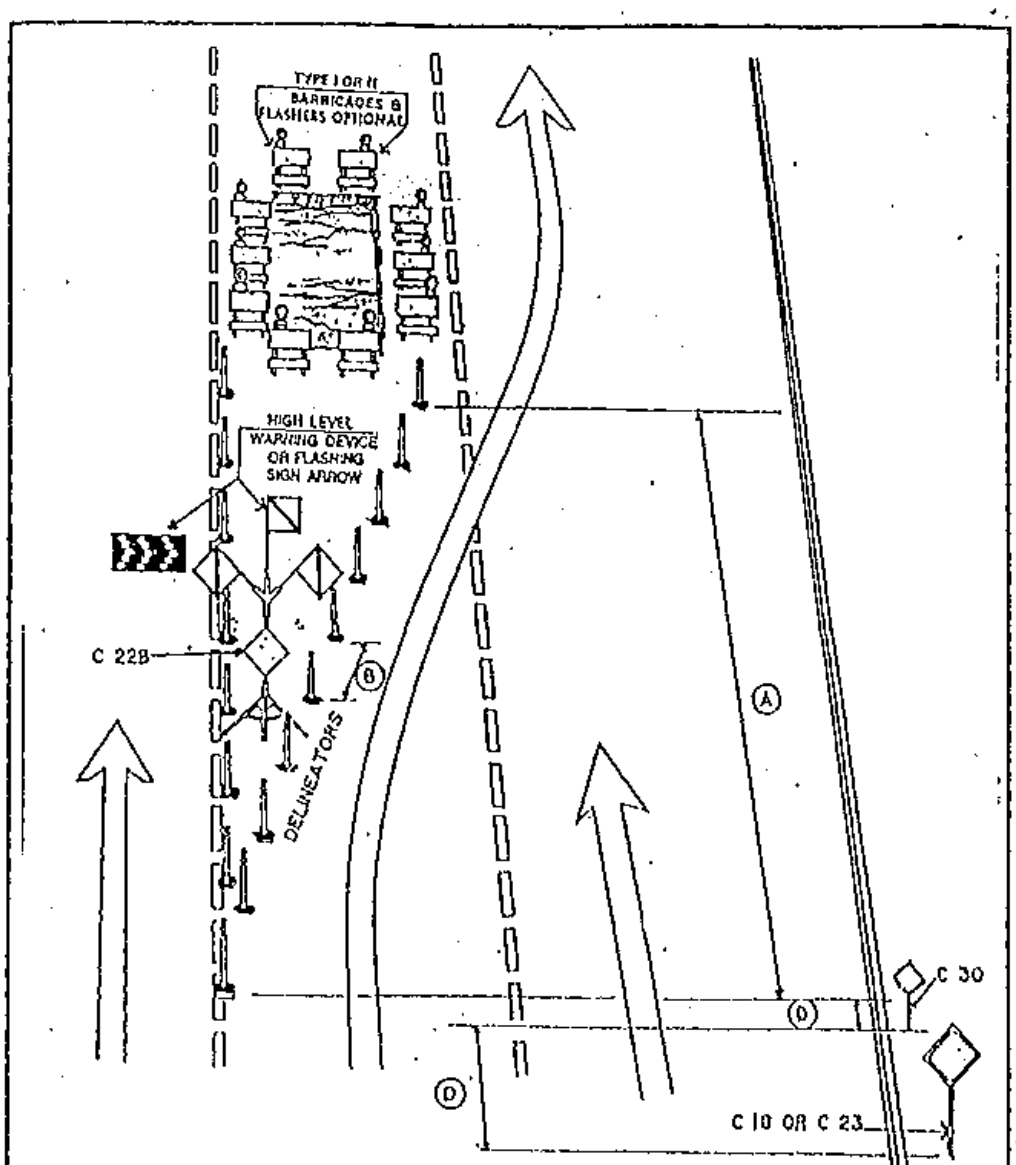
1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (D) SIGN SPACING

CITY OF PETALUMA

# WORK AREA TRAFFIC CONTROL

## LEFT LANE CLOSURE

| SCALE: NONE | DATE: JAN.1991 |
|---|---|
| DRN. GR | APPROVED |
| | DWG. NO. 740A |




NOTES:

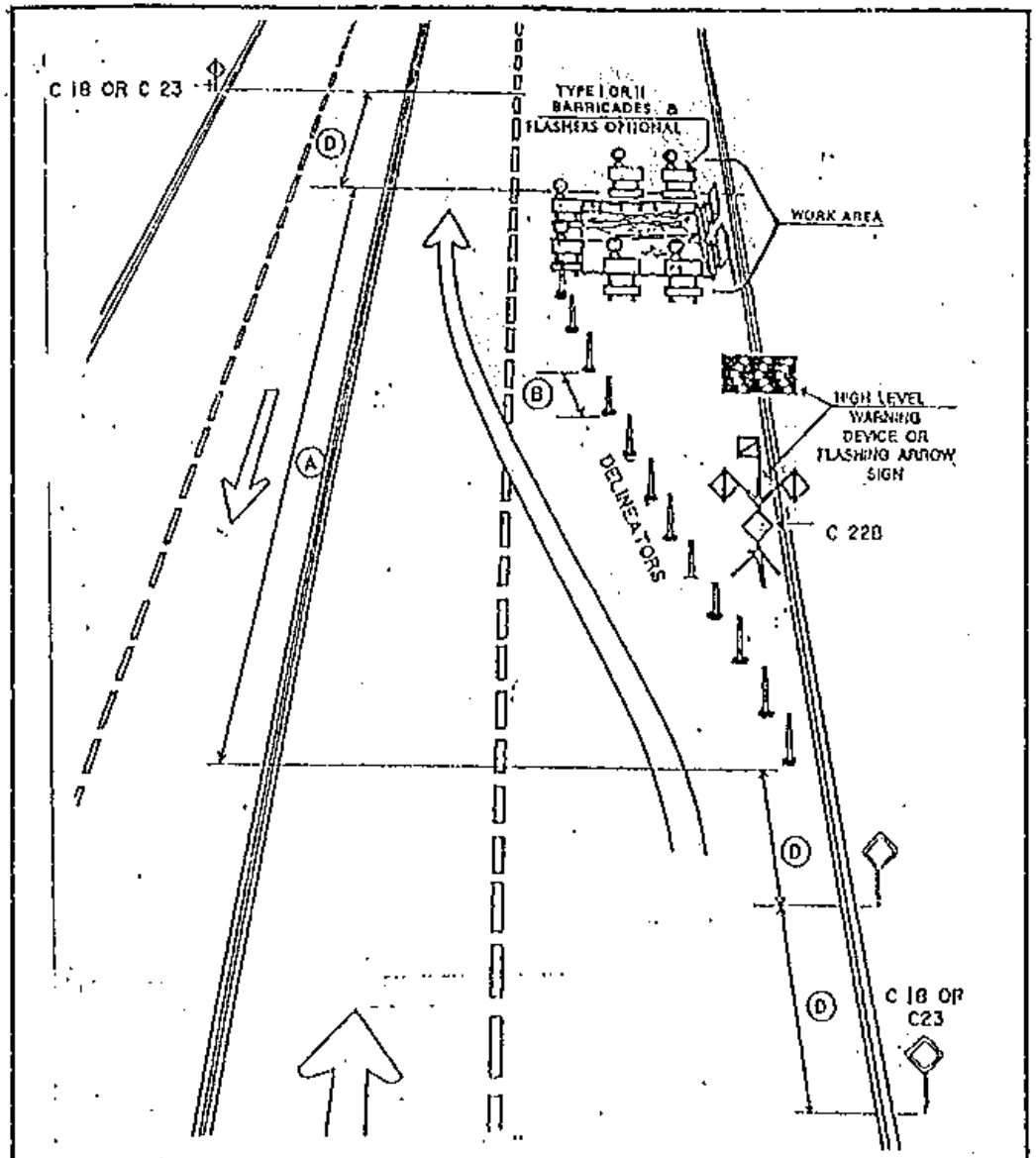
1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (D) SIGN SPACING

CITY OF PETALUMA

WORK AREA TRAFFIC CONTROL

MIDDLE LANE CLOSURE

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | 7408 |




NOTES!

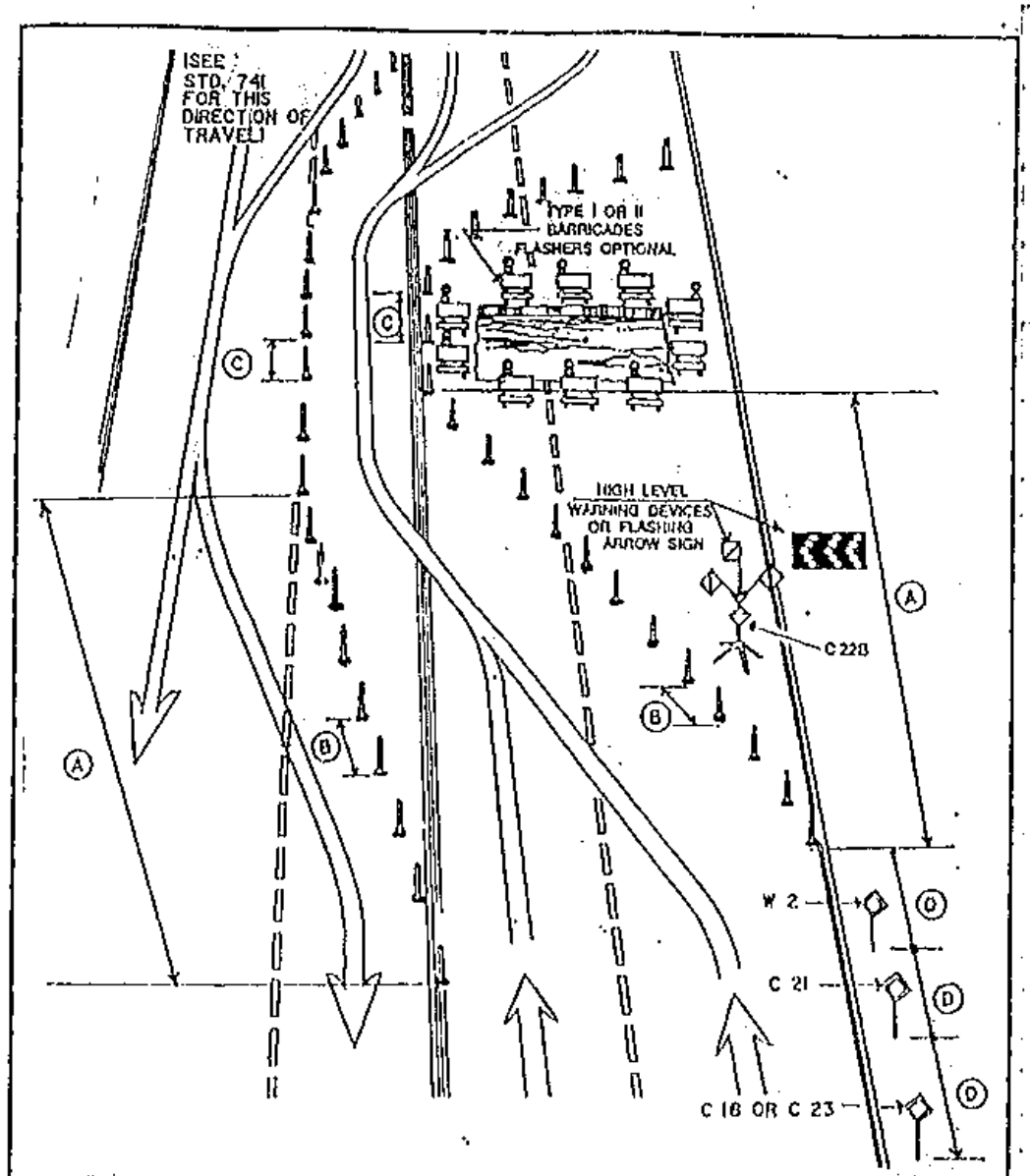
1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (D) SIGN SPACING

CITY OF PETALUMA

WORK AREA TRAFFIC CONTROL

RIGHT LANE CLOSURE

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| DRN CHK | APPROVED | CVS NO. 740C |




NOTES:

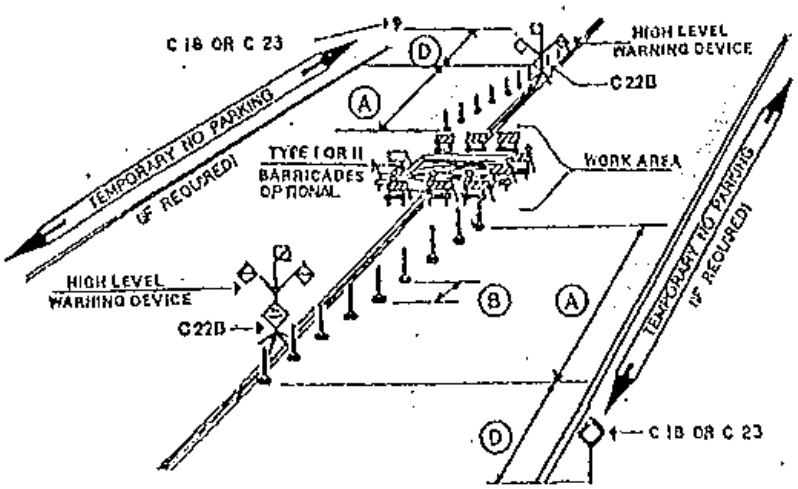
1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (C) DELINEATOR SPACING-TANGENTS
   - (D) SIGN SPACING

# CITY OF PETALUMA

## WORK AREA TRAFFIC CONTROL

HALF-ROADWAY CLOSURE

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | 740D |




NOTES:

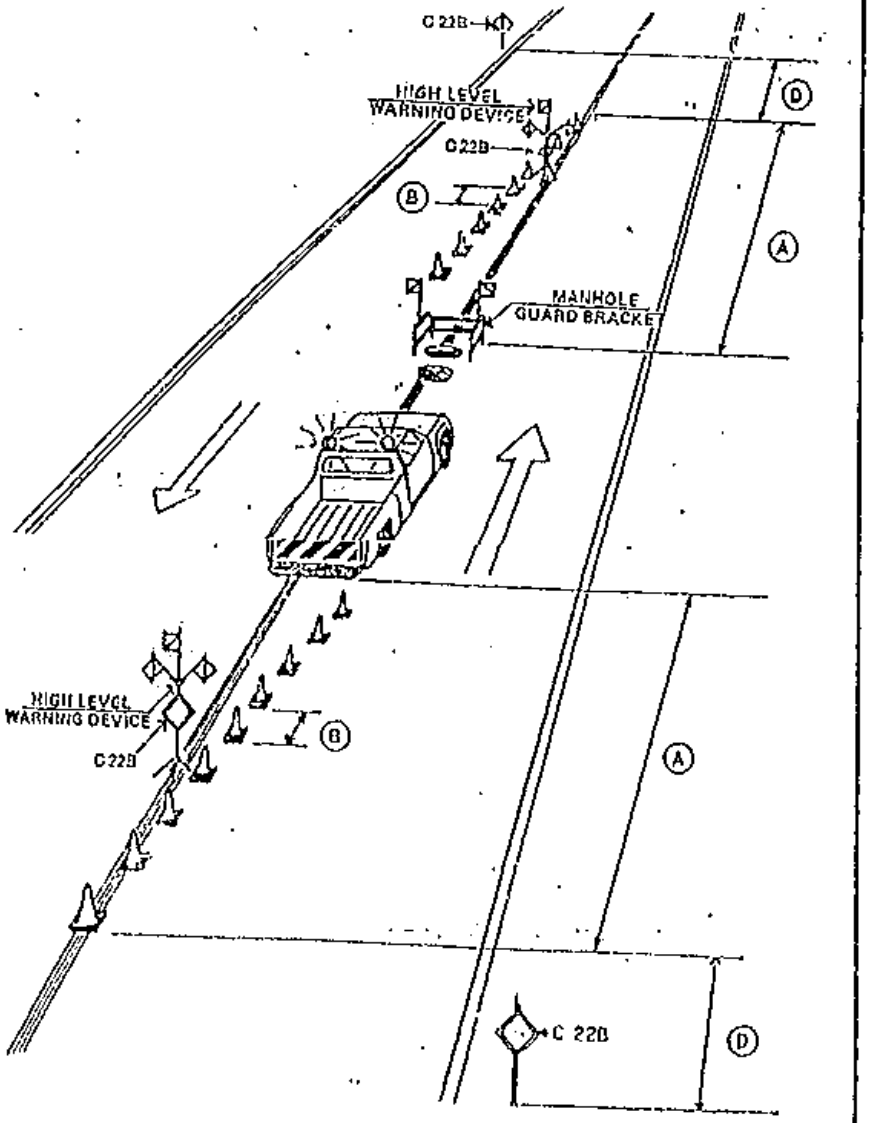
1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (D) SIGN SPACING

CITY OF PETALUMA

WORK AREA TRAFFIC CONTROL

WORK AREA IN CENTER OF STREET

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | 740E |




NOTES:

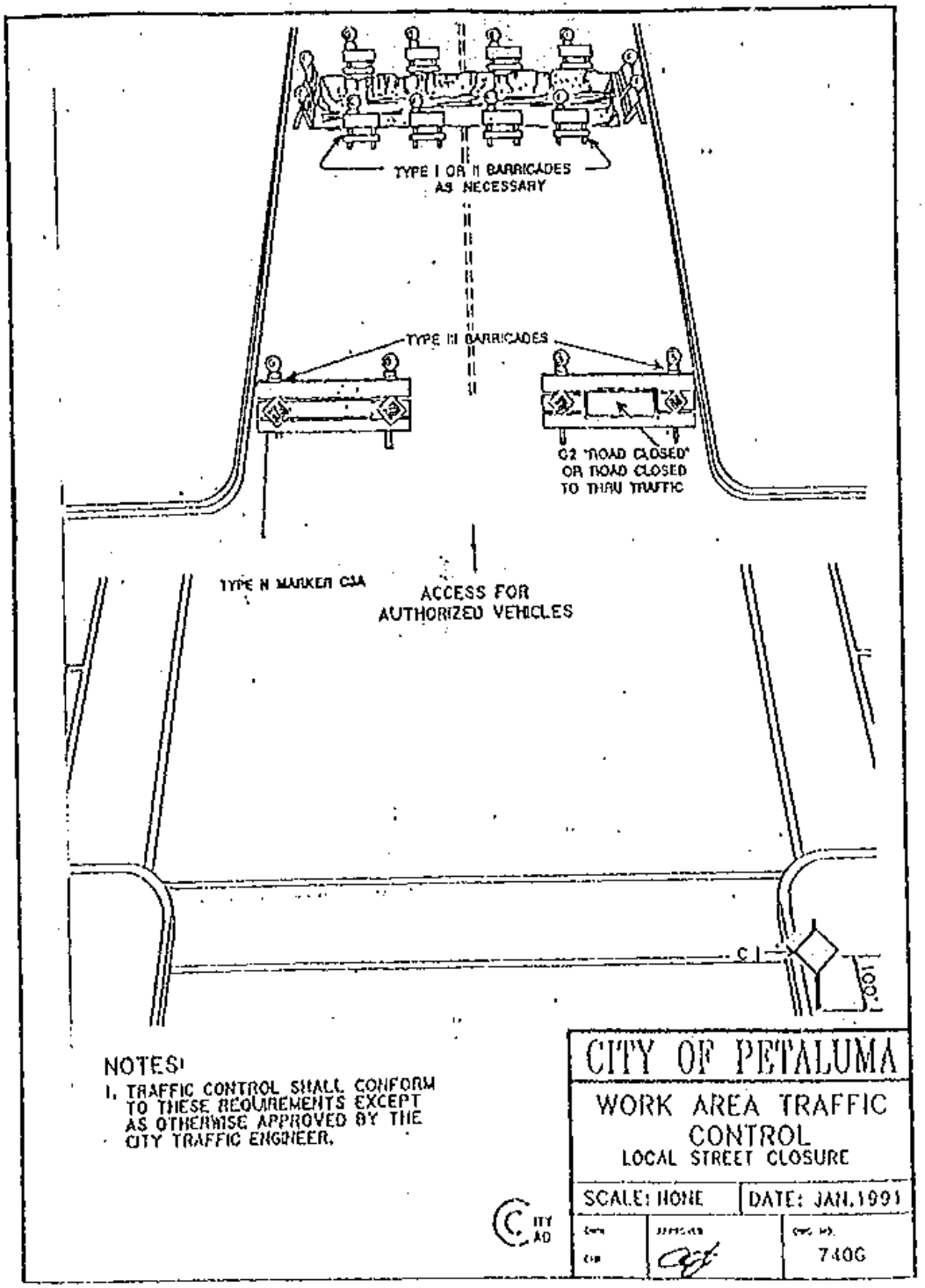
1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (D) SIGN SPACING

# CITY OF PETALUMA

## WORK AREA TRAFFIC CONTROL

MANHOLE ACCESS IN CENTER OF STREET

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | 740F |




NOTES:

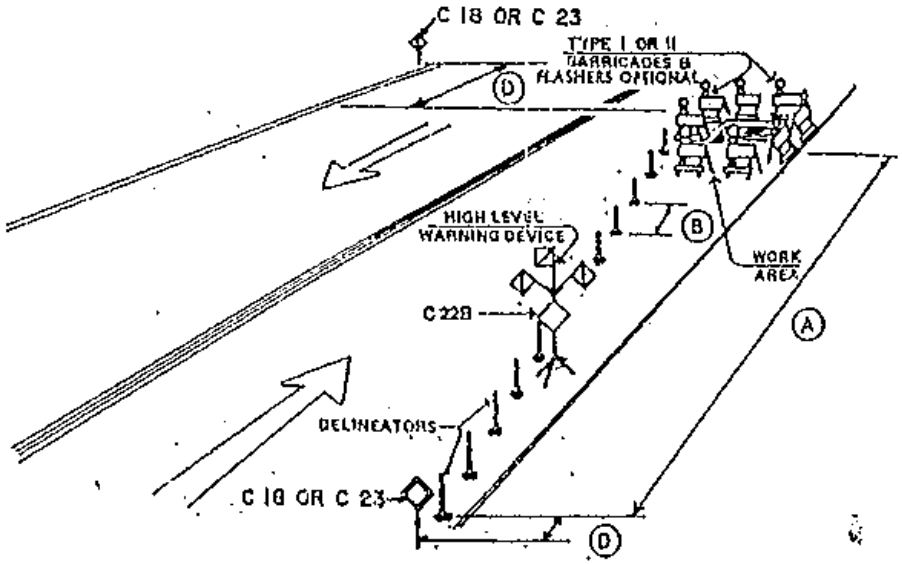
1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.

# CITY OF PETALUMA

## WORK AREA TRAFFIC CONTROL

LOCAL STREET CLOSURE

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | 7406 |




NOTES:

1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.

2. SEE STD. 741 FOR:

   (A) TAPER LENGTH

   (B) DELINEATOR SPACING-TRANSITION

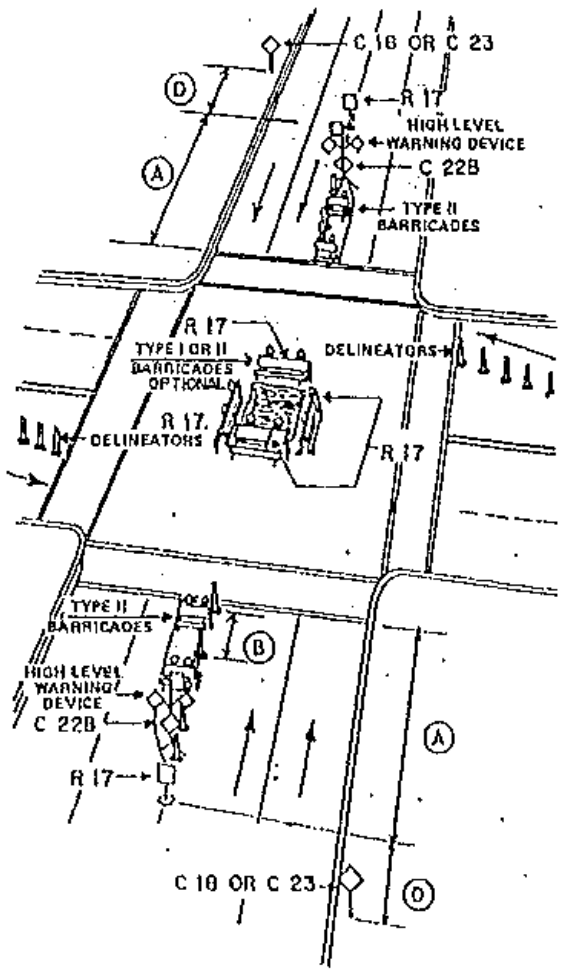
   (D) SIGN SPACING

CITY OF PETALUMA

WORK AREA TRAFFIC CONTROL

WORK AREA IN PARKING LANE OR SHOULDER

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| DRN BY | APPROVED | DWG NO. 741H |




NOTES:

1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.

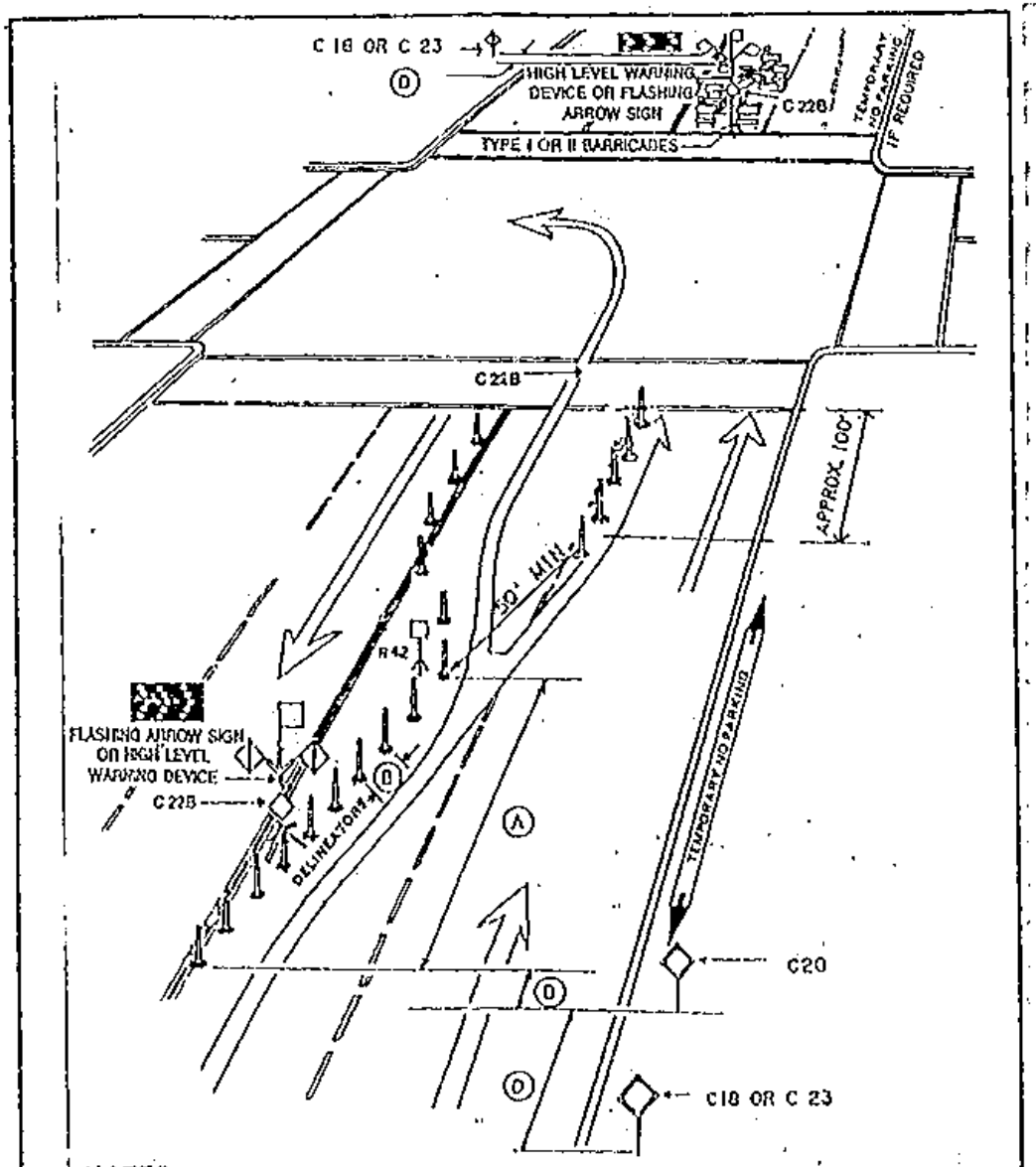
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (D) SIGN SPACING

# CITY OF PETALUMA

## WORK AREA TRAFFIC CONTROL
### WORK WITHIN INTERSECTION

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| DRN: | APPROVED: agb |
| CHK: | DWG NO. 7401 |

CITY OF PETALUMA




NOTES:

1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.

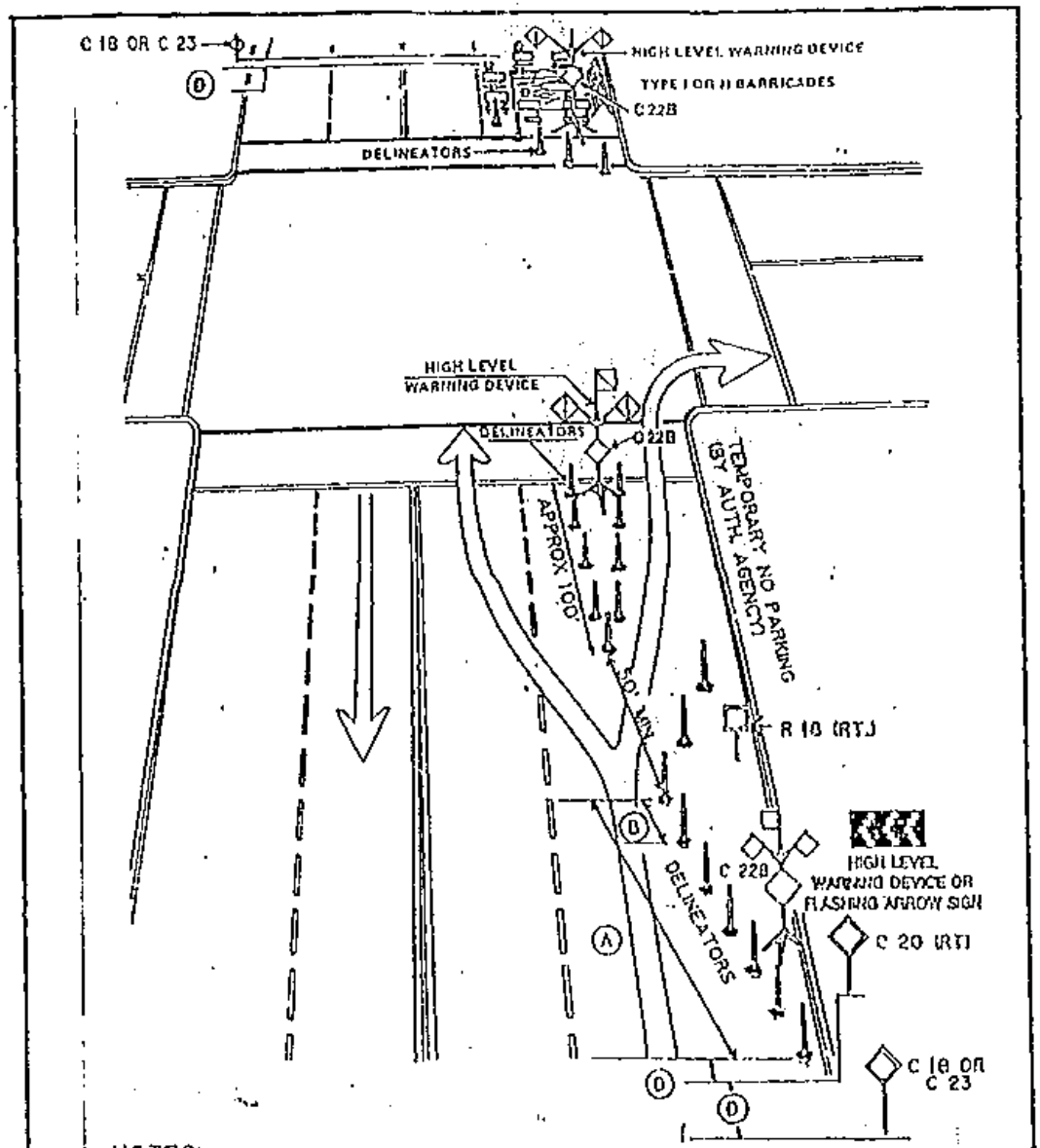
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (D) SIGN SPACING

# CITY OF PETALUMA

## WORK AREA TRAFFIC CONTROL

WORK BEYOND INTERSECTION
LEFT LANE CLOSED

| SCALE: NONE | DATE: JAN.1991 |
|---|---|
| | 740J |




NOTES:

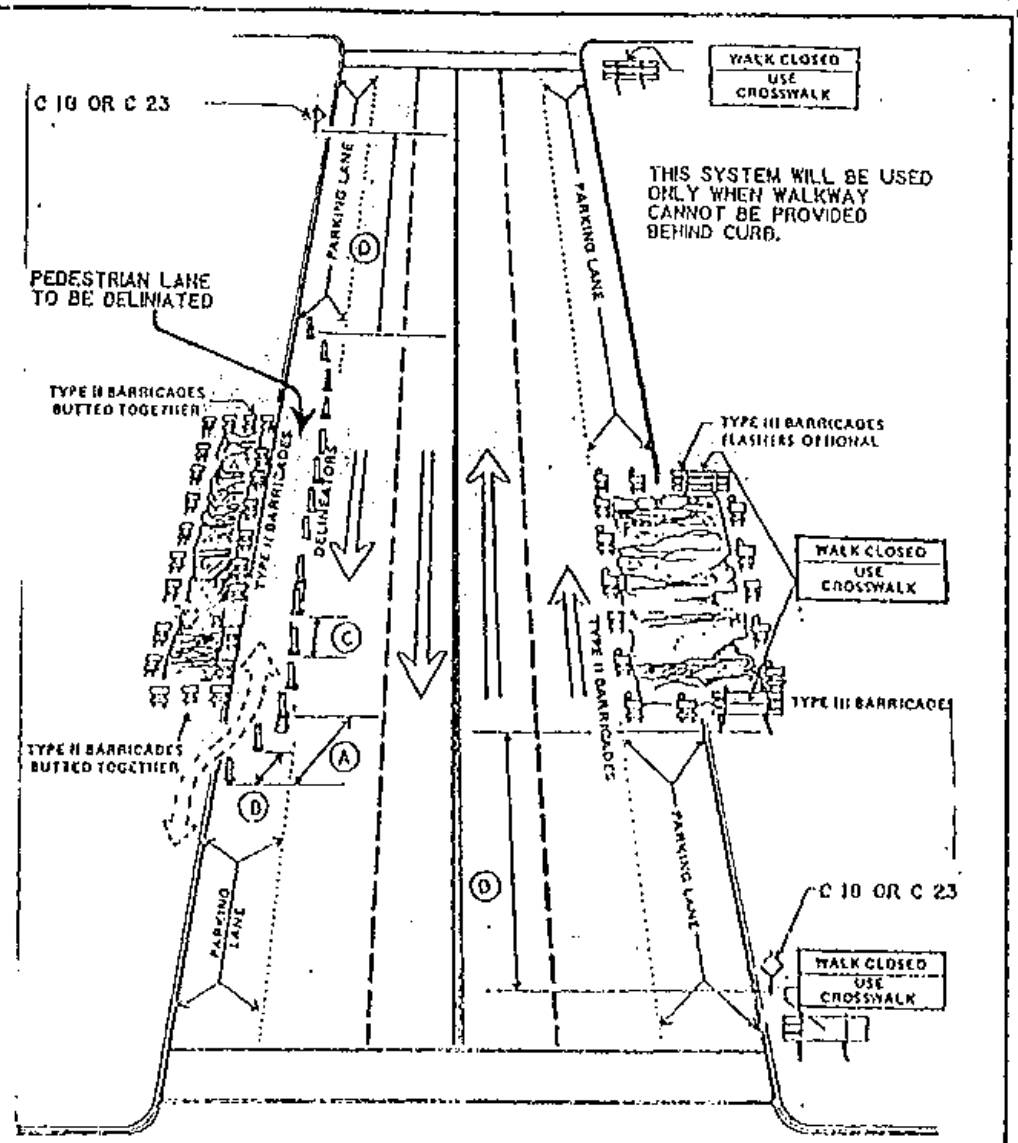
1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY TRAFFIC ENGINEER.
2. SEE STD. 741 FOR:
   - (A) TAPER LENGTH
   - (B) DELINEATOR SPACING-TRANSITIONS
   - (D) SIGN SPACING

# CITY OF PETALUMA

## WORK AREA TRAFFIC CONTROL

WORK BEYOND INTERSECTION
RIGHT LANE CLOSED

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | 740K |




NOTES

1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY ENGINEER.
2. SEE STD. 741 FOR:
   - Ⓐ TAPER LENGTH
   - Ⓓ DELINEATOR SPACING-TRANSITIONS
   - Ⓒ DELINEATOR SPACING-TANGENTS
   - Ⓓ SIGN SPACING

CITY OF PETALUMA

WORK AREA TRAFFIC CONTROL
PEDESTRIAN CONTROL

| SCALE: NONE | DATE: JAN. 1991 |
|---|---|
| | STD. NO. 740L |

| TRAFFIC SPEED | TAPER LENGTH (EACH LANE) Ⓐ | DELINEATOR SPACING Ⓓ (TRANSITION) | DELINEATOR SPACING Ⓒ (TAPER) | SIGN SPACING (ADVANCE OF TAPER AND BETWEEN SIGNS) Ⓢ |
|---|---|---|---|---|
| 25 MPH | 150 FT | 25 FT | 50 FT | 150 FT |
| 30 MPH | 200 FT | 30 FT | 60 FT | 200 FT |
| 35 MPH | 250 FT | 35 FT | 70 FT | 250 FT |
| 40 MPH | 350 FT | 40 FT | 80 FT | 350 FT |
| 45 MPH | 550 FT | 45 FT | 90 FT | 550 FT |
| 50 MPH | 600 FT | 50 FT | 100 FT | 600 FT |
| 55 MPH | 700 FT | 50 FT | 100 FT | 700 FT |

MINIMUM DELINEATOR AND SIGN SPACING

NOTE:

1. TRAFFIC CONTROL SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY ENGINEER.

CITY OF PETALUMA

WORK AREA TRAFFIC CONTROL

DELINEATOR AND SIGN PLACEMENT

SCALE: NONE | DATE: JAN. 1991

741

SECTION VI

# CONSTRUCTION AGREEMENT

CONSTRUCTION AGREEMENT
FOR

THIS AGREEMENT is made this _____ day of _____, 19____, between the City of Petaluma, a California municipal corporation, hereinafter called "Owner", and _____, whose address is _____ hereinafter called "Contractor".

WITNESSETH, that Contractor and Owner, for the consideration hereinafter named, agree as follows:

1. Contractor shall furnish all of the materials and perform all of the work required by Resolution No. _____ N.C.S., adopted by the City Council of the City of Petaluma and in accordance with the plans and project contract documents prepared by _____ and approved by _____.

2. The work to be performed under this contract shall be commenced within _____ days from the date of notice to proceed, and shall be completed to the satisfaction of the Owner within _____. In no event, however, shall the work to be performed under this contract be considered to be complete until all construction items called for on the drawings and specifications have been completed, and the contract price paid in full.

3. Owner shall pay to Contractor for the performance of this contract at the rate of _____ Dollars, ($_____) based on the bid price of the same. Notwithstanding any provision herein, Contractor shall not be

paid any compensation until such time as Contractor provides to the Finance Department of the City information requested on the "Vendor Information" form available from the City and has obtained a currently valid Petaluma business license pursuant to the Petaluma Municipal Code.

4. All requests for changes in drawings and specifications must be in writing and signed by Owner.

5. The drawings and specifications, including all general conditions and supplemental general conditions, Resolution No. _____ N.C.S., the Contractor's bid, the Notice to Bidders, the proposal and bid schedules, bidder's 100% Faithful Performance Bond in the amount of $_____, bidder's 50% Labor and Materials Bond in the amount of $_____, and Certificates of Insurance, as may be required by the Owner, and any provisions required by local, state and federal law to be inserted in this contract whether actually inserted or not, form the contract documents and are as fully a part of this contract as if hereto attached or herein repeated.

6. Contractor hereby covenants and agrees to, and shall, defend, indemnify and save harmless, the City of Petaluma, its agents and/or employes against all claims, demands, costs, and liabilities for damages of any kind or nature arising out of or occasioned by Contractor's performance of its obligations pursuant to this contract. However, this indemnity does not extend to any loss, damage or expense arising out of the sole negligence or willful misconduct of the City or the City's employees. The City Council may retain so much of the money due Contractor as shall be considered necessary, until disposition has been made of claims or suits for damages as aforesaid.

7. Insurance.
Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

A. Minimum Scope of Insurance.

Coverage shall be at least as broad as:

(1) Insurance Services Office Commercial General Liability coverage (occurrence from CG 0001).

(2) Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 (any auto).

(3) Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.

B. Minimum Limits of Insurance.

Contractor shall maintain limits no less than:

(1) General Liability: $1,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate liability is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

(2) Automobile Liability: $1,000,000 per accident for bodily injury and property damage.

(3) Employer's Liability: $1,000,000 per accident for bodily injury or disease.

C. Deductibles and Self-Insured Retentions.

Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees, and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. Other Insurance Provisions.

The general liability and automobile policies are to contain, or be endorsed to contain, the following provisions:

(1) The City, its officers, officials, employees, agents and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the

Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the City, its officers, officials, employees, agents or volunteers.

(2) For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees, agents or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

(3) Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the City, its officers, officials, employees, agents or volunteers.

(4) The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought except, with respect to the limits of the insurer's liability.

(5) Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days' prior to written notice by certified mail, return receipt requested, has been given to the City.

E. Acceptability of Insurers.
Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A:VII.

F. Verification of Coverage.
Contractor shall furnish the City with original endorsements effecting coverage required by this clause. The endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements are to be on forms provided by the City. All endorsements are to be received and approved by the City before work commences. As an alternative to the City's forms, the

Contractor's insurer may provide complete, certified copies of all required insurance policies, including endorsements effecting the coverage required by these specifications.

G. Subcontractors.
Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

8. Contractor hereby specifically agrees that no mechanics' liens or other claim or claims shall be filed or maintained by it against said buildings and improvements and real estate appurtenances heretofore or on account of any work or labor done or materials furnished under the contract or otherwise, for, toward, in or about the erection and construction of said buildings and improvements.

9. This contract shall bind, and the benefits inure to, the respective parties thereto, their legal representatives, executors, administrators, successors in office or interest, and assigns.

10. In the event that legal action is necessary to enforce any provision of this contract, the prevailing party shall be entitled to reasonable attorneys' fees and legal costs.

11. This contract constitutes the entire agreement between the parties.

IN WITNESS WHEREOF, the parties hereto have executed this document the day, month and year first above written.

CITY OF PETALUMA

_____
City Manager

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

COMPLETED AND APPROVED:

_____
Department Head

APPROVED:

_____
Risk Manager

APPROVED:

_____
Finance Director

CONTRACTOR

By_____
Name and Title

_____
Taxpayer's FID No.

_____
Social Security No.

_____
Petaluma Business License No.

rev. 6/92 (fmk)

9793agrd

# LABOR AND MATERIALS BOND

WHEREAS, the City of Petaluma, State of California, and _____ _____ (hereinafter designated as "Principal") have entered into an agreement whereby the Principal agrees to install and complete certain designated public improvements, which said agreements, dated _____, 19___, and identified as project _____ _____, is hereby referred to and made a part hereof; and,

WHEREAS, under the terms of said agreement Principal is required before entering upon the performance of the work, to file a good and sufficient payment bond with the City of Petaluma, to secure the claims to which reference is made in Title 15 (commencing with Section 3082) of Part 4 of Division 3 of the Civil Code of the State of California.

NOW, THEREFORE, said Principal and the undersigned, duly authorized to transact business under the laws of the State of California, as corporate surety, are held firmly bound unto the City of Petaluma, and all contractors, subcontractors, laborers, materialmen and other persons employed in the performance of the aforesaid agreement and referred to in the aforesaid Civil Code of the State of California, in the sum of _____ _____ Dollars ($_____) for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, that said surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this bond, will pay, in addition to the face amount thereof, costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by City in successfully enforcing such obligation, to be awarded and fixed by the Court, and to be taxed as costs and to be included in the judgement therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Title 15 (commencing with section 3082) of Part 4 of Division 3 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect.

THE SURETY hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of said agreement or the specifications accompanying the

same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration or addition.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and surety above name, on _____, 19__.

| PRINCIPAL | SURETY |
|---|---|
| By_____ | By_____ |
| _____ | _____ |
| Name and Title | Name and Title |

ooOoo

NOTE: Be sure that all bonds submitted have a certified copy of the bonding agent's power of attorney attached. Also be sure that Surety is an "Admitted Surety" (i.e., surety qualified to do business in California). Contact County Clerk or Department of Insurance to verify.

| APPROVED AS TO AMOUNT: | APPROVED AS TO FORM: |
|---|---|
| _____ | _____ |
| City Manager | City Attorney |

a:\labrbond.doc
rev. 8/92 (fuk)
rev. 3/93 (fuk)

# FAITHFUL PERFORMANCE BOND

WHEREAS, the City Council of the City of Petaluma, State of California, and _____ (hereinafter designated as "Principal") have entered into an agreement whereby Principal agrees to install and complete certain designated public improvements, which said agreement, dated _____, 19__, and identified as project _____, is hereby referred to and made a part hereof; and,

WHEREAS, said Principal is required under the terms of said agreement to furnish a bond for the faithful performance of said agreement.

NOW, THEREFORE, WE, the Principal and _____, duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the City of Petaluma, hereinafter called "City", in the penal sum of _____ Dollars ($_____) lawful money of the United States, for payment of which sum well and truly to be made, we bind ourselves, our heirs, successors, executors, and administrators, jointly and severally, firmly by these present. The conditions of this obligation is such that if the above-bounded Principal, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and provisions in the said agreement and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the City of Petaluma, its officers, agents, and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a part of this obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by the City in successfully enforcing such obligation, all to be taxed as costs and including in any judgment rendered.

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of this agreement or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and

It does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the agreement or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety above name, on _____, 19__.

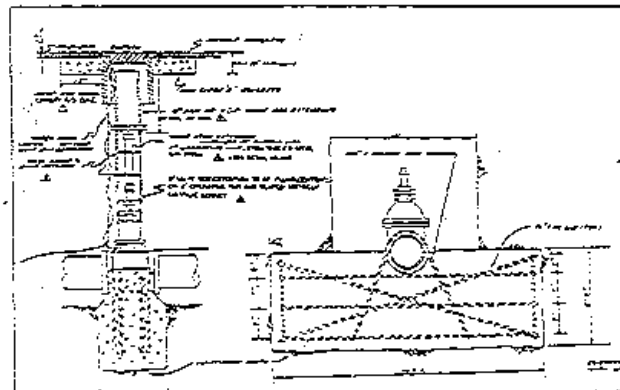
| PRINCIPAL | SURETY |
|---|---|
| By_____ | By_____ |
| Name and Title | Name and Title |

ooOoo

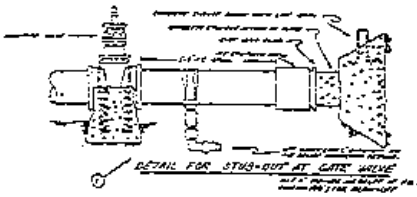
NOTE: Be sure that all bonds submitted have a certified copy of the bonding agent's power of attorney attached. Also be sure that Surety is an "Admitted Surety" (i.e., surety qualified to do business in California). Contact County Clerk or Department of Insurance to verify.

| APPROVED AS TO AMOUNT: | APPROVED AS TO FORM: |
|---|---|
| _____ | _____ |
| City Manager | City Attorney |

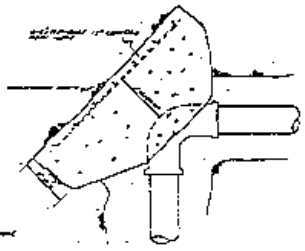
a:\faithbnd.doc
rev. 8/92 (fmk)
rev. 3/93 (fmk)



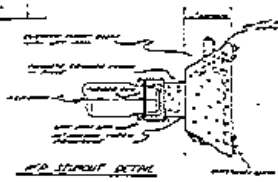
VALVE ANCHOR DETAIL



DETAIL FOR STUB-OUT AT GATE VALVE



THRUST BLOCKING FOR BENDS



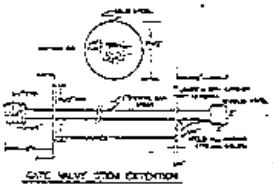
HYD. STUB-OUT DETAIL

| NOMINAL PIPE SIZE | | |
|---|---|---|
| 4" | 6 | 1'-6"x1'-6" |
| 6" | 13 | 2'-1"x2'-1" |
| 8" | 22 | 2'-6"x2'-6" |
| 12" | 51 | 3'-9"x3'-9" |
| 14" | 69 | 4'-0"x4'-0" |
| 16" | 88 | 4'-3"x4'-3" |

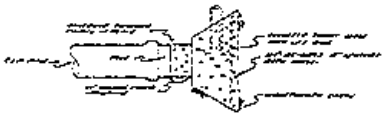
| NOMINAL PIPE SIZE | | |
|---|---|---|
| 4" | 1 | 1'-3"x1'-3" |
| 6" | 1 | 1'-6"x1'-6" |
| 8" | 1 | 1'-9"x1'-9" |
| 10" | 1 | 2'-0"x2'-0" |
| 12" | 1 | 2'-3"x2'-3" |
| 14" | 1 | 2'-6"x2'-6" |
| 16" | 1 | 2'-9"x2'-9" |
| 18" | 1 | 3'-0"x3'-0" |

ISOMS - THRUST BLOCK DIMENSIONS

| | | | | | | |
|---|---|---|---|---|---|---|
| 4" | 3.50 FT. | 6.50 FT. | 9.50 FT. | 7'-0"x7'-0" | 7'-0"x7'-0" | 3'-6"x3'-6" |
| 6" | 5.50 FT. | 10.50 FT. | 15.50 FT. | 11'-0"x11'-0" | 11'-0"x11'-0" | 5'-6"x5'-6" |
| 8" | 7.50 FT. | 14.50 FT. | 21.50 FT. | 15'-0"x15'-0" | 15'-0"x15'-0" | 7'-6"x7'-6" |
| 10" | 9.50 FT. | 18.50 FT. | 27.50 FT. | 19'-0"x19'-0" | 19'-0"x19'-0" | 9'-6"x9'-6" |
| 12" | 11.50 FT. | 22.50 FT. | 33.50 FT. | 23'-0"x23'-0" | 23'-0"x23'-0" | 11'-6"x11'-6" |
| 14" | 13.50 FT. | 26.50 FT. | 39.50 FT. | 27'-0"x27'-0" | 27'-0"x27'-0" | 13'-6"x13'-6" |
| 16" | 15.50 FT. | 30.50 FT. | 45.50 FT. | 31'-0"x31'-0" | 31'-0"x31'-0" | 15'-6"x15'-6" |



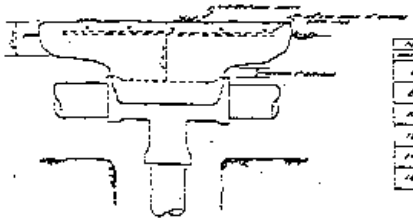
GATE VALVE STEM EXTENSION



C.I.P. STUB OUT DETAIL



TYPICAL TRENCH DETAIL



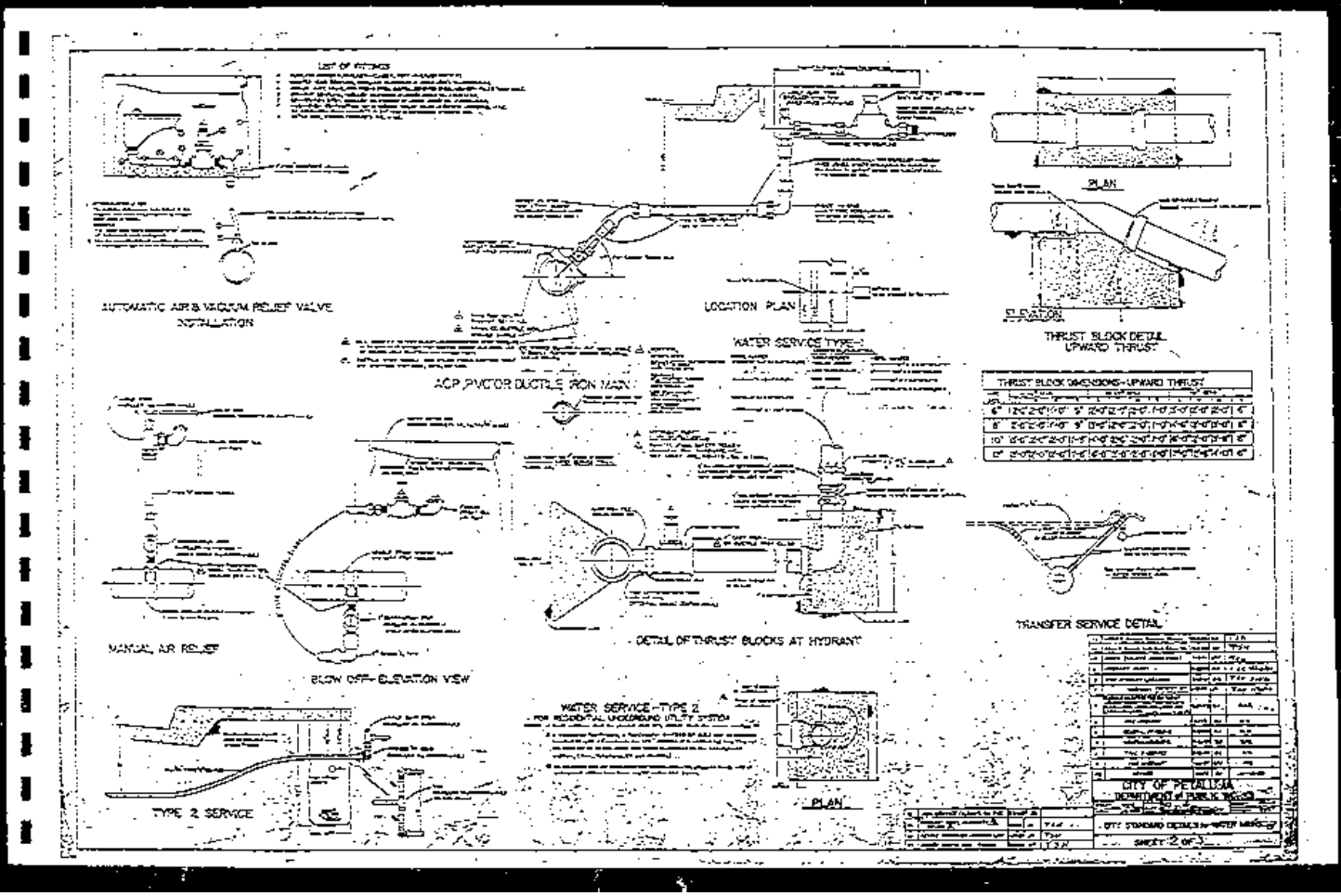
THRUST BLOCKING FOR TEES

| NOMINAL PIPE SIZE | | |
|---|---|---|
| 4" | 6 | 1'-6"x1'-6" |
| 6" | 13 | 2'-1"x2'-1" |
| 8" | 22 | 2'-6"x2'-6" |
| 12" | 51 | 3'-9"x3'-9" |
| 14" | 69 | 4'-0"x4'-0" |
| 16" | 88 | 4'-3"x4'-3" |

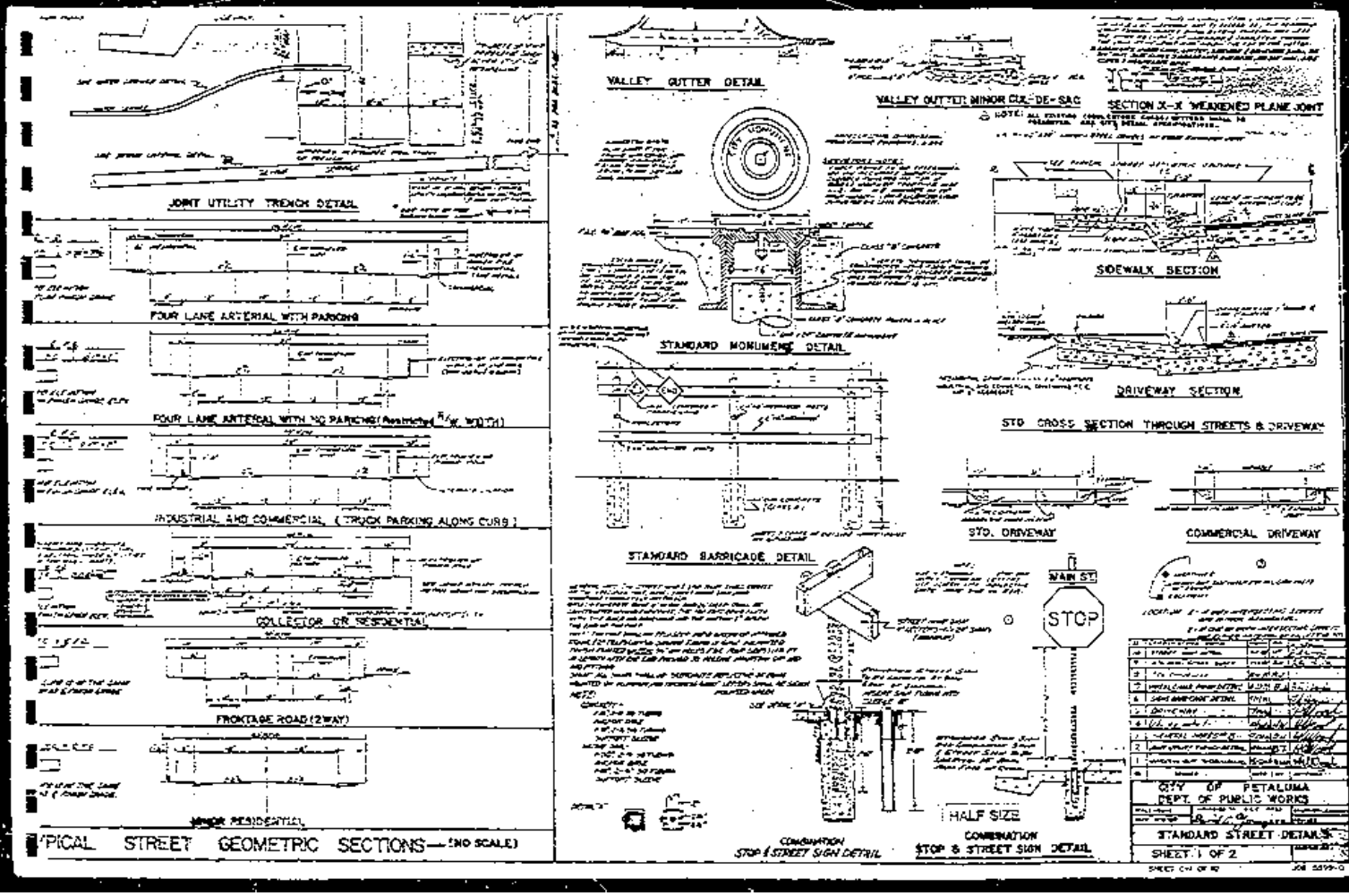
CITY OF PETALUMA
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAILS FOR WATER MAINS

SHEET 1 OF 3


AUTOMATIC AIR & VACUUM RELIEF VALVE INSTALLATION
LOCATION PLAN
WATER SERVICE TYPE-1
PLAN
ELEVATION
THRUST BLOCK DETAIL UPWARD THRUST
THRUST BLOCK DIMENSIONS-UPWARD THRUST
ACP PVICTOR DUCTILE IRON MAIN
MANUAL AIR RELIEF
BLOW OFF-ELEVATION VIEW
DETAIL OF THRUST BLOCKS AT HYDRANT
TRANSFER SERVICE DETAIL
TYPE 2 SERVICE
WATER SERVICE-TYPE 2
PLAN
CITY OF PEORIA
DEPARTMENT of PUBLIC WORKS
CITY STANDARD DETAILS for WATER MAINS
SHEET 2 OF 3

STANDARD MANHOLE SECTIONS
STANDARD MANHOLE
METHOD OF LOWERING SEWER LATERALS TO CLEAR FIRE LINES
SLOPED SURFACE SEWER LATERAL DETAIL
FUTURE TIE IN STUB CONNECTION TYPE B
TRENCH BACKFILL
STANDARD CONNECTION TO AN EXISTING 6" OR 8" VITRIFIED CLAY MAIN.
DEEP LATERAL
PLAN
ELEVATION
SEWER LATERAL DETAIL
SEWER LATERAL DETAIL
SEWER LATERAL DETAIL
CLEANOUT DETAIL TYPE "A"
CLEANOUT AT END OF MAIN TYPE-B
HALF SIZE
CITY OF PETALUMA
DEPT. OF PUBLIC WORKS
STANDARD SEWER DETAILS
SHEET 1 OF 2


JOINT UTILITY TRENCH DETAIL
FOUR LANE ARTERIAL WITH PARKING
FOUR LANE ARTERIAL WITH NO PARKING (Restricted R/W WIDTH)
INDUSTRIAL AND COMMERCIAL (TRUCK PARKING ALONG CURB)
COLLECTOR OR RESIDENTIAL
FRONTAGE ROAD (2 WAY)
MINOR RESIDENTIAL
TYPICAL STREET GEOMETRIC SECTIONS — (NO SCALE)
VALLEY GUTTER DETAIL
VALLEY GUTTER MINOR CUL-DE-SAC
SECTION X-X WEAKENED PLANE JOINT
SIDEWALK SECTION
STANDARD MONUMENT DETAIL
DRIVEWAY SECTION
STD CROSS SECTION THROUGH STREETS & DRIVEWAY
STD. DRIVEWAY
COMMERCIAL DRIVEWAY
STANDARD BARRICADE DETAIL
MAIN ST
STOP
HALF SIZE
COMBINATION STOP & STREET SIGN DETAIL
COMBINATION STOP & STREET SIGN DETAIL
CITY OF PETALUMA
DEPT. OF PUBLIC WORKS
STANDARD STREET DETAILS
SHEET 1 OF 2

# North Bay Construction Inc.

## "NORTH BAY'S S.W.P.P.P. POLICY"

### WHAT IS S.W.P.P.P.?

S.W.P.P.P. is an abbreviation for Storm Water Pollution Prevention Program.

### WHO REGULATES THIS LAW?

This program is regulated by the California Environmental Protection Agency/ State Water Resource Control Board.

### WHAT IS THE PURPOSE OF THIS LAW?

The intent is to prevent industrial sites (our yard) and construction sites from becoming a major source of pollution.

### WHAT DOES THE WATER RESOURCE BOARD CONSIDER A VIOLATION?

Because this law is so new there are controversies on the implementation of the law.

Primarily a violation would be any owner who displays blatant disregard for the environment.

Basically, contractors should make a concerted effort to legally clean up their yards, and prohibit any dumping of any kind of material or substance that could possible find its way into the storm water run off.

The general consensus of the Regional Water Board is that some pollutants are apt to be prevalent in contractor yard storm water run offs, however, their priority lies in the areas where MASSIVE RUN OFF POLLUTANTS EXIST or could exist, i.e. wrecking yards, feed lots, etc.

### HOW DOES NORTH BAY PROCEED WITH THE IMPLEMENTATION OF THIS LAW?

We must control all Storm Water Discharge such as, the prevention of highly contaminated oil, grease, acids, anti-freeze, [illegible] etc. run off.

Simply, all industrial sites (such as our yard) must IMPLEMENT GOOD, SAFE AND LEGAL HOUSEKEEPING TECHNIQUES.

North Bay Construction is required to develop a written program and [illegible] implement and train all personnel on the best management practices to protect our yard and environment.

131 Payran St. P.O. Box [illegible] Petaluma, CA [illegible]

# North Bay Construction, Inc.



WHAT IS NORTH BAY'S BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING PROCEDURES?

* Diligence in training each and every employee on the proper procedures for protecting contaminants from polluting our yard and environment.

* Continually keep our yard and shop in a clean and organized manner. Good housekeeping techniques is a priority at all times.

* Purchase only the items necessary to complete a job, eliminate storage of frequently used products that are deemed hazardous or are capable of being a pollutant when spilled.

* Utilize containment facilities for those products that are liquid.

* Clean up any spill properly and immediately.

* Dispose of any "clean up by product" properly.

* Monitor and use manifests for the transportation of any wastes. Make sure those hauling for you are properly licensed. Insist that the proposed final destination point is properly permitted to receive such waste, and that you receive proper verification from the disposal site that your waste has actually been received.

* Always use the designated area to clean all vehicles and equipment i.e. wash racks.

  Do not clean your equipment in such a manner that the 'washed off' material can enter the storm water run off.

* Recycle whenever possible. Be sure that those who do the recycling for you adhere to all applicable laws governing hazardous waste handling.

* Make sure that only storm water run off enters our storm water collection system. NOTHING ELSE IS PERMITTED.

  Grease interceptors can be an effective means of cleaning your storm water run off. Even though water and oil mixed is a hazardous material, once the water is migrated through a grease interceptor, it may no longer be a hazardous product provided there are no other products or hazardous substances mixed in with the water.

* Keep waste streams pure at all times!

WHO AT NORTH BAY IS IN CHARGE OF IMPLEMENTING THIS PROGRAM?

| | | |
|---|---|---|
| Jerry Cossey | - | Supervisor |
| Ron Svinth | - | Shop Foreman |
| Lisa Tiedeman | - | Safety Coordinator |

HOW IS THIS POLICY IMPLEMENTED?

- By strict training of each employee.
- Through the publication of tool box topics, newspaper articles, bulletin board postings and safety meeting discussions.
- By constant monitoring both in the shop and the yard of all daily activities.
- By keeping accurate records of recycling, disposal of substances, etc.
- By taking pictures of all changes occurring in the shop and yard on a quarterly basis and/or when a change has occurred.
- At all times all equipment and vehicles are to be washed and steamed in the designated area (i.e. steam racks only.)
- All bulk lubricants are to be kept at all times in the contained area.
- If a spill occurs there is a "clean up by products' available throughout the shop, yard and contained area, labeled 'Grease Sweep.'
- If a spill occurs in the fuel pump area there is an 'oil spill response kit' available at the pumps. This kit includes pads, socks and clean up bags for the saturation of the particular chemical.
- Any spill should be acted upon immediately and a supervisor be consulted.
- Sorbents Pads are available throughout the shop, yard, fuel trucks and contained area.

# North Bay Construction, Inc.

August 31, 1995

PROJECT: Petaluma Marsh Enhancement Project - Phase 1
NBC Job NO. 829

## STORM WATER PROTECTION PROGRAM PLAN

1.0 Potential sources of pollutants in Storm Water Discharges

Potential sources of pollutants in storm water discharges from the Petaluma Mark Enhancement Project related primarily to stockpiling of materials on the site and grading activities.

2.0 Construction Storm Water Management Controls

Construction storm water management controls are essentially good housekeeping practices that will be used at the Petaluma Marsh Enhancement Project for minimizing the contact of storm water with pollutants. The following measures will be implemented at the Petaluma Marsh Enhancement Project:

2.0.1. Practices to minimize contact of Construction Materials, Equipment and Vehicles with Storm Water.

All construction raw materials (including dry materials, pesticides, herbicides and petroleum products) will be stored in designated areas as per plan and located away from Adobe Creek. Also, North Bay Construction, Inc. Employees have been trained in proper materials handling practices.

2.0.2. Equipment Storage, Cleaning and Maintenance

Equipment storage sites will be located in areas designated by the Owner's Representative. All heavy equipment and vehicles will be well maintained and inspected daily for leaks. Vehicles prone to leakage, such as pavers, will be parked over absorbent materials or drip pans. Vehicle fueling will be conducted at a site designated by the Owner.

431 Payran St., P.O. Box 6004, Petaluma, CA 94953-6004
Telephone (707) 763-2891 -- License No. 357560
FAX (707) 765-6117

2.0.3. On-site Storage and Disposal of Construction Materials

Concrete: Whenever possible, concrete trucks will be washed out offsite. When washout occurs onsite, wash water will be contained in a temporary pit where waste concrete can harden for later removal. Washing of fresh concrete will be avoided, unless runoff may be drained to a bermed or level area aware from waterways and storm drain inlets.

2.1 Erosion and Sedimentation Controls

No grading activities will take place during periods of heavy rain and erosion and sedimentation controls will be used to prevent sediment from entering site runoff in significant quantities.

The following section describes the erosion and sedimentation control that will be used at the Petaluma Marsh Enchancement - Phase 1 Project. All controls described herein are shown on the Lakeville Highway Mitigation Planting and Grading Plan (Sheets M2 through M5) and the City of Petaluma Landfill Closure Grading and Drainage Plan (Sheet L4) for the Project.

2.1.1. Soil Stabilization Controls

Soil stabilization controls shall be implemented on all disturbed areas not within the in-channel terrace to be planted.

Hydroseeding/Seeding: Disturbed areas shall be hydro- mulched, hand seeded or seeded with a mechanical see reader and protected by straw. The seed mix and application rate shall be as specified on the Project Plans and Specifications.

Watering for Dust Control: Heavily travelled dirt roads will be sprinkled daily by a water truck for dust suppression. Care will be taken to sprinkle areas of exposed soils during windy periods. Only the minimum amount of water will be used; no runoff will result from this practice.

2.1.2. Erosion and Sediment Controls

Erosion and Sediment control measures may include temporary earth berms and sand bags, hay bales and silt fences as directed by the Engineer and comply with the procedures outlined in the U.S. Environmental Protection Agency Manuals entitled: "Guidelines for for Erosion and Sedimentation Control Planning and Implementation."

Silt Fences: Silt fences will be installed as shown on the Petaluma Marsh Enhancement Project - Erosion Control plans and as directed by the Engineer.

Hay Bales: Hay bales will be installed as shown on the Petaluma Marsh Enhancement Project Erosion Control plans and as directed by the Engineer.

# PERMIT RECORD

**STREET ADDRESS:** — Ø. Casa Grande - AKA 2041 Lakeville Hwy

**COUNTY ASSESSOR'S PARCEL NUMBER**

| LOT | SUBDIV. | ZONING DIST. | FIRE ZONE | OCCUP. | OTHER: Royal Jallow |
|---|---|---|---|---|---|

| TYPE OF PERMIT | PERMIT NO. | PLAN NO. | DATE ISSUED | OTHER | REMARKS |
|---|---|---|---|---|---|
| | 20080385 | | 4/24/2008 | | SHORELAND PERMIT |
| | | | | | AMND |

PERMIT DESIGNATION:

B – BUILDING
P – PLUMBING
T – TRAILER

E – ELECTRICAL

U – USE PERMIT
V - VARIANCE
H - HEATING

HM – HOUSE MOVING

CITY OF PETALUMA
COMMUNITY DEVELOPMENT DEPARTMENT
11 ENGLISH STREET, PETALUMA, CA 94952
(707) 778-4302 Fax (707) 778-4498

# Permit to Perform Work

**Permit Number:** 20080389

**Inspection Request: (707) 778-4479**

**LICENSED CONTRACTORS DECLARATION**

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.
License No._____Class_____ Exp. Date_____

**WORKERS COMPENSATION DECLARATION**

I hereby affirm under penalty of perjury one of the following declarations:
___ I have and will maintain a certificate of consent to self-insure for workers compensation as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
___I have and will maintain workers compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers compensation insurance carrier, policy number and expiration date are:
Carrier:_____Policy No._____Exp.Date _____
___I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers compensation laws of California, and agree that if I should become subject to the workers compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with these provisions or this permit shall be deemed revoked.

**WARNING: FAILURE TO SECURE WORKERS COMPENSATION COVERAGE IS UNLAWFUL, AN SHALL SUBJECT AND EMPLOYER TO CRIMINAL PENALTIES AND CIVIL CRIMES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3700 OF THE LABOR CODE, INTEREST, AND ATTORNEY S FEES.**

**OWNER-BUILDER DECLARATION**

___I hereby affirm under penalty of perjury that I am exempt from the Business and Professions Code, Chapter 9, Division 3, for the following reasons:
___I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale.
___I, as owner of the property, am exclusively contracting with licensed contractors to construct the project.
___I certify that I have read this application and state that the information given is true and correct. I agree to comply with all City ordinances and State laws relating to building construction and hereby authorize representatives of the City to enter upon the aforementioned property for inspection purposes at any time, and I make this statement under penalty of law.

**HAZARDOUS MATERIALS**

**Hazardous Materials: Indicate if the intended occupancy will use chemicals. Initialing Yes acknowledges that Health & Safety Code Sections 25505, 25533 & 25534 as well as filing directions were made available to you.yes_____ no_____**

**CONSTRUCTION LENDING AGENCY**

I hereby affirm that there is a construction-lending agency for the performance of the work for which this permit is issued (Section 3097, Civil Code)
Lenders Name: _____
Lenders Address: _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all City and County ordinances and State laws relating to building construction, and hereby authorize representatives of this agency to enter upon the above-mentioned property for inspection purposes. I further agree to save, indemnify and hold harmless the City of Petaluma against liabilities, judgments, costs and expenses, which may in any way accrue against the City in consequence of the granting of this permit and will pay all expenses including attorney's fees in connection therewith. All work performed by virtue of this permit must conform to plans and specifications filed by the owner or his/her authorized agent with the City. This permit does not constitute approval of any violation of the above-recited provisions, nor of any State or City ordinance.

Signature: _____ Date: _____

**THIS PERMIT SHALL EXPIRE BY LIMITATION IF AUTHORIZED WORK IS NOT COMMENCED WITHIN 180 DAYS OF ISSUANCE OR IS ABANDONED FOR 180 DAYS OR MORE (PER CALIFORNIA BUILDING CODE AND PETALUMA MUNICIPAL CODE).**

| | |
|---|---|
| **Date Applied:** | 04/21/2008 |
| **Date Issued:** | May 16 2008 12:00AM |
| **Permit Type:** | Building/Building/ Demolition/NA |
| **Job Address:** | 0 CASA GRANDE RD PETALUMA CA |
| **Parcel No.:** | 005060041, 005060042 |
| **Owner:** | LANDS OF BAYWOOD LLC 414 AVIATION BLVD SANTA ROSA, CA 95407 578-5344 |
| **Applicant:** | DAVIS, DANIEL O INC 1051 TODD RD SANTA ROSA, CA 95407 585-1903 |
| **CONTRACTOR:** | DAVIS, DANIEL O INC 1051 TODD RD SANTA ROSA, CA 95407 585-1903 431984 |
| **Valuation: (Contractor)** | $ 100,000.00 |

**Fee Information:**

| Fee Items | # of Each | Amount |
|---|---|---|
| Demolition Permit (enter 1) | 1.00 | $1,446.57 |
| Incremental Records Fee (enter 1) | 1.00 | $610.00 |
| Microfilm - 8.5x11 (each) | 1.00 | $2.50 |
| Microfilm - Lg. Plans / Blue Prints (each) | 2.00 | $8.50 |
| FirePlanCheckFee - Grading (Soil Remidiation) (enter 1) | 1.00 | $475.00 |
| Demo Plan Check Fee (enter 1) | 1.00 | $1,446.57 |
| Total | | $3,989.14 |

**Payment Information:**

| Date | Receipt No. | Amount |
|---|---|---|
| 04/21/2008 15:54:22 | | $1,446.57 |
| 05/16/2008 11:25:11 | 17829 | $2,542.57 |
| Total | | $3,989.14 |

Description of Work:
"ROYAL TALLOW" SITE - AKA 2044 LAKEVILLE & 2596 CASA GRANDE RD. DEMOLISH & REMOVE COMMERCIAL FACILITY BUILDINGS AND ASSOCIATED BUILIDINGS DOWN TO CLEAN DIRT. CLEAR PROPERTY OF ANY DEBRIS.

CITY OF PETALUMA
PLANNING/BUILDING
MAY 16 2008

PAID

0 Casa Grande Rd

FILE COPY

131) SPECIAL INSPECTION REQUIRED ☐ YES ☐ NO IF YES, SEE ADDITIONAL SHEET

| INSPECTION RECORD | DATE | NAME | REMARKS |
|---|---|---|---|
| 103) FOUNDATION | | | |
| FORMS/SETBACK | | | |
| FOOTING | | | |
| WALLS | | | |
| | | | |
| 106) UFER GROUND # | | | |
| 104) CAISSONS/PIERS | | | |
| 105) SLAB REINFORCING | | | |
| 107) UNDERGROUND UTILITIES | | | |
| ☐ SEWER ☐ WATER ☐ FIRE | | | |
| 110) MASONRY | | | |
| 109) RETAINING WALLS | | | |
| 120) UNDERSLAB | | | |
| ☐ PLUMBING ☐ ELECTRICAL | | | |
| 115) HYDRONICS | | | |
| 116) U/F ELECTRICAL | | | |
| 117) U/F MECHANICAL | | | |
| 118) U/F PLUMBING | | | |
| 119) U/F FRAMING | | | |
| 139) U/F INSULATION | | | |
| 126) SHEAR WALLS | | | |
| ☐ INTERIOR ☐ EXTERIOR | | | |
| | | | |
| 127) DIAPHRAGMS | | | |
| ☐ ROOF ☐ FLOOR | | | |
| 137) Roofing Progress | | | |
| 134) SIDING/SHEATHING | | | |
| 125) HOLD DOWNS | | | |
| 132) CLOSE-IN | | | |
| 122) ROUGH ELECTRICAL | | | |
| 123) ROUGH MECHANICAL | | | |
| 124) ROUGH PLUMBING | | | |
| 128) ROUGH FRAME | | | |
| 759) FIRE SPRINKLER/CLOSE-IN/HYDRO | | | |
| 139) INSULATION | | | |
| ☐ WALLS ☐ CEILING | | | |
| 142) WALLBOARD | | | |
| 143) FIREWALLS | | | |
| 135) STUCCO/PLASTER | | | |
| ☐ LATH ☐ SCRATCH | | | |
| 130) TUB/SHOWER PAN | | | |
| | | | |
| 164) SUSPENDED CEILING | | | |
| ☐ ROUGH ELEC. ☐ ROUGH MECH. | | | |
| 171) TEMPORARY ELECTRICAL | | | |
| 172) TEMPORARY GAS | | | |
| 174) ELECTRIC METER AUTHORIZATION | | | |
| 175) GAS METER AUTHORIZATION | | | |
| 153) GAS PRESSURE TEST | | | |
| ☐ HOUSE ☐ YARD | | | |
| **SWIMMING POOLS** | | | |
| 194) PRE-GUNITE/POOL PIPING | | | |
| 195) PRE-DECK | | | |
| 196) PRE-PLASTER/FENCE | | | |
| 197) PREFAB/POOL EXCAVATION/PIPING | | | |
| ANTI-ENTRAPMENT COVER | | | |
| ☐ VERIFIED ☐ N/A | | | |
| **FINALS** | | | |
| 102) SIGN FINAL | | | |
| 176) ELECTRICAL FINAL | | | |
| 177) MECHANICAL FINAL | | | |
| 178) PLUMBING FINAL | | | |
| 199) BUILDING FINAL | 10/16/12 | 30-09 | |
| OCCUPANCY (OK TO OCCUPY) | | | |

| EXTERIOR WILDFIRE CONSTRUCTION | DATE | NAME |
|---|---|---|
| DEFENSIBLE SPACE-(FIRE TO VERIFY) | | |
| CLASS A ROOF | | |
| • VALLEY INTERWOVEN COMP SHINGLE (IF APPLICABLE) | | |
| • METAL FLASHING OVER #72 ASTM CAP SHEET (IF APPLICABLE) | | |
| ROOF GUTTER PROVIDED WITH MEANS TO PREVENT ACCUMULATION | | |
| EAVE AND CORNICE VENTS NOT PERMITTED UNLESS PROVIDED WITH FLAME INTRUSION ASSEMBLY | | |
| NON-COMBUSTIBLE EXTERIOR | | |
| DOUBLE PANE WINDOWS W/ONE TEMPERED PANE | | |
| NON-COMBUSTIBLE OR SOLID CORE EXTERIOR DOOR(S) | | |

FIRE INSPECTION REQUIRED

☐ YES ☐ NO

FOR FIRE INSPECTION CALL 778-4399

| | | |
|---|---|---|
| 772) FUEL TANK/DISPENSOR | | |
| 776) FIRE HYDRANTS/UNDERGROUND | | |
| 770) FIRE SPRINKLER FINAL | | |
| 779) ALARM SYSTEM | | |
| 780) HOOD & DUCT SYSTEM | | |

CLEARANCES/CERTIFICATE OF OCCUPANCY:

*FIRE*

*HEALTH DEPARTMENT*

*PLANNING*

*PUBLIC WORKS*

*WATER*

ROLLED PLANS ☐ YES ☐ NO

# CITY OF PETALUMA

POST OFFICE BOX 61
PETALUMA, CA 94953-0061

Pamela Torliatt
*Mayor*

Teresa Barrett
David Glass
Mike Harris
Mike Healy
David Rabbitt
Tiffany Renée
*Councilmembers*

October 28, 2009

Lands of Baywood LLC or Current Owner
414 Aviation Blvd.
Santa Rosa, CA 95407

RE: Address: 0 Casa Grande Road Permit #: 20080389

Dear Sir or Madam,

Our records indicate that an outstanding building permit exists for your property. A review of the permit file verified that the work has not been inspected for over 180 days and per the 2007 California Building Code Sections 106.4.4 and 107.4, the permit has expired. We are giving you this last opportunity to final the following permit(s):

Project: Royal Tallow site – demolition of entire site
Date Issued: 5/16/08
Last Inspected: never

We would like to validate the work performed under the above permit(s). If no work has been performed, and you wish to keep the permit active, please respond **in writing** to request a one-time 180 day extension on the above permit(s). Please call (707) 778-4479 to schedule an inspection, or provide your records to us showing that inspections have been performed and the permit has been finaled. You may do this by:

1) **Mailing a copy of the permit to the Building Division,**
2) **Faxing a copy of the permit to the Building Division at (707) 778-4498,**
3) **Bringing a copy of the permit to the Building Division office at City Hall.**

This letter is formal notification that if we do not hear from you within **10 working days** from the date of this letter, the permit will be expired and become null and void. Our records will indicate that the work was done without a finalized permit, and that no further permits of any kind will be issued until this matter is resolved. Notification of this action will be recorded in our permit tracking system, and is public record. Please contact our office with any questions you may have, as we would like to assist you in this process. When calling this office, please make reference to this letter.

Sincerely,

Edward John Hamer
Chief Building Official
City of Petaluma

***Community Development Department***
*11 English Street*
*Petaluma, CA 94952*
*E-Mail*
*cdd@ci.petaluma.ca.us*

***Building***
*Phone (707) 778-4301*
*Fax (707) 778-4498*
***To Schedule Inspections:***
*Phone (707) 778-4479*

***Planning***
*Phone (707) 778-4301*
*Fax (707) 778-4498*

EQUAL HOUSING OPPORTUNITY

S:\BUILDING\BP Expire Letters\Letters sent 2009\Letters sent Oct 28\0 Casa Grande.doc

# CITY OF PETALUMA

11 English Street
Petaluma, CA 94952
Office: (707) 778-4302 Fax: (707) 778-4498

UM 5/14/08 DF

## CONTRACTOR ONLY PERMIT WORKSHEET

Permit # 200800389

| BUILDING ADDRESS | SUBDIVISION/LOT # | PARCEL # |
|---|---|---|
| ~~2044 Lakeville Hwy~~ & Casa Grande Rd | | 005-060-075 |

| OWNER NAME | (H) PHONE | (W) PHONE |
|---|---|---|
| Lands of Baywood, LLC | | 707/578-5344 |

| OWNER MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 414 Aviation Blvd. | Santa Rosa | Ca | 95403 |

| ARCHITECT/DESIGNER | LICENSE NO. | PHONE | |
|---|---|---|---|
| | | | |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| | | | |

| ENGINEER | LICENSE NO. | PHONE | |
|---|---|---|---|
| | | | |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| | | | |

| CONTRACTOR | LICENSE NO. | PHONE | |
|---|---|---|---|
| Daniel O. Davis Inc. | 431984 | 707/585-1903 | |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 1051 Todd Rd | Santa Rosa | Ca | 95407 |

- ☐ BUILDING
- ☐ MECHANICAL
- ☐ GRADING
- ☐ BUILDING SURVEY
- ☒ DEMOLITION
- ☐ RE-ROOF
- ☐ ELECTRICAL
- ☐ PLUMBING
- ☐ SIGN
- ☐ MOVE BUILDING
- ☐ POOL
- ☐ FENCE

Fund 001-400-0000

| | | |
|---|---|---|
| BUILDING | 3321 | 1446.57 |
| PLAN CHK | 3322 | 1446.57 |
| | | |
| FIRE PLN CK | 3371 | 475.00 |
| INCREMENTAL | 3323 | 610.00 |
| CSIF/CSIFO | 3324 | |

- ☐ NEW
- ☐ ALTERATION
- ☐ ACCESSORY BLD.
- ☐ ASF
- ☐ DUPLEX
- ☐ CONDO
- ☐ ADDITION
- ☐ REPAIR
- ☐ RESIDENTAL
- ☐ DSF
- ☐ APARTMENT
- ☐ COMMERCIAL

| | | |
|---|---|---|
| ENERGY | 3325 | |
| ELECTRICAL | 3326 | |
| MECHANICAL | 3327 | |
| PLUMBING | 3327 | |
| MICROFILM | 3312 | 12.00 11.00 |
| MINEN/MINER | 3329 | |

$3,989.14

(1,446.57)

| FLOOR AREA (Sq. ft.) | REMODEL FLOOR AREA (Sq. ft.) | VALUATION | $2,542.57 |
|---|---|---|---|
| 40,940 | | $100,000 | |
| GARAGE AREA (Sq. ft.) | REMODEL GARAGE AREA (Sq. ft.) | MAX OCC | STORIES |
| DECK AREA (Sq. ft.) | REMODEL DECK AREA (Sq. ft.) | GROUP | TYPE |
| BEDROOMS | | CBC 2001 | NEC 1999 |

**PROPOSED WORK:** Demolish and remove commercial facility. Buildings and associated buildings to clean dirt. Clear property of misc. debris.

(OVER)

CONSTRUCTION LENDING AGENCY. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. (Sec. 3097, Civ. C)

LENDER NAME N/A

MAILING ADDRESS | CITY | STATE | ZIP

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

LICENSE CLASS A, C21 | STATE LICENSE NUMBER 431984 | EXPIRE DATE 12/31/08

**Hazardous Materials:** Indicate if the intended occupancy will use chemicals. Initialing YES acknowledges that H & S Code Sections 25505, 25533 & 25534 as well as filing directions were made available to you.

YES_____ NO X

WORKERS' COMPENSATION DECLARATION I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

_X_ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier Redwood Fire & Casualty

Policy Number: W-7A38098 Exp: 10/1/08

(*This section need not be completed if the permit is for one hundred dollars ($100) or less.)

____ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR COE, INTEREST AND ATTORNEY'S FEES.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building, construction, and hereby authorize representatives of this agency to enter upon the above-mentioned property for inspection purposes. I (we) further agree to save, indemnify and keep harmless the City of Petaluma against liabilities, judgments, costs and expenses which may in any way accrue against said city in consequence of the granting of this permit and will pay all expenses including attorney's fees in connection therewith. All work performed by virtue of this permit must conform to plans and specifications and application filed by the owner or his authorized agent with the Building Inspection Division. This permit does not constitute approval of any violation of the above recited provisions, nor of any state or city ordinance.

Signature X

Print Name X Dustin D Davis Date 4-21-08

# CITY OF PETALUMA

POST OFFICE BOX 61
PETALUMA, CA 94953-0061

ENVIRONMENTAL
OCT 2 1 2003

David Glass
*Mayor*

Keith Canevaro
Mike Harris
Mike Healy
Bryant Moynihan
Mike O'Brien
Pamela Torliatt
*Councilmembers*

## NOTICE AND ORDER

Per The Abatement of Dangerous Buildings Ch. 4

January 2, 2003

**To:** Darling Delaware Company, Inc.
251 O'Connor Ridge Blvd., Suite 370
Irving, TX 75038-6525

**REGARDING ADDRESS:** 2592 Lakeville Highway, Petaluma, CA

**LOCATION DESCRIPTION:** The property is located at the west end of Casa Grande Road. Buildings on the property consist of a Single Family Dwelling, an abandoned industrial tallow plant and several outbuildings, such as barns and garages.

**ASSESSOR'S PARCEL NUMBER: 005-060-042**

**DATE OF INSPECTION:** January 31, 2002

**CONDUCTING INSPECTION:** Clifford Kendall, Deputy Chief Building Official

**THE BUILDING OFFICIAL HAS FOUND THE ABOVE BUILDING DANGEROUS AND UNINHABITABLE DUE TO THE BELOW CONDITIONS.**

The above referenced structures are hereby declared dangerous and uninhabitable, as per Uniform Code For The Abatement Of Dangerous Buildings, Chapter 3, Section 302 Item # 15 and #18 for the following reasons:

RECEIVED
MAY 15 2008
BUILDING DIV.

The buildings on the property have been abandoned and because of lack of maintenance and faulty construction have caused dilapidation and deterioration to constitute a public nuisance.

**Determination of Chief Building Official**

FILE COPY

DI007441

*Community Development Department*
*11 English Street*
*Petaluma, CA 94952*
*E-Mail*
*cdd@ci.petaluma.ca.us*

*Code Enforcement*
*Phone (707) 778-4469*
*Fax (707) 778-4498*
*E-Mail*
*codeenforcement@ci.petaluma.ca.us*

*Engineering*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

*Inspection Services*
*Phone (707) 778-4301*
*Fax (707) 778-4498*
*To Schedule Inspections:*
*Phone (707) 778-4479*

*Permits*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

*Planning*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

It is my determination as Chief Building Official that the buildings are to be demolished.

**Corrective Action To Be Taken**

**You must see that the habitants are vacated and permits to demolish all structures on property are obtained and approved by the Building Official within sixty (60) days from the date of the order.**

**If the work is not commenced within the time specified, I will order the building vacated and posted to prevent further occupancy until the work is complete, and may proceed to cause the work to be done and charge the costs thereof against the property or its owner.**

**Any person having any record title or legal interest in the property may appeal from the notice and order or any action of the Building Official to the board of appeals, provided the appeal is made in writing as provided in this code and filed with the Building Official within 30 days from the date of service of this notice and order. Failure to appear will constitute a waiver of all right to an administrative hearing and determination of the matter.**

# CITY OF PETALUMA

## ACTION REPORT

[ ] Inquiry
[X] Complaint

Date Received: August 4, 2003
Date Closed:

Name of Caller: Jodi Winters, Trammel Crow Residential
Caller's Address: 2682 Bishop Drive, Suite 101, San Ramon, CA 94583
Caller's Phone Number: 925.901.1896

City Employee/Department Receiving Call: Jane Thomson, Code Enforcement Officer

Address of Inquiry/Complaint: 2044 Casa Grande Road

Received Via: [X] Telephone [ ] Letter [ ] In Person

---

Statement as to Nature of Call: Royal Tallow

1. Accessory structure next to property line fencing is disintegrating and falling onto the fence
2. Believes there to be hazardous materials on site that need to be removed/cleaned up
3. The main building is not secured and is an attractive nuisance
4. The property is not secured, and children are accessing it and the buildings

---

Route to:

| | | |
|---|---|---|
| [ ] Animal Control | [ ] Finance | [ ] Recreation |
| [X] Building Division cc/ltr | [X ] Fire | [ ] Sonoma County Health |
| [ ] City Attorney | [ ] Parks | [ ] Traffic Committee |
| [ ] City Clerk | [X] Planning | [ ] Transit |
| [x] City Manager | [ ] Police | [ ] Other: _____ |
| [ ] Engineering | [ ] Public Works | |

---

REPORT OR ACTION TAKEN
(Attach Additional Documentation as Required)

---

Date:_____ By _____

Complainant / Inquirer was notified of the outcome of complaint/inquiry by:
Mail [ ] / Phone [ ] / In Person [ ] on: by:

---

H:\kt\abitactionreport\2044casegrande

DI007443

**City Of Petaluma Parcel Information Report**
**APN #005060042**

| | |
|---|---|
| APN | 005060042 |
| Address | CASA GRANDE RD |
| Use Code | 0202 |
| Tax Rate Area | 003011 |
| Land Size (Sq Ft) | 811,523 |
| Owner Name | DARLING DELAWARE COMPANY INC |
| In Care Of | |
| Owner Address | 251 OCONNOR RIDGE BLVD STE 370 |
| Owner City/State | IRVING TX |
| Owner Zip | 750386525 |
| Com/Ind Year Built | 1942 |
| Total Bldg Area (Sq Ft) | 000020606 |
| Single Family Res Year Built | 1941 |
| Living Area (Sq Ft) | 000000962 |
| Bedrooms | 02 |
| Bathrooms | 01 |
| Total Living Area (Sq Ft) | 000000000 |
| Multi Family Res Year Built | 0000 |
| Number of Units | 000 |
| Number of Structures | 01 |
| Sale Price | 000000000 |
| Recording Date | 010175 |
| Official Record Number | 75R2185217 |

1/27/03

Darling Delaware Company Inc
251 O'Connor ridge Blvd Ste 370
Irving, TX 750386525

RE: Royal Tallow & Soap Co. Inc./ 2592 Lakeville Highway

Dear Sirs:

On June 8, 2001 a demolition permit was issued to Speelman Excavation for the partial demolition of a truck garage (Approx 1200 sq.ft. to be removed) and for the removal of contaminated soil beneath slab to a five-foot depth. As of this date the work has not been completed and no inspections have been requested.

As you may well know there is a large Apartment complex under construction on the adjacent parcel to yours. With this in mind the City of Petaluma is very concerned with the condition of your property. It is the City of Petaluma's desire that you as the legal property owner will acquire permits to remove the potent ional attractive nuisance that may exists due to the vacated and dilapidated condition of the buildings on your property.

Please contact me upon of receipt of this letter to further discuss this matter.

Sincerely,

Clifford Kendall
Deputy Chief Building Official

c: Mike Moore

address file

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

# COMPLIANCE & ENFORCEMENT DIVISION

*Regulation 11, Rule 2*

## *Acknowledgement of Notification and Payment of Fees*

4/10/2008

Daniel O Davis Inc
1051 Todd Road
Santa Rosa, CA 95407

Job No: **2Y944**
Invoice No: **1XN52**

The Bay Area Air Quality Management District (BAAQMD) acknowledges receipt of your payment and your Asbestos Removal or Demolition Plan described as: **Demolition**

Site address 2044 Lakeville Hwy
Petaluma, CA 94954

Start Date April 22, 2008
Completion Date July 22, 2008

Removal amounts of friable ACM 0 linear feet 0 square feet 0 cubic feet

Should it become necessary to revise this plan, please do so in the spaces provided below and immediately copy the District by fax or by mail.

| REGULATION 11-2 REVISION | BAAQMD J# **2Y944** |
|---|---|

| REVISION # | START DATE | COMPLETION DATE |
|---|---|---|
| 1 | ___/___/___ | ___/___/___ |
| 2 | ___/___/___ | ___/___/___ |
| 3 | ___/___/___ | ___/___/___ |
| 4 | ___/___/___ | ___/___/___ |
| 5 | ___/___/___ | ___/___/___ |

*NOTE: This form is not intended as a verification of either the completeness of your original notification or of its compliance with BAAQMD Regulation 11-2. If you have any questions about this acknowledgment please call our office at (415) 749-4762.*

RECEIVED
APR 21 2008
BUILDING DEV

FILE COPY

# CITY OF PETALUMA

POST OFFICE BOX 61
PETALUMA, CA 94953-0061

David Glass
*Mayor*

Chris Albertson
Teresa Barrett
Mike Harris
Mike Healy
Gabe Kearney
Tiffany Renée
*Councilmembers*

## REQUEST FOR PUBLIC RECORDS

**RECORDS REQUEST MADE BY:**

NAME: Kathryn Smith DATE: October 28, 2018

ADDRESS: 520 3rd Street, Suite 209, Oakland CA 94607 PHONE: 510-306-8508

**PROPERTY/SITE LOCATION:**

ADDRESS #1: 2044 & 2592 Lakeville Highway, Petaluma CA 94954 APN #_____

ADDRESS #1: 0 & 2044 Casa Grande Road, Petaluma CA 94954 APN #_____

**RECORDS INFORMATION:**

The Petaluma Fire Department is the Certified Unified Program Agency (CUPA) for the City of Petaluma and typically maintains files and records that may be used for Environmental Site Assessments. City staff will pull matching files and may request clarifying information that could help identify the records sought. Within ten (10) days of receipt of a request, City staff will determine whether the request seeks non-exempt records or parts of records in the City's possession and inform the requester. In some circumstances, the City may have up to an additional fourteen (14) days to make its determination upon proper notice to the requester. The City will inform requesters of the time and date when non-exempt records or parts of records will be made available. (California Government Code sections 6253, 6253.1.)

**Check the box for the type of records sought:**

- ☒ Underground Storage Tank Records
- ☒ Above-ground Storage Tank Records
- ☒ Hazardous Materials/Waste Records
- ☐ Non-Hazardous Materials/Waste Records
- ☐ Fire Code
- ☐ Other (please be as specific as possible)

_____

_____

**Do you wish to have copies made?** _____ **How many of each?** _____

The City may require payment of the direct cost of duplication or of the applicable statutory fee before providing copies of City records. The direct cost of duplication of most City records is $0.15 per page. The statutory fee that applies to copies of reports and statements filed under the Political Reform Act is $0.10 per page plus a retrieval fee of $5.00 per request. City staff can provide copy charges that apply to other media. Requests to ship copies may be subject to payment of shipping costs. (California Government Code sections 6253, 81008.)

**********

Number of copies made @ $0.10 per page _____

Number of copies made at $0.15 per page _____

Retrieval cost (if applicable) _____

Shipping cost (if applicable) _____

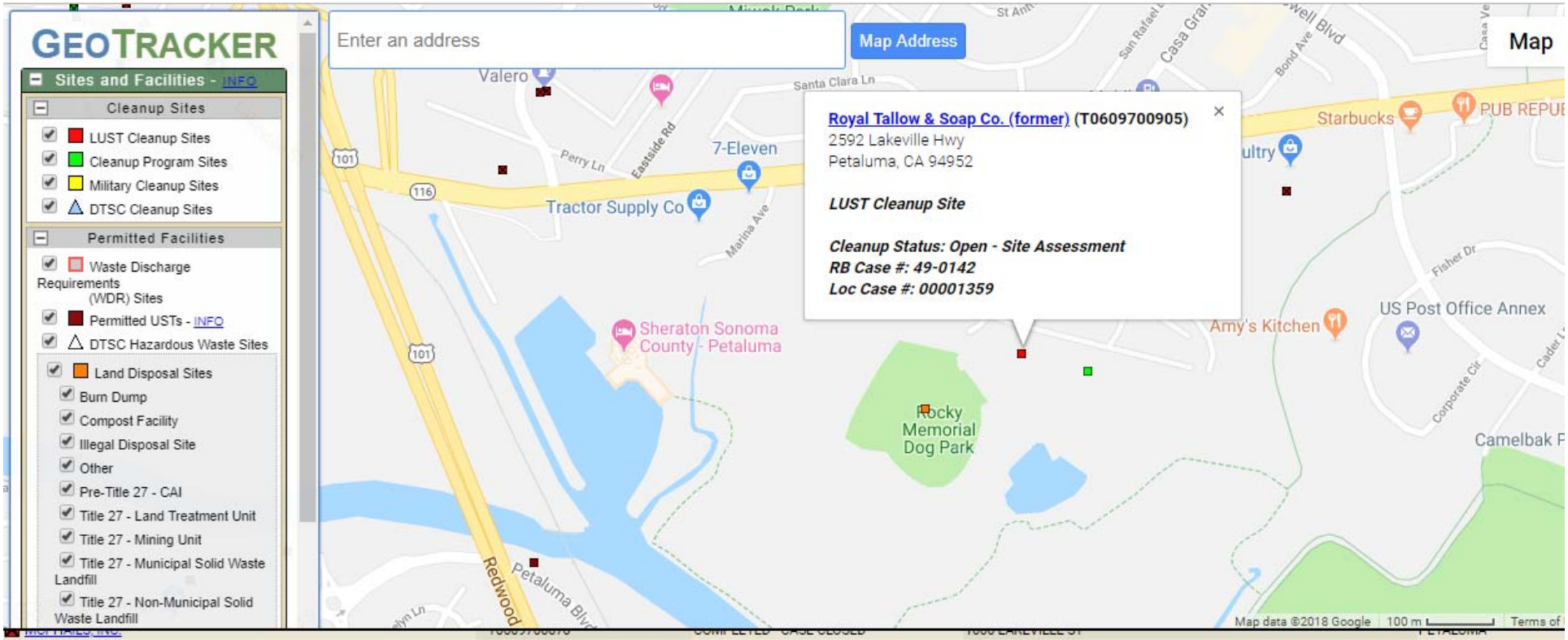
Amount due _____

*Fire Department*
*198 "D" Street*
*Petaluma, CA 94952*

*Phone (707) 778-4390*
*Fax (707) 762-4547*

*Fire Prevention Bureau*
*11 English Street*
*Petaluma, CA 94952*

*Phone (707) 778-4389*
*Fax (707) 776-3642*




| | | | | | |
|---|---|---|---|---|---|
| METRON SUPER GAS | T0609766367 | | COMPLETED - CASE CLOSED | 910 BAYWOOD DR | PETALUMA |
| NICK BARBIERI TRUCKING, LLC DBA NORTH BAY PETROLEUM | | 49-000-000366 | | 2141 PETALUMA BLVD SOUTH | PETALUMA |
| PETALUMA LANDFILL - CASA GRANDE | T10000000111 | | OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION | ? ? | ? |
| PETALUMA POULTRY PROCESS. | T0609700883 | | COMPLETED - CASE CLOSED | 2700 LAKEVILLE HWY | PETALUMA |
| ROYAL TALLOW & SOAP CO. (FORMER) | T0609700905 | | OPEN - SITE ASSESSMENT | 2592 LAKEVILLE HWY | PETALUMA |
| SKOFF TRUCKING | T0609700924 | | COMPLETED - CASE CLOSED | 1 CASA GRANDE RD | PETALUMA |
| STERO DISHWASHING MACHINE | T0609700949 | | COMPLETED - CASE CLOSED | 3200 LAKEVILLE HWY | PETALUMA |

STATE WATER RESOURCES CONTROL BOARD

# GEOTRACKER

Tools | Reports | UST Case Closures | Information

## 2592 LAKEVILLE HIGHWAY (T10000011322) - (MAP)

SIGN UP FOR EMAIL ALERTS

2592 LAKEVILLE HIGHWAY
PETALUMA, CA
SONOMA COUNTY
*CLEANUP PROGRAM SITE* (INFO)
PRINTABLE CASE SUMMARY / CSM REPORT

CLEANUP OVERSIGHT AGENCIES
SAN FRANCISCO BAY RWQCB (REGION 2) *(LEAD)* - *CASE #: 2140.4004*
*CASEWORKER:* ALYX KARPOWICZ

Summary | Cleanup Action Report | Regulatory Activities | *Environmental Data (ESI)* | Site Maps / Documents | Community Involvement | *Related Cases*

### Regulatory Profile

PRINTABLE CASE SUMMARY

**CLEANUP STATUS** - DEFINITIONS

**OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION AS OF 2/16/2018** - CLEANUP STATUS HISTORY

**POTENTIAL CONTAMINANTS OF CONCERN**

LEAD

**POTENTIAL MEDIA OF CONCERN**

SOIL

**FILE LOCATION**

ALL FILES ARE ON GEOTRACKER OR IN THE LOCAL AGENCY DATABASE

**USER DEFINED BENEFICIAL USE**

NONE SPECIFIED

**DESIGNATED BENEFICIAL USE(S)** - DEFINITIONS

MUN, AGR, IND, PROC

**DWR GROUNDWATER SUB-BASIN NAME**

Petaluma Valley (2-001)

**CALWATER WATERSHED NAME**

San Pablo - Petaluma River (206.30)

### Site History

Casa Grande Landfill was operated on the property west of the Site from possibly before 1942. The landfill stopped accepting wastes in 1991 and was officially closed in 1994. During the early 1940s and 1950s the landfill activity was close to the boundary between the two properties and it appears that some debris material may have been placed onto the Site.

STATE WATER RESOURCES CONTROL BOARD

# GEOTRACKER

Tools | Reports | UST Case Closures | Information

## ROYAL TALLOW & SOAP CO. (FORMER) (T0609700905) - (MAP)

SIGN UP FOR EMAIL ALERTS

2592 LAKEVILLE HWY
PETALUMA, CA 94952
SONOMA COUNTY
*LUST CLEANUP SITE* (INFO)
PRINTABLE CASE SUMMARY / CSM REPORT

CLEANUP OVERSIGHT AGENCIES
SONOMA COUNTY LOP *(LEAD)* - *CASE #: 00001359*
*CASEWORKER: J. GLENN MORELLI*
SAN FRANCISCO BAY RWQCB (REGION 2) - *CASE #: 40-0142*
*CASEWORKER: Regional Water Board*
*CASEWORKER: ALYX KARPOWICZ*

| | |
|---|---|
| CUF Claim #: | 6550 |
| CUF Priority Assigned: | D |
| CUF Amount Paid: | $62,833 |

Summary | Case Reviews | Cleanup Action Report | Regulatory Activities | Environmental Data (ESI) | Site Maps / Documents | Community Involvement | *Related Cases* | LUST CUF Data

### Regulatory Profile

PRINTABLE CASE SUMMARY

**CLEANUP STATUS** - DEFINITIONS

**OPEN - SITE ASSESSMENT AS OF 12/9/2015** - CLEANUP STATUS HISTORY

**POTENTIAL CONTAMINANTS OF CONCERN**
GASOLINE

**POTENTIAL MEDIA OF CONCERN**
OTHER GROUNDWATER (USES OTHER THAN DRINKING WATER)

**FILE LOCATION**
LOCAL AGENCY

**USER DEFINED BENEFICIAL USE**
GW - GROUNDWATER RECHARGE

**DESIGNATED BENEFICIAL USE(S)** - DEFINITIONS
MUN, AGR, IND, PROC

**DWR GROUNDWATER SUB-BASIN NAME**
Petaluma Valley (2-001)

**CALWATER WATERSHED NAME**
San Pablo - Petaluma River (206.30)

### Site History

Site was closed in 2004. AEI Consultant's "Phse II Subsurface Investigation Report date September 2, 2014 indicates soil and groundwater contamination that greatly exceeds the levels when the site was closed in 2004. The site is reopened as of 12/9/15.

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Barbara A. Lee , Director
1001 I Street
P.O. Box 806
Sacramento , CA 958120806

Edmund G. Brown Jr.
Governor

## Facility Search Results

**Selection Criteria:**

**Facility:**
**Search on:** Physical Address
**Street:** lakeville
**City:** petaluma
**Status:** Active and Inactive
**Sort Direction:** asc
**Sorted By:** Address
**Records Found:** 162

| EPA ID Number | Name | Address | City | Zip |
|---|---|---|---|---|
| CAC002604129 | LAKE VILLE RESORT APTS | 1 LAKEVILLE CIR | PETALUMA | 949545753 |
| CAC002748194 | ENCLAVE AT ADOBE CREEK | 1 LAKEVILLE CIR | PETALUMA | 949545753 |
| CAC002806658 | ENCLAVE AT ADOBE CREEK | 1 LAKEVILLE CIR | PETALUMA | 949545753 |
| CAC001378952 | MCPHAIL FUEL | 1000 LAKEVILLE | PETALUMA | 949520000 |
| CAC002420903 | MCPHAIL FUEL | 1000 LAKEVILLE | PETALUMA | 949520000 |
| CAC000244825 | 1X MCPHAIL'S INC | 1000 LAKEVILLE ST | PETALUMA | 949540000 |
| CAL000161794 | SHELL | 1001 LAKEVILLE | PETALUMA | 949520000 |
| CAC002572218 | S & L PAINTING | 1001 LAKEVILLE ST | PETALUMA | 94952 |
| CAL000304547 | LAKEVILLE SHELL | 1001 LAKEVILLE ST | PETALUMA | 94952 |
| CAL000350883 | AU ENERGY-LAKEVILLE SHELL | 1001 LAKEVILLE ST | PETALUMA | 949523331 |
| CAR000127431 | SHELL SERVICE STATION | 1001 LAKEVILLE ST | PETALUMA | 94952 |
| CAR000184465 | CHEVRON 307243 | 1002 LAKEVILLE ST | PETALUMA | 949523332 |
| CAL000370558 | OILSTOP DRIVE THRU OIL CHANGE | 1004 LAKEVILLE ST | PETALUMA | 94952 |
| CAL000058943 | TOMS AUTO WORKS | 1010 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAL000213120 | TRANSMAN | 1010 LAKEVILLE HWY UNIT B4 | PETALUMA | 949520000 |
| CAC002580307 | MCPHAIL'S INC | 1010 LAKEVILLE ST | PETALUMA | 94952 |
| CAC002596710 | IN N OUT BURGER | 1010 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000234348 | ENGINE DYNAMICS LLC | 1010 LAKEVILLE ST | PETALUMA | 949520000 |
| CAC002564439 | CALIFORNIA ROOF SAVERS | 1010 LAKEVILLE ST STE 3B | PETALUMA | 949520000 |
| CAL000163518 | HAMMERS SKI AND MARINE INC | 1016 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000276120 | HAMMER'S SERVICE LLC | 1016 LAKEVILLE ST | PETALUMA | 949523332 |
| CAL000058865 | COURTESY AUTO & TRUCK REPAIR | 1051 A LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000303750 | ACCU-LINE BRAKE & WHEEL | 1051 LAKEVILLE ST STE A | PETALUMA | 949523331 |
| CAL000396546 | ACCU-LINE BRAKE & WHEEL | 1051 LAKEVILLE ST UNIT A | PETALUMA | 949523331 |
| CAL000305156 | C.L.Y. INC-DBA SONOMA MARIN CONST POINT PACIFIC DRILLING | 1077 LAKEVILLE ST | PETALUMA | 949523331 |
| CAC002975588 | SONOMA MARIN CONSTRUCTION | 1077 LAKEVILLE STREET | PETALUMA | 94952 |
| CAL000057963 | FREY'S AUTOMOTIVE SERVICE | 121 LAKEVILLE ST | PETALUMA | 949520000 |
| CAC002963815 | CLOVER SONOMA | 121 LAKEVILLE STREET | PETALUMA | 94952 |
| CAC000723056 | JOYCE MADDALENA | 139 LAKEVILLE STREET | PETALUMA | 949520000 |
| CAC002911677 | SONOMA-MARIN AREA RAIL TRANSIT DISTRICT (SMART) | 1720 LAKEVILLE HIGHWAY | PETALUMA | 94954 |
| CAL000091463 | TRENCH PLATE RENTAL CO | 1721 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAC000055845 | 1X BIG 4 RENTS | 1731 LAKEVILLE HWY | PETALUMA | 949280000 |
| CAC002662702 | RENTAL CENTER PROPERTIES CORP | 1731 LAKEVILLE HWY | PETALUMA | 94954 |
| CAC002677897 | HERTZ EQUIPMENT RENTAL | 1731 LAKEVILLE HWY | PETALUMA | 949545371 |
| CAD983647611 | HERTZ EQUIPMENT RENTAL | 1731 LAKEVILLE HWY | PETALUMA | 949545371 |
| CAL000189421 | PETALUMA FRENCH CLEANERS | 2000 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000288513 | PETALUMA FRENCH CLEANERS | 2000 LAKEVILLE HWY | PETALUMA | 94954 |
| CAR000012633 | CLEANERS 2000 | 2000 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAR000170522 | HOME DEPOT HD 1382 | 2000 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000370544 | TRACTOR SUPPLY COM | 2000 LAKEVILLE HWY STE A | PETALUMA | 94954 |

| | | | | |
|---|---|---|---|---|
| CAL000300714 | PETALUMA FRENCH CLEANERS | 2000 LAKEVILLE HWY STE E | PETALUMA | 94954 |
| CAC002629055 | LANDS OF BAYWOOD LLC | 2044 LAKEVILLE HWY | PETALUMA | 94954 |
| CAL000365042 | FRONTROW CALYPSO LLC | 2080 LAKEVILLE HWY | PETALUMA | 949546713 |
| CAL000332871 | MAC CONSTRUCTION INC DBA DIVISION SEVEN | 22 LAKEVILLE ST | PETALUMA | 949523125 |
| CAC000162333 | 1X ROYAL TALLOW AND SOAP | 2592 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAC002207113 | DARLING INTL INC | 2592 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAC002252793 | DARLING INTERNATIONAL | 2592 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAC002368151 | DARLING INTERNATIONAL INC | 2592 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAC000011411 | 1X KAYO OIL CO | 2601 LAKEVILLE HWY | PETALUMA | 952410000 |
| CAC002324817 | ULTRAMAR INC | 2601 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAC002563563 | USA PETROLEUM STATION 3703 | 2601 LAKEVILLE HWY | PETALUMA | 94954 |
| CAL000002063 | KAYO OIL COMPANY | 2601 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000239789 | BEACON STATION #3703 | 2601 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000252787 | Tesoro 67093 | 2601 LAKEVILLE HWY | PETALUMA | 949545654 |
| CAR000142141 | TESORO MOBIL 68186 | 2601 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAC001063144 | PETALUMA POULTRY | 2700 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000089028 | PETALUMA ACQUISITION LLC DBA PETALUMA POULTRY PROCESSORS | 2700 LAKEVILLE HWY | PETALUMA | 94955 |
| CAL000272169 | PETALUMA ACQUISITION LLC | 2700 LAKEVILLE HWY | PETALUMA | 949545606 |
| CAL922912746 | PETALUMA POULTRY | 2700 LAKEVILLE HWY | PETALUMA | 949547368 |
| CAX000017095 | PETALUMA POULTRY PROCESSORS | 2700 LAKEVILLE VILLA HWY. | PETALUMA | 949520000 |
| CAC002740394 | CARLOS ALICEA | 29 LAKEVILLE ST | PETALUMA | 949523124 |
| CAC002740397 | CARL'S ALICEA | 29 LAKEVILLE ST | PETALUMA | 949523124 |
| CAL000363532 | ALL SMOG | 29 LAKEVILLE ST | PETALUMA | 949523124 |
| CAL921765680 | GOLDEN STATE DIESEL | 29 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000188618 | HOT RODZ | 29A LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000376278 | ALL REPAIR | 29A LAKEVILLE ST | PETALUMA | 94952 |
| CAL912693130 | GOLDEN STATE DIESEL | 29A LAKEVILLE STREET | PETALUMA | 949520000 |
| CAC000044321 | 1X HUNT AND BEHRENS | 30 LAKEVILLE STREET | PETALUMA | 949520000 |
| CAD981388564 | THE STERO CO | 3200 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAX000130252 | STERO DISHWASHING MANUFACTURING CO | 3200 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAL000426438 | PRS STAINLESS FABRICATION LLC | 3200 LAKEVILLE HWY STE 110 | PETALUMA | 94954 |
| CAL000409874 | SYNERGY HEALTH AST LLC | 3200 LAKEVILLE HWY STE 120 | PETALUMA | 949545675 |
| CAC002902370 | PRS STAINLESS FABRICATION | 3200 LAKEVILLE HWY, STE. 110 | PETALUMA | 94954 |
| CAD983599648 | PETALUMA TRANSMISSIONS | 322 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000032673 | COLOR WHEEL THE | 322 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000141359 | LAKEVILLE AUTOBODY & PAINT INC | 322 LAKEVILLE ST | PETALUMA | 949523131 |
| CAL921345730 | PETALUMA TRANSMISSION | 322 LAKEVILLE STREET | PETALUMA | 949520000 |
| CAL000097341 | BRANDNER VETERINARY HOSPITAL | 347 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000414666 | RED RABBIT VETERINERY HOSPITAL INC DBA BRANDNER VETERINARY HOSPITAL | 347 LAKEVILLE ST | PETALUMA | 94952 |
| CAX000075796 | SOLO OPTICAL | 3600 LAKEVILLE HWY. | PETALUMA | 949520000 |
| CAL000034386 | ACCULAB ENVIRONMENTAL SERVICES | 3700 LAKEVILLE HIGHWAY | PETALUMA | 949540000 |
| CA0000602953 | D AND M LABORATORIES | 3700 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000277803 | LABCON NORTH AMERICA | 3700 LAKEVILLE HWY | PETALUMA | 94954 |
| CAD982034597 | LABCON NORTH AMERICA | 3700 LAKEVILLE HWY STE 200 | PETALUMA | 949547611 |
| CAX000082875 | FIREMAN'S FUND INSURANCE COMPANIES | 3700 LAKEVILLE HWY. | PETALUMA | 949520000 |
| CAC002597938 | BROOKS AUTOMATION INC POLYCOLD SYSTEMS | 3800 LAKEVILLE HWY | PETALUMA | 949545673 |
| CAL000181651 | FRIEDMAN BROTHERS HARDWARE INC | 3800 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000232281 | I G C POLYCOLD SYSTEMS | 3800 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000291239 | POLYCOLD SYSTEMS | 3800 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAL000300828 | BROOKS AUTOMATION INC | 3800 LAKEVILLE HWY | PETALUMA | 949545673 |
| CAL000429157 | KAISER PERMANENTE MEDICAL OFFICE BUILDING | 3900 LAKEVILLE HWY | PETALUMA | 94954 |
| CAC002607530 | RAMOS ENVIRONMENTAL SERVICES | 4002 LAKEVILLE HWY | PETALUMA | 949549262 |
| CAL000299418 | KIEWIT PACIFIC CO | 4002 LAKEVILLE HWY | PETALUMA | 949549262 |
| CAC002596295 | KIEWIT PACIFIC | 4104 LAKEVILLE HWY | PETALUMA | 94954 |
| CAL000378291 | SILACCI AG SERVICES | 4349 LAKEVILLE HWY | PETALUMA | 94954 |
| CAL000220223 | PACIFIC COAST CUTTERS INC | 450 LAKEVILLE ST STE B | PETALUMA | 949520000 |
| CAC002623130 | TOMROSE CONSTRUCTION INC | 450 LAKEVILLE ST STE C | PETALUMA | 949523155 |
| CAL000304110 | DBA ARMORED COATINGS | 450 LAKEVILLE ST STE C | PETALUMA | 94952 |
| CAC002810893 | AANENSON WILDCAT INC DBA WILDCAT ENGINEERING | 450 LAKEVILLE ST STE-A | PETALUMA | 94952 |
| CAL000240494 | WILD CATS UNDERGROUND & ENGINEERING | 451 LAKEVILLE ST | PETALUMA | 949523132 |
| CAL000333844 | GHILOTTI BROS INC | 4991 LAKEVILLE HWY | PETALUMA | 94954 |
| CAL000055646 | HOOTS AUTO & DIESEL | 501 LAKEVILLE ST | PETALUMA | 900000000 |
| CAL000262390 | SPORTBIKE DYNAMICS | 501 LAKEVILLE ST | PETALUMA | 949523301 |
| CAL000024002 | HOOTS AUTO & DIESEL ELECTRIC | 501 LAKEVILLE ST STE H | PETALUMA | 949520000 |

| | | | | |
|---|---|---|---|---|
| CAC002612900 | BAYER HEALTH CARE | 5070 LAKEVILLE HWY | PETALUMA | 949549518 |
| CAC002249689 | PETERSON PAVING | 51 LAKEVILLE ST | PETALUMA | 949520000 |
| CAC002778580 | CLOVER STORNETTA FARMS INC | 51 LAKEVILLE ST | PETALUMA | 949523163 |
| CAL000044155 | CLINTON GOW INC | 51 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000176684 | LES' TRUCK & AUTO REPAIR | 51 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000254865 | CLOVER STORNETTA FARMS INC | 51 LAKEVILLE ST | PETALUMA | 94952 |
| CAL000409339 | FIRST VEHICLE SERVICES #49770 | 51 LAKEVILLE ST | PETALUMA | 94952 |
| CAL000428087 | RYDER TRUCK RENTAL INC 1203 | 51 LAKEVILLE ST | PETALUMA | 94952 |
| CAL000017145 | ALTENREUTHER BROS | 5100 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAL000083318 | JACOBSEN RANCHES | 5175 LAKEVILLE HIGHWAY | PETALUMA | 949540000 |
| CAL000266562 | M MASELLI & SONS INC | 519 LAKEVILLE ST | PETALUMA | 94952 |
| CAC002712176 | TOLAY LAKE REGIONAL PARK | 5869 LAKEVILLE HIGHWAY | PETALUMA | 94954 |
| CAC002608778 | CARDOZA RANCHES | 5869 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAL000017175 | CARDOZA RANCHES | 5869 LAKEVILLE HWY | PETALUMA | 949520000 |
| CAL912325163 | CARDOZA RANCHES | 5869 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAC002612000 | COUNTY OF SONOMA-FACILITIES OPERATIONS | 5870 LAKEVILLE HWY | PETALUMA | 949549271 |
| CAL000220755 | TREASURY MUTUAL LTD | 5875 LAKEVILLE HWY | PETALUMA | 949549263 |
| CAC002619642 | DON SILACCI | 6155 LAKEVILLE HWY | PETALUMA | 94954 |
| CAC002572224 | PEGASUS RANCH | 6525 LAKEVILLE HWY | PETALUMA | 94954 |
| CAC002635667 | PEGASUS RANCH | 6525 LAKEVILLE HWY | PETALUMA | 94954 |
| CAL000021014 | LOREN AIR WEST | 660 LAKEVILLE ST | PETALUMA | 999520000 |
| CAL000116514 | BRUCES AUTOMOTIVE REPAIR | 660 LAKEVILLE ST | PETALUMA | 949527304 |
| CAL000365935 | THE HYBRID HAVEN | 660 LAKEVILLE ST STE B | PETALUMA | 949527304 |
| CAC002962267 | BRUCES AUTOMOTIVE REPAIR | 660 UNIT A LAKEVILLE ST | PETALUMA | 94952 |
| CAL000308524 | HENDRICKS DEVELOPMENT | 6614 LAKEVILLE HWY | PETALUMA | 94954 |
| CAC002570059 | FLOCCHINI ESTATE LLC | 7078 LAKEVILLE HWY | PETALUMA | 94954 |
| CAL000316172 | VINA MANAGEMENT SERVICE | 7550 LAKEVILLE HWY | PETALUMA | 949549563 |
| CAL000414539 | SONOMA HORSE PARK | 7600 LAKEVILLE HWY | PETALUMA | 949549593 |
| CAC002322913 | RIVERSIDE EQUESTRIAN CENTER | 7600 LAKEVILLE RD | PETALUMA | 949540000 |
| CAC002293369 | ALEXANDER ANOLIK | 7650 LAKEVILLE HWY | PETALUMA | 949540000 |
| CAC002564414 | SLEEPY HOLLOW DAIRY | 7689 LAKEVILLE | PETALUMA | 94954 |
| CAC002594408 | SONOMA LAND TRUST | 7709 LAKEVILLE HWY | PETALUMA | 949549260 |
| CAL000006710 | LARS ENGINES | 82 LAKEVILLE ST | PETALUMA | 949523125 |
| CAL000141757 | AUTO SALES & WRECKING | 850 LAKEVILLE ST. | PETALUMA | 949520000 |
| CAL999141757 | AUTO SALES & WRECKING | 850 LAKEVILLE ST. | PETALUMA | 949520000 |
| CAL000114007 | C & W AUTO WRECKERS | 892 LAKEVILLE ST | PETALUMA | 949523328 |
| CAD982400863 | DAVES AUTO BODY | 896 LAKEVILLE RD | PETALUMA | 949520000 |
| CAL000234022 | G & C AUTO BODY INC | 896 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000374778 | G & C AUTO BODY | 896 LAKEVILLE ST | PETALUMA | 94952 |
| CAL000023996 | CUSTOMLINE | 901 LAKEVILLE ST | PETALUMA | 949523329 |
| CAL000393601 | KELLY-MOORE PAINT CO INC | 905 LAKEVILLE ST STE A-1 | PETALUMA | 949523329 |
| CAC002223345 | ALLEN BROADY | 91 LAKEVILLE ST | PETALUMA | 949520000 |
| CAD981992340 | CLOVER STORNETTA FARMS INC | 91 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000182960 | FAIRFAX FRENCH CLEANERS | 915 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000306282 | FAIRFAX FRENCH CLEANERS | 915 LAKEVILLE ST | PETALUMA | 949523329 |
| CAL000083161 | CALIFORNIA CRUSH | 92 LAKEVILLE ST | PETALUMA | 949520000 |
| CAL000152011 | CALIFORNIA CRUSH | 92 LAKEVILLE STREET | PETALUMA | 949520000 |
| CAL000359891 | SAVEMART SUPERMARKETS DBA LUCKY #740 | 939 LAKEVILLE ST | PETALUMA | 949523329 |
| CAR000249722 | SAVEMART SUPERMARKETS DBA LUCKY #740 | 939 LAKEVILLE ST | PETALUMA | 949523329 |
| CAC000287473 | 1X MOBIL KAISER SAND & GRAVEL | 950 LAKEVILLE ROAD | PETALUMA | 949520000 |
| CAC002275681 | JOSEPH MCKENDRY FINE JEWELRY | 961 LAKEVILLE STREET | PETALUMA | 949520000 |
| CAC002678961 | BAYSIDE STRIPE AND SEAL INC | 98 LAKEVILLE ST | PETALUMA | 949523125 |
| CAL000093865 | METCALFE MACHINE AND ENGINE | 98 LAKEVILLE ST | PETALUMA | 949520000 |
| CAC002586805 | CITY OF PETALUMA | CORNER OF MADISON ST AT LAKEVILLE S | PETALUMA | 94952 |
| CAC002580320 | US COURT OF ENGINEER | INTERSECTION OF MADISON & LAKEVILLE | PETALUMA | 94952 |
| CAL000009745 | FIREMAN'S FUND ENVIRON LAB | LAKEVILLE HWY 2ND FLOOR | PETALUMA | 949520000 |
| CAX000133827 | PACIFIC GAS & ELECTRIC CO | LAKEVILLE SUB-STATION | PETALUMA | 949280000 |
| CAC002530375 | CITY OF PETALUMA | PETALUMA RIVER @ LAKEVILLE ST | PETALUMA | 949520000 |

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Barbara A. Lee , Director
1001 I Street
P.O. Box 806
Sacramento , CA 958120806

Edmund G. Brown Jr.
Governor

## EPA ID PROFILE

Map

| | | | |
|---|---|---|---|
| **ID Number:** | CAC000162333 | **Status:** | INACTIVE |
| **Name:** | 1X ROYAL TALLOW AND SOAP | **Inactive Date:** | 1/1/1900 12:00:00 AM |
| **County:** | SONOMA | **Record Entered:** | 3/30/1989 12:00:00 AM |
| **NAICS:** | N/A | **Last Updated:** | 5/2/2000 12:00:00 AM |

| | Name | Address | City | State | Zip Code | Phone |
|---|---|---|---|---|---|---|
| **Location** | 1X ROYAL TALLOW AND SOAP | 2592 LAKEVILLE HWY | PETALUMA | CA | 949520000 | |
| **Mailing** | | -- | SAN FRANCISCO | CA | 941880000 | |
| **Owner** | DARLING-DELAWARE CORP. | -- | -- | 99 | -- | 0000000000 |
| **Operator/Contact** | BARBARA GOMES, SECTY. | -- | -- | 99 | -- | 4156474890 |

**Based Only Upon ID Number:** **CAC000162333**

| Calif. Manifests? | Non Calif. Manifests? | Transporter Registration? |
|---|---|---|
| N/A | N/A | N/A |

**California and Non California Manifest Tonnage Total and Waste Code by Year Matrix by Entity Type (if available) are on the next page**

**Calif. Manifest Counts and Total Tonnage**

**No Records Found**

## Non California Manifest Total Tonnage

**No Records Found**

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

**Report Generation Date:** 11/14/2018

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Barbara A. Lee , Director
1001 I Street
P.O. Box 806
Sacramento , CA 958120806

Edmund G. Brown Jr.
Governor

## EPA ID PROFILE

Map

| | | | |
|---|---|---|---|
| **ID Number:** | CAC002207113 | **Status:** | INACTIVE |
| **Name:** | DARLING INTL INC | **Inactive Date:** | 6/11/2001 12:00:00 AM |
| **County:** | SONOMA | **Record Entered:** | 5/2/2000 12:00:00 AM |
| **NAICS:** | N/A | **Last Updated:** | 6/11/2001 12:00:00 AM |

| | Name | Address | City | State | Zip Code | Phone |
|---|---|---|---|---|---|---|
| **Location** | DARLING INTL INC | 2592 LAKEVILLE HWY | PETALUMA | CA | 949520000 | |
| **Mailing** | | 251 OCONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | |
| **Owner** | DARLING INTERNATIONAL INC | 251 OCONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | 0000000000 |
| **Operator/Contact** | BILL MCMURTRY | 251 OCONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | 9722814409 |

**Based Only Upon ID Number:** **CAC002207113**

| Calif. Manifests? | Non Calif. Manifests? | Transporter Registration? |
|---|---|---|
| Yes | N/A | N/A |

**California and Non California Manifest Tonnage Total and Waste Code by Year Matrix by Entity Type (if available) are on the next page**

## Calif. Manifest Counts and Total Tonnage

Top line represents Manifest Count and Bottom line represents Total Tonnage

| Year | Generator | Trans. 1 | Trans. 2 | TSDF | ALT. TSDF |
|---|---|---|---|---|---|
| **2000** | **7**<br>**14.38040** | **0**<br>**0.00000** | **0**<br>**0.00000** | **0**<br>**0.00000** | **0**<br>**0.00000** |

## Non California Manifest Total Tonnage

**No Records Found**

| Waste Code Matrix | | | | | |
|---|---|---|---|---|---|
| **California** | **Generator** | **Trans. 1** | **Trans. 2** | **TSDF** | **Alt. TSDF** |
| **RCRA** | **Generator** | **Trans. 1** | **Trans. 2** | **TSDF** | **Alt. TSDF** |

Waste Code Matrix as a spreadsheet

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

**Report Generation Date:** 11/14/2018

# California Waste Code by Year Matrix

**ID Number:** CAC002207113
**Entity Type:** Generator

2000 ▾ 2018 ▾ Select Years

| Calif. Code | Description | 2000 |
|---|---|---|
| 181 | OTHER INORGANIC SOLID WASTE | 2.25000 |
| 213 | HYDROCARBON SOLVENTS | 0.05000 |
| 214 | UNSPECIFIED SOLVENT MIXTURE | 0.00500 |
| 221 | WASTE OIL AND MIXED OIL | 0.50140 |
| 222 | OIL/WATER SEPARATION SLUDGE | 9.17400 |
| 223 | UNSPECIFIED OIL-CONTAINING WASTE | 0.90000 |

| | | |
|---|---|---|
| | | |
| 331 | OFF-SPEC, AGED, OR SURPLUS ORGANICS | 1.31000 |
| 551 | LABORATORY WASTE CHEMICALS | 0.19000 |
| | Grand Total | 14.38040 |

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Barbara A. Lee , Director
1001 I Street
P.O. Box 806
Sacramento , CA 958120806

Edmund G. Brown Jr.
Governor

## EPA ID PROFILE

Map

| | | | |
|---|---|---|---|
| **ID Number:** | CAC002252793 | **Status:** | INACTIVE |
| **Name:** | DARLING INTERNATIONAL | **Inactive Date:** | 9/11/2001 12:00:00 AM |
| **County:** | SONOMA | **Record Entered:** | 11/1/2000 12:00:00 AM |
| **NAICS:** | N/A | **Last Updated:** | 9/11/2001 12:00:00 AM |

| | Name | Address | City | State | Zip Code | Phone |
|---|---|---|---|---|---|---|
| **Location** | DARLING INTERNATIONAL | 2592 LAKEVILLE HWY | PETALUMA | CA | 949520000 | |
| **Mailing** | | 251 O'CONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | |
| **Owner** | DARLING INTERNATIONAL INC | 251 O'CONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | 9722814409 |
| **Operator/Contact** | BILL MCMURTRY-VP | 251 O'CONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | 9722814409 |

**Based Only Upon ID Number:** **CAC002252793**

| Calif. Manifests? | Non Calif. Manifests? | Transporter Registration? |
|---|---|---|
| Yes | N/A | N/A |

**California and Non California Manifest Tonnage Total and Waste Code by Year Matrix by Entity Type (if available) are on the next page**

### Calif. Manifest Counts and Total Tonnage

Top line represents Manifest Count and Bottom line represents Total Tonnage

| Year | Generator | Trans. 1 | Trans. 2 | TSDF | ALT. TSDF |
|---|---|---|---|---|---|
| **2000** | **2**<br>**1.69560** | **0**<br>**0.00000** | **0**<br>**0.00000** | **0**<br>**0.00000** | **0**<br>**0.00000** |

## Non California Manifest Total Tonnage

**No Records Found**

| Waste Code Matrix | | | | | |
|---|---|---|---|---|---|
| **California** | **Generator** | **Trans. 1** | **Trans. 2** | **TSDF** | **Alt. TSDF** |
| **RCRA** | **Generator** | **Trans. 1** | **Trans. 2** | **TSDF** | **Alt. TSDF** |

Waste Code Matrix as a spreadsheet

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

**Report Generation Date:** 11/14/2018

# California Waste Code by Year Matrix

**ID Number:** **CAC002252793**
**Entity Type:** **Generator**

2000 ▾ 2018 ▾ Select Years

| Calif. Code | Description | 2000 |
|---|---|---|
| 151 | ASBESTOS-CONTAINING WASTE | 1.68560 |
| 181 | OTHER INORGANIC SOLID WASTE | 0.01000 |
| | Grand Total | 1.69560 |

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Barbara A. Lee , Director
1001 I Street
P.O. Box 806
Sacramento , CA 958120806

Edmund G. Brown Jr.
Governor

## EPA ID PROFILE

Map

| | | | |
|---|---|---|---|
| **ID Number:** | CAC002368151 | **Status:** | INACTIVE |
| **Name:** | DARLING INTERNATIONAL INC | **Inactive Date:** | 1/11/2002 12:00:00 AM |
| **County:** | SONOMA | **Record Entered:** | 5/15/2001 12:00:00 AM |
| **NAICS:** | N/A | **Last Updated:** | 1/17/2002 12:00:00 AM |

| | Name | Address | City | State | Zip Code | Phone |
|---|---|---|---|---|---|---|
| **Location** | DARLING INTERNATIONAL INC | 2592 LAKEVILLE HWY | PETALUMA | CA | 949520000 | |
| **Mailing** | | 251 O'CONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | |
| **Owner** | DARLING INTERNATIONAL INC | 251 O'CONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | 9722814409 |
| **Operator/Contact** | BILL MCMURTRY - VP | 251 O'CONNOR RIDGE BLVD STE 300 | IRVING | TX | 750380000 | 9722814409 |

**Based Only Upon ID Number:** **CAC002368151**

| Calif. Manifests? | Non Calif. Manifests? | Transporter Registration? |
|---|---|---|
| Yes | N/A | N/A |

**California and Non California Manifest Tonnage Total and Waste Code by Year Matrix by Entity Type (if available) are on the next page**

### Calif. Manifest Counts and Total Tonnage

Top line represents Manifest Count and Bottom line represents Total Tonnage

| Year | Generator | Trans. 1 | Trans. 2 | TSDF | ALT. TSDF |
|---|---|---|---|---|---|
| **2001** | **1**<br>**0.42140** | **0**<br>**0.00000** | **0**<br>**0.00000** | **0**<br>**0.00000** | **0**<br>**0.00000** |

## Non California Manifest Total Tonnage

**No Records Found**

| Waste Code Matrix | | | | | |
|---|---|---|---|---|---|
| **California** | **Generator** | **Trans. 1** | **Trans. 2** | **TSDF** | **Alt. TSDF** |
| **RCRA** | **Generator** | **Trans. 1** | **Trans. 2** | **TSDF** | **Alt. TSDF** |

Waste Code Matrix as a spreadsheet

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

**Report Generation Date:** 11/14/2018

# California Waste Code by Year Matrix

**ID Number:** **CAC002368151**
**Entity Type:** **Generator**

2001 ▾ 2018 ▾ Select Years

| Calif. Code | Description | 2001 |
|---|---|---|
| 151 | ASBESTOS-CONTAINING WASTE | 0.42140 |
| | **Grand Total** | **0.42140** |

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Barbara A. Lee , Director
1001 I Street
P.O. Box 806
Sacramento , CA 958120806

Edmund G. Brown Jr.
Governor

## Facility Search Results

**Selection Criteria:**

| | |
|---|---|
| **Facility:** | |
| **Search on:** | Physical Address |
| **Street:** | casa |
| **City:** | petaluma |
| **Status:** | Active and Inactive |
| **Sort Direction:** | asc |
| **Sorted By:** | Address |
| **Records Found:** | 16 |

| EPA ID Number | Name | Address | City | Zip |
|---|---|---|---|---|
| CAC000184409 | 1X SKOFF, JERRY | #1 CASA GRANDE ROAD | PETALUMA | 949520000 |
| CAC002624513 | MARTY SKOFF | 1 CASA GRANDE RD | PETALUMA | 949545653 |
| CAL000072734 | SKOFF TRUCKING INC | 1 CASA GRANDE RD | PETALUMA | 949545653 |
| CAL000313450 | MAUCH TRUCKING INC | 1 CASA GRANDE RD | PETALUMA | 949545653 |
| CAL000252745 | MICHAEL PAUL COMPANY INC | 1200 CASA GRANDE RD | PETALUMA | 94954 |
| CAC001163648 | DOOLITTLE PAINT MART | 1310 CASA GRANDE RD | PETALUMA | 949540000 |
| CAL000411990 | COSMOPROF BEAUTY | 1310 CASA GRANDE RD STE A | PETALUMA | 949547630 |
| CAC001307040 | GARY FILIPPINI | 1549 CASA GRANDE RD | PETALUMA | 949540000 |
| CAC002625131 | OLD ADOBE DEVELOPMENTAL SERVICES | 235 CASA GRANDE RD | PETALUMA | 949545604 |
| CAX000119644 | 1X STATE OF CALIF DEPT OF TRANSPORTATION | 25 CASA GRANDE RD | PETALUMA | 945530000 |
| CAL000071695 | PETALUMA USD-CASA GRANDE HIGH SCHOOL | 333 CASA GRANDE RD | PETALUMA | 949540000 |
| CAC002946001 | CASA GRANDE HIGH SCHOOL | 333 CASA GRANDE RD. | PETALUMA | 94954 |
| CAC000965280 | PETALUMA CITY SCHOOLS/CASA GRANDE H.S. | 333 CASA GRANDE ROAD | PETALUMA | 949540000 |
| CAL000062618 | WEDGE ROOFING INC | 5 CASA GRANDE RD | PETALUMA | 949540000 |
| CAL912825085 | WEDGE ROOFING INC | 5 CASA GRANDE RD | PETALUMA | 949540000 |
| CAD000304998 | 1X PETALUMA CITY SCHOOLS | CASA GRANDE TRAINING CENTER | PETALUMA | 949520000 |

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

**Report Generation Date:** 11/14/2018

tory for PLANT# >>  1300

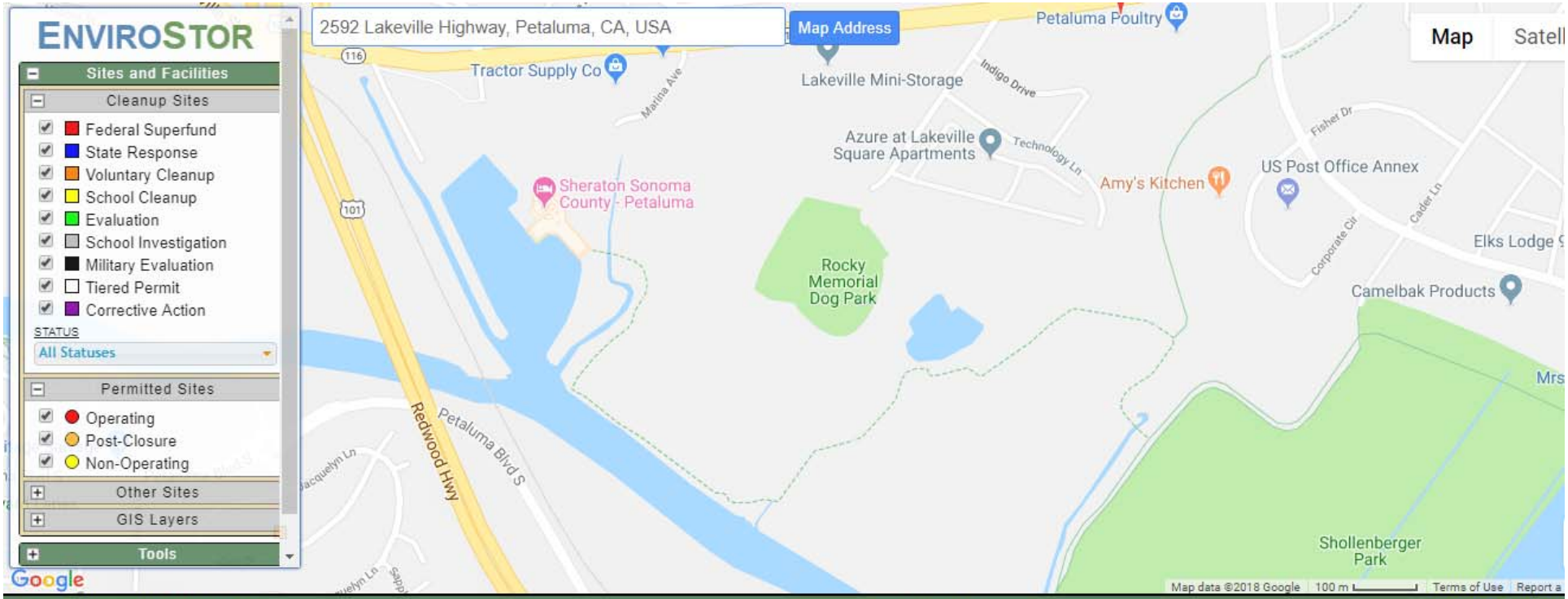
Plant number ..... 1300  A1300
Business name ..... Royal Tallow & Soap Co
Location address ..... 2592 Lakeville Hwy
  City ..... Petaluma, CA  94952
  Telephone ..... 707-762-2731
Mailing address ..... P O Box 738
  City ..... Petaluma, CA  94953
Contact ..... Jake L Gray, Manager
  Address ..... 2592 Lakeville Hwy
  City ..... Petaluma, CA  94952
  Telephone ..... (707) 762-2731
Permit engineer ..... Leonard R Clayton, x4740
  Former engineer ..... Leonard R Clayton, x4740
Ownership type ..... Private
Inside city limits ..... Yes
Ceased operation ..... 10/31/86, Closed

Plant #: 1300
Company name: Royal Tallow & Soap Co
Location: 2592 Lakeville Hwy, Petaluma, CA 94952

Application #: 30448
Project title: Retro rendering plt
Engineer: Leonard R Clayton [144 ]
Received: 10/10/84
Final disposition: Waived A/C, 12/10/84

Application #: 26750
Project title: Not available
Engineer: Wayne E Yeager [295 ]
Received: 11/21/78
Final disposition: AC Issued, 07/27/79

Application #: 29297
Project title: Not available
Engineer: Leonard R Clayton [144 ]
Received: 04/05/83
Final disposition: Canceled, 07/01/83




**SITES CURRENTLY VISIBLE ON MAP** — 1 SITES LISTED — EXPORT THIS LIST TO

| PROJECT NAME | STATUS | PROJECT TYPE | ADDRESS | CITY |
|---|---|---|---|---|
| QUARRY HEIGHTS | ACTIVE | VOLUNTARY CLEANUP | 1600 PETALUMA BOULEVARD SOUTH | PETALUMA |

**From:** Public Records
**To:** Kathryn Smith
**Subject:** Public Records Request No. 2018-10-0288
**Date:** Monday, October 29, 2018 5:24:59 PM

---

Dear Kathryn Smith,

Thank you for your request. We have searched our records and have no records that respond to your below request for:

0 & 2044 Casa Grande Road
Petaluma

If you have any questions or concerns, please call or e-mail me.

Sincerely,

Rochelle Reed
Public Records Section
BAAQMD
415-516-1916

# APPENDIX F

# PREVIOUS REPORTS

# CLEAN CLOSURE PLAN

## DEBRIS AREA

## 2592 LAKEVILLE HIGHWAY
## PETALUMA, CALIFORNIA

CKG Environmental, Inc.

**CLEAN CLOSURE PLAN**

**DEBRIS AREA**
**2592 LAKEVILLE HIGHWAY**
**PETALUMA, CALIFORNIA**
**APN: 005-060-042-000**

**Prepared for:**

Mr. Keith Roberson
California Regional Water Quality Control Board - San Francisco Bay Region
1515 Clay Street
Oakland, CA 94612

**Prepared on Behalf of:**

Mr. Larry Wasem
Baywood LLC
414 Aviation Boulevard.
Santa Rosa, CA 95403-1069

February 8, 2016

**Prepared by:**




Christina J. Kennedy R.G.
Principal

CKG Environmental, Inc.
P.O. Box 246
St. Helena, California 94574
(707) 967-8080

## TABLE OF CONTENTS


**1.0 INTRODUCTION ..... 1**

**2.0 SITE CHARACTERIZATION ..... 2**

2.1 Property Description ..... 2

2.2 Site Background ..... 2

2.3 Summary of Recent Site Characterization ..... 4

2.4 Extent of Soil Removal Requirements ..... 5

**3.0 EXCAVATION AND MATERIAL MANAGEMENT ..... 6**

3.1 Project Planning ..... 6

3.1.1 Health and Safety Plan ..... 6

3.1.2 Permits ..... 6

3.1.3 Bidding and Contracting Activities ..... 7

3.1.4 Buried Utilities ..... 7

3.1.5 Site Land Survey ..... 7

3.2 Site Preparation ..... 7

3.2.1 Erosion Control ..... 7

3.2.2 Dust Control ..... 8

3.2.3 Clearing and Grubbing (Clean Soil Removal) ..... 9

3.3 Excavation Plan ..... 9

3.4 Soil Testing ..... 10

3.4.1 Excavation Confirmation ..... 10

3.4.2 Disposal Profiling ..... 11

3.5 Backfill and Restoration Plan ..... 11

3.6 Project Schedule ..... 12

**4.0 CONFIRMATION AND DOCUMENTATION OF MATERIAL REMOVAL AND DISPOSAL ..... 13**

**TABLES**


| | |
|---|---|
| Table 1 | Concentration of Metals in Soil Samples |
| Table 2 | 95% UCL Statistical Analysis for Lead in Soils |


**PLATES**


| | |
|---|---|
| Plate 1 | Site Location Map |
| Plate 2 | Site Plan and Former Sample Locations |
| Plate 3 | Pothole Locations and Residual Lead Map |
| Plate 4 | Excavation Plan |


**APPENDICES**


| | |
|---|---|
| Appendix A | Health and Safety Plan |

# 1.0 INTRODUCTION

On behalf of Baywood LLC (Owners), CKG Environmental, Inc. (CKG) is pleased to provide this Clean Closure Plan (Closure Plan) for a burn debris area located at 2592 Lakeville Highway, Petaluma, California (Site). On August 5, 2015, CKG submitted the *Report of Potholing Exploration and Soil Sampling* (Potholing Exploration Report) followed on November 24, 2015 by the *Debris Layer Investigation Report* documenting the results of shallow soil investigations to define the extent of debris containing metals at the Site. Elevated concentrations of lead were detected in Site soils, and the area of impacted soils was roughly defined.

Clean closure for a solid waste disposal site refers to removing the waste materials, such as the lead-impacted soils, rather than leaving them in place, as may be the case with a landfill closure. Clean closure is defined to be complete when waste materials have been removed and residual remaining contaminant concentrations are at or less than background concentrations or cleanup levels established by the regulatory oversight agency.

This Closure Plan follows the State of California, CalRecycle, guidance document Local Enforcement Agency (LEA) Advisory #16 for Clean Closure, dated January 23, 1994. The activities necessary to implement a clean closure include:

1. Site Characterization, presented in Section 2;
2. Excavation and Material Management, presented in Section 3;
3. Confirmation and documentation of impacted material removal and disposal, as presented in Section 4; and
4. Postclosure maintenance, if needed, land use restrictions, and future land use, as presented in Section 4.

# 2.0 SITE CHARACTERIZATION

The Site has been the subject of several subsurface explorations and remediation due to the former presence of underground fuel storage tanks (USTs). These activities provide the basis to understand Site conditions, while the *Potholing Exploration Report* and the *Debris Layer Investigation Report* further defined the nature and extent of lead-impacted debris. This section provides the Property Description, Site Background Information, a Summary of Recent Site Characterization, and the Extent of Soil Removal Requirements.

## 2.1 Property Description

The property is currently vacant land located south of Lakeville Highway and southeast of Casa Grande Road in a mixed commercial and residential area of Petaluma, California, as shown on Plate 1. The Site is approximately 13 acres, surrounded by a barbed-wire security fence, and is being considered for residential redevelopment. A site plan of current conditions is included as Plate 2.

The property is occupied by a part-time caretaker using a trailer parked in the northeast corner of the property. Two large mounds of soil and rock fill material from an off-site source are located along the northern boundary, and a pile of concrete construction debris and Class II Aggregate are located in the central portion of the property.

The property lies at an elevation of approximately 10 feet above mean sea level. The nearest surface water body is the Petaluma River, located approximately 1,000 feet southwest of the property. The land surface slope and groundwater gradient are towards the Petaluma River. A wetland area lies between the property and the river, and wetland areas have been identified on the property as shown in Plates 1 and 2.

The surficial geology consists of artificial fill materials and alluvium overlying fine-grained marine and freshwater marsh deposits. Phase II investigation activities conducted in June 2014 (AEI Consultants, September 2, 2014), encountered clayey silt underlain by a silty sand layer that was underlain by a hard plastic clay. First groundwater was generally encountered in the native silty sand layer at an average depth of 12 feet below the original ground surface. Groundwater rose and equilibrated at depths ranging from three to eight feet below ground surface.

The debris materials consist of clays, sand, gravel, asphalt pieces, brick debris, and glass fragments. Stockpiled materials at the property are primarily concrete rubble. The average thickness/height of the stockpiles ranges between 10 and 12 feet.

## 2.2 Site Background

The property was occupied by the Royal Tallow and Soap Company who operated an animal rendering plant from 1941 through 1964 when it was sold to Darling Delaware. Darling

Delaware continued to operate the rendering plant until they converted it to a transfer station in the 1970's and shut it down in 1994. The buildings were demolished in 2008 and the property has been vacant since that time. Darling Delaware sold the property to Baywood in 2008.

Soil remediation activities were performed at the Site to address gasoline-range hydrocarbons present in soil to a depth of 5 feet below grade level (bgl) in the vicinity of two former gasoline UST excavations (Plate 2). Darling Delaware (Darling) implemented the soil remediation in accordance with the approved *Remediation Work Plan, Former Royal Tallow and Soap Facility , 2592 Lakeville Highway, Petaluma, California* (MFG, Inc., 2000). The cleanup activities were regulated by the County of Sonoma Department of Health Services, Environmental Health Division (SCEHD) and received regulatory closure on July 30, 2004.

In 2014, AEI Consultants, on behalf of DeNova Homes, a potential property buyer, conducted a Phase II subsurface investigation of potential concerns associated with former wastewater ponds at the Site. Of six samples collected in former pond areas only one sample, PA-3, contained elevated concentrations of analytes. AEI sample locations are shown on Plate 2. Sample PA-3 was collected at a depth of 2.5 feet ft. bgl and appeared to be beneath a layer of sediments in the former pond. Furthermore, the boring log for PA-3 described debris such as brick and glass fragments in the sample, suggesting that non-native material may have been placed in this area.

To assess whether PA-3 was an isolated anomaly or was the result of a more widespread impact, CKG collected four soil samples with an excavator in February 2015. One sample was collected at the original location of PA-3. The three other samples were collected 10 feet away from PA-3 to the north, southeast, and southwest. The soil samples were collected from a depth of 2.5 feet below ground surface, contained debris materials, and contained metal concentrations greater than the San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for residential land use.

To evaluate the location and extent of potential past debris disposal, CKG reviewed historical aerial photographs from various years from 1942 through 2012 as provided by Environmental Data Resources, Inc. (EDR). Based on the aerial photography it appears that a landfill was operated on the property west of the Site (currently a dog park) from possibly as early as 1942 through at least 1982. During the early 1950s the landfill activity was close to the boundary between the two properties and it appears that some fill material may have been placed onto the Site. This is believed to be the City of Petaluma's Casa Grande Landfill, which was closed by the City in 1994.

Based on the sampling results and aerial photographs, CKG recommended collecting additional samples to confirm that fill from the former adjacent landfill was the source of the detected analytes, and to and to assess the lateral and vertical extent of impact. The results of these investigation activities were presented in the *Potholing Exploration Report*.

## 2.3 Summary of Recent Site Characterization

In April and then in October, 2015, CKG conducted pothole exploration programs in an area that extends outward from PA-3 and encompasses the western side of the Site, as shown on Plate **3**. The maximum planned depth of excavation was 10 feet below ground surface, although samples were collected at depths of one foot, two or 2.5 feet, and immediately beneath the apparent fill typically three feet below ground surface. The maximum depth of the debris fill encountered during the exploration was approximately five feet. If no debris was observed in a pothole, samples were not collected and the area was presumed to be free of elevated metals at that location.

Soil samples were analyzed for CAM 17 metals by the U.S. Environmental Protection Agency (EPA) Method 6020. The investigation also included four-point composite samples that were made from soil collected at selected sampling locations. These composite samples were analyzed to provide data to characterize the material for future disposal. These composite samples were analyzed for:

- RCRA Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag) by EPA Method 6020
- Volatile Organic Constituents (VOCs) by EPA Method 5035/8260B
- Semivolatile Organic Constituents (SVOCs) by EPA Method 8270D
- Polychlorinated biphenyls (PCBs) by EPA Method 3540/8082A
- TPH as gasoline, diesel and motor oil by EPA Method 8015C

If a metal total concentration exceeded ten times the California Soluble Threshold Limit Concentration (STLC) for the metal, then a WET test was conducted on that sample. Selected samples where WET test results exceeded the STLC limits were also analyzed by the Toxicity Characteristic Leaching Procedure (TCLP), to evaluate whether the materials would be characterized as a RCRA waste.

A summary of the analytical results for the samples are included in Table 1. 42 of the 79 discrete samples and four of ten composited samples contained lead concentrations exceeding both residential and industrial ESL's of 80 and 320 mg/kg, respectively. Of those samples, 20 exceeded the Total Threshold Limit Concentration (TTLC) of 1,000 mg/kg. Selected samples where the metals concentration exceeded 10 times the STLC were analyzed for soluble lead. Seven of the 12 samples analyzed for soluble lead exceeded the STLC of 5 mg/l. Ten samples also were analyzed for TCLP lead as shown on Table 1. TCLP lead was not detected above 5 mg/l. Metal distributions are illustrated on Plate 3. Based on the aerial distribution of metals illustrated on Plate 3 it is apparent that approximately 95% of impacted materials exceed both the residential and industrial ESL.

No VOCs, SVOCs, or PCBs were detected above laboratory reporting limits in the composite samples analyzed. Only low-level concentrations of petroleum hydrocarbons were detected and they were less than residential and industrial ESLs.

The primary constituent of concern (COC) is lead based on the investigation results. The elevated lead concentrations occur exclusively within the debris materials, and lead has not

leached into the soils below the debris layer. Field observations indicate that the debris occurs typically at a depth of 2.5 feet below ground surface and is approximately two feet thick, although it varies in depth and thickness throughout the impacted area.

CKG also:

- Completed a geophysical survey to better define the limits of the debris;
- Completed a soil vapor investigation to assess the potential for landfill gas; and
- Collected a grab groundwater sample to assess the potential that groundwater was impacted with metals.

The results of those investigation are provided in the *Debris Layer Investigation Report*. Geophysics showed that the debris probably extends beneath the concrete stockpile and potentially beneath the road. The landfill gas survey did no detect landfill gas at the site, and no soluble metals were detected in the groundwater.

## 2.4 Extent of Soil Removal Requirements

Residential land use is desired for the property. As such, the average lead concentration in soil in the impacted areas must be less than the residential ESL of 80 mg/kg. The 95% upper confidence level (UCL) for average concentration will be calculated using the soil removal confirmation testing results from the bottom and sidewalls of the excavated areas to determine the residual average lead concentration following the waste removal activities. Because 95% of the material also exceeds industrial standards there is little difference between the level of effort to meet a residential cleanup goal versus an industrial cleanup goal.

A statistical analysis was performed to determine the current 95% UCL based on the defined lead distribution in soil, as shown in Plate 3 and calculated in Table 2. The 95% UCL was recalculated in anticipation that the soils with the highest lead concentrations were removed and replaced with relatively clean backfill soils. This analysis was repeated until the 95% UCL was less than 80 mg/kg. This determined the extent of soil removal requirements shown on Plates 3 and 4. This evaluation demonstrates that residual lead concentrations up to 250 mg/kg may be left in place, and the resulting 95% UCL for the impacted area will be less than 80 mg/kg.

The volume of debris layer soil to be removed is approximately 6,000 cubic yards based on the soil removal area shown on **Plate 3** and an anticipated depth of two feet across the area, as summarized below:

| | |
|---|---|
| Total Area | 80,000 $ft^2$ (1.8 acres) |
| Total Volume | 160,000 $ft^3$ |
| Total Volume | 6,000 $yd^3$ |
| Total Tonnage (1.5x $yd^3$) | 9,000 tons |

# 3.0 EXCAVATION AND MATERIAL MANAGEMENT

This section identifies implementation activities to attain clean closure for lead impacted soils at the Site. The removal action consists of excavating impacted materials and disposing of them at a Class III landfill when constituent concentrations can be classified as non-hazardous, or Class I when constituent concentrations are classified as California hazardous. In accordance with CalRecycle LEA Guidance #16, this section presents the following steps needed to implement clean closure:

1. Project planning;
2. Site Preparation;
3. Excavation Plan;
4. Profiling and Disposal;
5. Backfill and Restoration Plan; and
6. Projected Schedule.

## 3.1 Project Planning

Project planning includes this document, health and safety planning, permitting, conducting bidding and contracting activities, locating buried utilities, and providing a land survey.

### 3.1.1 Health and Safety Plan

The proposed work under this Closure Plan will be conducted in accordance with the Site Specific Health and Safety Plan (HASP) included as **Appendix A**. Additionally, each subcontractor that may come into contact with impacted soils or groundwater will be required to prepare their own task specific health and safety plan. The HASP will be available to personnel during on-Site activities.

The primary health and safety issues are the physical risks associated with construction activities, such as slips, trips, falls, and equipment accidents. In addition, excavation of the debris layer has the potential to create air-borne dust from lead impacted materials. The HASP requires, and the future construction contracting documents will require, appropriate dust control measures.

### 3.1.2 Permits

Two permits have been identified for the proposed work: The United States Army Corps of Engineers (USACE) 404 permit for excavation in a wetlands area; and Sonoma County and/or City of Petaluma grading permit. The USACE 404 permit will likely be obtained under Nationwide Permit No. 38 – Cleanup of Hazardous and Toxic Waste. An application for a 401 Water Quality Certification will also be submitted to the RWQCB. CKG will obtain the necessary permits following acceptance of the Closure Plan and prior to field activities.

### 3.1.3 Bidding and Contracting Activities

The field requirements of this Closure Plan will be combined with contract documents to collect bids and contract for the construction services. It is anticipated that a unit price bid structure will be used for contracting purposes to allow competitive pricing for the Owners and to fairly compensate the selected contractor for uncertain quantities and likely soil volume changes to be encountered in the field.

### 3.1.4 Buried Utilities

A water pipeline was located near the north-west corner of the property while potholing exploration activities were underway. The extent of the water line into the property is unknown. No other active buried utilities are anticipated within the property boundaries, although remnant service conduits are likely to be encountered. No pre-design utility surveys have been conducted.

An independent buried utility locating service will survey the work areas to identify buried utilities as part of the design process and prior to completing the contract documents. Underground Service Alert (USA) will also be notified, although their scope of work does not include private property.

### 3.1.5 Site Land Survey

The designated excavation areas are shown on **Plate 4** with survey coordinates defining the corners of the excavation grid limits. Prior to beginning excavation activities, a licensed land surveyor will define the excavation limits in the field with appropriate off-set staking to allow reconstruction of the excavation limits by field inspectors. Where appropriate, marking paint will also be used to mark excavation grid locations.

## 3.2 Site Preparation

The Site is a vacant property with a short, paved driveway. The majority of the property is comprised of a pile of aggregate debris and unpaved dirt. The excavation contractor will be responsible for additional security measures that may be needed during construction. Other site preparation work includes erosion control, dust control, and clearing and grubbing.

### 3.2.1 Erosion Control

The general topography of the Site is relatively flat. Erosion will be controlled by maintaining downward grades in the work areas toward the center of the excavated areas. Based on the location of the excavation, it is expected that precipitation will infiltrate Site soils before leaving the property. CKG or the selected excavation contractor will be required to prepare a Storm

Water Pollution Prevention Plan (SWPPP) for approval prior to beginning the excavation activities.

As a minimum, fiber rolls and silt fences will be installed at the property boundaries in low lying areas where precipitation runoff is likely to occur. In addition, the first drain inlet collection locations will be protected with fabric barriers.

The excavation contractor will monitor upcoming weather conditions to avoid excavation activities during inclement weather. Stockpiles will be covered with anchored visqueen each night, during periods of non-use, and during rain events. Excavations will not be permitted under wet conditions immediately following a rain event.

### 3.2.2 Dust Control

A proposed truck travel route across the Site is shown on Plate 4. A decontamination section will be established near the Site exit location to remove loose soil and debris from truck tires. Dust control facilities will also be available at the Site exit. The decontamination pad will be constructed of 1.5-inch crushed rock, six inches thick, approximately 20 feet wide and 30 feet long. Equipment that comes in contact with impacted soils will be decontaminated by driving across the pad prior to leaving the Site.

The maximum lead concentration in the debris layer soil materials is 10,000 mg/Kg, which is equivalent to 1% lead in soil. The worker permissible exposure limit (PEL) for air borne lead is 0.03 milligrams per meter cubed ($mg/m^{3)}$, and the residential exposure limit for children is 0.017 micrograms per kilogram ($\mu g/m^3$). Therefore, the allowable dust/particulate concentration in the work area breathing zone without personal protective equipment (PPE) is 3 $mg/m^3$ (0.03/1%). The Health and Safety Plan in Appendix A addresses appropriate PPE for worker protection when dust levels exceed 3 $mg/m^3$.

The excavation contractor is responsible for dust control and mitigation during removal activities to prevent spreading of objectionable air borne particulates from the excavating, stockpiling, loading, and transporting activities. Dust control measures will include, but are not limited to: using a water truck to spray sufficient water to control objectionable dust emissions, covering stockpiles, and covering excavated areas. Clean water for dust control will be obtained from nearby fire hydrant or other clean water source. The excavation contractor will be responsible for obtaining necessary approvals to use their selected water source.

Initial excavation and loading activities will be monitored by a Certified Industrial Hygienist (CIH) to verify that the dust control measures are effective and acceptable conditions are maintained for worker and off-site persons in accordance with the HASP. Air borne particulate concentrations will be field measured using a real-time dust monitor. The CIH will assess the need for personal protective equipment (PPE) and provide pertinent information to the contractor. Additional dust control measures or alternative excavation techniques will be the responsibility of the contractor should the initial dust control measures be ineffective. Site monitoring will be continued by the CIH until effective dust control measures are demonstrated.

Procedure inspections will be conducted by CKG following acceptance by the CIH.

### 3.2.3 Clearing and Grubbing (Clean Soil Removal)

Clearing and grubbing activities will remove approximately the top two feet of clean surface soil materials and associated grasses and small plants. Removing these soils will expose the visually distinguishable debris layer for removal. The surface soils are free from lead and other constituents of concern, and are considered non-hazardous. These materials will be stockpiled on Site and used as surface restoration material following the excavation activities.

## 3.3 Excavation Plan

The excavation plan describes the locations and volumes of lead impacted soils to be removed from the Site consistent with the volumes identified in Section 2. Although the excavation will be relatively shallow, the lead impacts are distributed across a substantial area and the removal costs are significant. As such, the excavation plan incorporates various treatment and disposal options that may be implemented as cost saving measures.

Excavation requirements and locations are shown on Plate 4. The elevated lead concentrations are confined to the debris layer, and the debris layer is easily recognized in the field by its slightly orange pigment and substantial pieces of broken glass and brick. The debris layer typically begins at an approximate depth of 2 feet below ground surface and varies in depth up to an approximate maximum of five feet below ground surface.

Plate 4 illustrates an excavation grid that provides definition to the necessary excavation areas. Each excavation grid section represents an area where one soil confirmation sample is required from the bottom of the excavation, as discussed in Section 3.4. The selected excavation contractor will present an excavation plan to define their order of excavation and traffic patterns.

The recently collected soil data will be acceptable to the landfills for profiling and disposal acceptance purposes. The TTLC limit for lead as a non-hazardous material is 1,000 mg/kg and the STLC limit for lead is 5 mg/L. In the southern portion of the impacted area, the debris layer materials have lead concentrations that are frequently less than 1,000 mg/kg, although they exceed the STLC limit. Based on the recent site data, the STLC limit is exceeded when the total lead concentration in soil is greater than approximately 250 mg/L. In the northern portion of the impacted area, the debris layer lead concentrations are significantly greater than 1,000 mg/kg.

Given the excavation requirements as described in Section 2.4 where the highest lead concentrations will be removed, it is expected that approximately 95 percent of the soils designated for off-site disposal will be classified as California hazardous materials (as illustrated on Plate 3). It may be advantageous to separate the finer material (approximately one-inch minus) from the larger debris, under the expectation that the larger debris does not contain lead or other contaminants. The TTLC and STLC concentrations will be reduced to acceptable levels by stabilizing the finer soil materials with cement, fly ash, or other binding materials.

Hazardous materials will be disposed of in the US Ecology Class I landfill in Beatty, Nevada. Disposal at Buttonwillow or Kettleman Class I landfills in California is also possible depending on their permitted ability to accept additional quantities of hazardous materials.

Treated soils in compliance with TTLC and STLC limits would be classified as non-hazardous and could be disposed of nearby at the Potrero Hills Class III landfill in Suisun, California. Soil stabilization pretreatment alternatives are being considered as cost savings measures. Bench-scale testing with Site materials will be conducted to verify the technical- and cost-effectiveness of soil treatment.

At least two and possibly three specialty remediation subcontractors will be retained to conduct bench-scale tests with debris layer materials. Objectives for the tests will be to evaluate treatment capability using various additives to create a stable soil matrix that contains contaminant concentrations, under laboratory test methods, that are less than the TTLC and STLC limits. The bench tests will also evaluate the need and benefits of on-site soil screening. From the bench-test results, each remediation subcontractor will provide a bid or quote to implement their soil stabilization remedy at the Site. Baywood, CKG, and the RWQCB will be able to review the acceptability of the proposed process in order to select the preferred approach for material disposal.

### 3.4 Soil Testing

Analytical testing of lead concentrations in soil will be required to verify that the excavations are complete, and the treated soils are acceptable for disposal purposes. Field and laboratory testing methods will be conducted throughout the project. An X-ray fluorescence (XRF) environmental analyzer will be used in accordance with EPA Method 6200 for the field tests. Laboratory samples will be sent to McCampbell Analytical in Pittsburg, California for lead testing using EPA Method 6020.

#### 3.4.1 Excavation Confirmation

To confirm that the impacted soil has been removed to the extent practical, XRF tests will be performed at the soil surface along the sidewalls of the excavation and at the excavation bottom.

Once the visually impacted soils have been removed, the XRF reading will be used to determine whether the lead concentration is less than 250 mg/kg, as described in Section 2.4. In the event that an XRF reading is greater than 250 mg/kg, then the excavation contractor will remove additional materials until an acceptable reading is obtained.

Laboratory confirmation tests will also be performed. One soil sample will be collected for every 50 feet of excavation sidewalls and one sample will be collected at the excavation bottom for every 5,000 square feet of area. An initial estimate of the number of samples is shown on Plate 4 using an anticipated excavation grid. Each soil sample will be tested for lead to verify that the excavation is complete.

### 3.4.2 Disposal Profiling

The Class I landfills will accept the investigation data and laboratory reports for disposal of the debris layer materials as a hazardous waste. Verification samples will be required for treated soils to be disposed of as non-hazardous material in a Class III landfill. Composite samples will be collected and tested using EPA Method 6020 based on the following table:

**Verification Sampling Requirements**

| Project Size ($yd^3$) | Cubic Yards per 4:1 Composite Sample |
|---|---|
| 0-2,499 | 250 |
| 2,500-4,999 | 375 |
| 5,000-7,499 | 500 |
| 7,500-10,000 | 750 |
| >10,000 | 1000 |

The Site has an estimated 6,000 cubic yards of impacted material. Depending on the soil stabilization additives, the total volume will increase slightly. Estimating 7,000 cubic yards of total material, one composite sample will be required for every 500 cubic yards of treated material and a total of 14 composite samples will be collected and analyzed by laboratory methods for total lead and soluble lead to verify compliance with the TTLC and STLC limits.

Any screened and untreated materials will also be tested in a similar manner. In addition, the XRF may be used on a routine basis to verify soil treatment performance, but will not be used to satisfy the landfill soil profiling requirements.

### 3.5 Backfill and Restoration Plan

Backfilling can begin after confirmation testing indicates that an excavation grid area is complete. Any screened material designated as non-hazardous will be used as backfill material. Imported fill materials will also be used to backfill the excavated areas to within two feet of the original grade. The soil stockpiled on site in the vicinity of the former underground fuel storage tank excavation was thoroughly sampled and analyzed for petroleum hydrocarbon constituents, volatile organic constituents, metals, polychlorinated biphenyls and pesticides by AEI. This soil is also suitable to be used to backfill the excavation. The backfilled areas will be compacted in one-foot maximum lifts to 95% relative density. A geotechnical engineer will perform field compaction tests to verify the placement and compaction methods. At least one compaction test per excavation grid will be performed for each lift.

Surface restoration is needed to stabilize surface soils, prevent erosion, and provide cost-effective and aesthetically pleasing landscape. It is anticipated that future property development will undo the surface landscape, and therefore, the degree of surface restoration will be minimized.

The ground surface will be graded smooth and should not pose an unreasonable hazard to future developers or trespassers at the Site. Surface grades will match existing to the extent practical with overland flow runoff graded southward toward the existing wetlands. A grass seed mixture will be applied by hydroseeding the work areas.

### 3.6 Project Schedule

Following acceptance of this Clean Closure Plan, approximately two months will be required to conduct bench scale soil treatment tests. These tests will determine whether the material can be cost-effectively treated to create a non-hazardous material. Following these results, approximately two months will be required to develop remediation contract documents, collect bids, and execute contracts.

Permitting efforts will be conducted concurrently with the bench tests and contracting activities. The COE 404 permit will likely determine when field activities may begin. The City of Petaluma grading permit will be obtained after the COE 404 permit is in place.

The excavation, soil treatment, and disposal field activities will require approximately two to three months to complete. The field activities will be affected by weather, dust control and other site issues, and soil treatment production rates. The construction closeout report will be provided two months following completion of the field activities.

The entire clean closure process is estimated to require from 6-8 months to complete.

## 4.0 CONFIRMATION AND DOCUMENTATION OF MATERIAL REMOVAL AND DISPOSAL

The following documentation will be developed during the clean closure activities:

- Documentation of soil removal;
- Verification of final disposition of soil materials; and
- Documentation of field sampling.

Field activities will be noted in daily activity logs, including a description of the activities, equipment used, soils excavated, soils treated, soils removed from the Site, samples taken, XRF results, and personnel and visitors on site. Pictures will also be taken during various stages of the excavation. Disposal manifests will be generated to verify and document the final disposition of waste materials. Weight tickets will also be obtained from the landfills to document quantities.

After clean closure activities are complete, a closeout report will be prepared. The closure report will include a narrative summary of the project activities, field documentation, laboratory reports, disposal manifests, landfill weight tickets, and project photographs. No post closure monitoring, maintenance, or land use restrictions will be required.

# TABLES

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Previous Investigation Data** | | | | | | | | | | | | | | | | | | | | |
| PA-3 | 6/18/14 | 22 | | | | | | | 280 | 930 | | | | | | | | 2000 | | |
| CS PA-3 | 2/12/15 | 18 | | | | | | | 270 | 1800 | | | | | | | | 4300 | | |
| CS PA-3N | 2/12/15 | 20 | | | | | | | 810 | 1400 | | | | | | | | 3400 | | |
| CS PA-3SW | 2/12/15 | 24 | | | | | | | 1300 | 2800 | | | | | | | | 3900 | | |
| CS PA-3SE | 2/12/15 | 25 | | | | | | | 670 | 1500 | | | | | | | | 3600 | | |
| **Data Collected During Potholing Investigation** | | | | | | | | | | | | | | | | | | | | |
| PH1-1' | 4/28/15 | <0.5 | 1.9 | 170 | 0.56 | <0.25 | 34 | 7.9 | 18 | 6.40 | 0.17 | <0.5 | 40 | <0.5 | <0.5 | <0.5 | 30 | 31 | | |
| **PH1-2.5'** | 4/28/15 | 2.6 | 6.7 | 180 | <0.5 | 1.7 | 45 | 14 | 49 | **250** | 0.19 | 0.74 | 38 | <0.5 | <0.5 | <0.5 | 32 | 620 | 2.8 | <0.2 |
| PH1-4' | 4/28/15 | <0.5 | 4.0 | 310 | 0.92 | 0.28 | 62 | 9.4 | 33 | 20 | 0.10 | 0.69 | 44 | <0.5 | <0.5 | <0.5 | 57 | 81 | | |
| PH1-5' | 4/28/15 | <0.5 | 6.9 | 180 | 0.62 | <0.25 | 34 | 7.1 | 24 | 16 | <0.05 | 0.54 | 29 | <0.5 | <0.5 | <0.5 | 33 | 58 | | |
| PH2-2.5" | 4/28/15 | | | | | | | | | **1300** | | | | | | | | | | <0.2 |
| PH3-1.5' | 4/28/15 | <0.5 | 2.8 | 100 | <0.5 | <0.25 | 34 | 10 | 15 | 6.6 | 0.098 | <0.5 | 37 | <0.5 | <0.5 | <0.5 | 30 | 29 | | |
| PH3-3' | 4/28/15 | 3.9 | 15 | 270 | <0.5 | 2.1 | 65 | 13 | 170 | **520** | 0.63 | 3.3 | 78 | <0.5 | <0.5 | <0.5 | 45 | 690 | **18** | |
| PH3-4' | 4/28/15 | <0.5 | 1.8 | 38 | 0.52 | <0.25 | 40 | 6.7 | 28 | 9.2 | 0.13 | 0.6 | 37 | <0.5 | <0.5 | <0.5 | 29 | 54 | | |
| **PH4-1'** | 4/28/15 | <0.5 | 1.8 | 190 | 0.58 | <0.25 | 32 | 7.2 | 18 | 6.3 | 0.15 | <0.5 | **335** | <0.5 | <0.5 | <0.5 | 26 | 29 | 1.7 Ni | |
| PH4-2.5' | 4/28/15 | 0.65 | 6.6 | 160 | 0.58 | 0.27 | 41 | 14 | 32 | 50 | 0.12 | 0.63 | 44 | <0.5 | <0.5 | <0.5 | 36 | 200 | | |
| **PH4-4'** | 4/28/15 | 2.5 | 6.5 | 180 | 0.58 | 0.86 | 53 | 13 | 94 | **240** | 0.36 | 0.67 | 50 | <0.5 | <0.5 | <0.5 | 46 | **1100** | 4.8 | |
| PH4-5' | 4/28/15 | <0.5 | 9.8 | 150 | 0.84 | <0.25 | 40 | 11 | 22 | 8.7 | 0.062 | 0.53 | 44 | <0.5 | <0.5 | <0.5 | 52 | 36 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PH5-2'** | 4/28/15 | 50 | 7.4 | 320 | <0.25 | 2.4 | 54 | 11 | 210 | **1900** | 0.42 | 0.7 | 58 | <0.5 | 0.69 | <0.5 | 39 | **1300** | **110** | 0.77 |
| PH5-4' | 4/28/15 | 1.8 | 2.4 | 220 | 0.88 | 0.54 | 48 | 12 | 41 | 43 | 0.28 | <0.5 | 55 | <0.5 | <0.5 | <0.5 | 38 | 160 | | |
| PH5-5' | 4/28/15 | <0.5 | 3.2 | 140 | 0.63 | <0.25 | 38 | 7.1 | 18 | 7.8 | <0.05 | <0.5 | 36 | <0.5 | <0.5 | <0.5 | 43 | 25 | | |
| PH6-1' | 4/28/15 | <0.5 | 3.7 | 140 | 0.69 | <0.25 | 43 | 12 | 24 | 13 | 0.14 | <0.5 | 41 | <0.5 | <0.5 | <0.5 | 39 | 44 | | |
| **PH6-2.5'** | 4/28/15 | 1.9 | 4.4 | 160 | 0.56 | 0.83 | 54 | 15 | 55 | **120** | 0.14 | <0.5 | 65 | <0.5 | <0.5 | <0.5 | 37 | 330 | 3.0 | |
| PH6-3.5 | 4/28/15 | <0.5 | 4.7 | 110 | 0.84 | 0.32 | 53 | 9.6 | 34 | 10 | 0.19 | 0.83 | 55 | <0.5 | <0.5 | <0.5 | 45 | 72 | | |
| PH6-4.5' | 4/28/15 | <0.5 | 6.5 | 170 | 0.64 | <0.25 | 34 | 25 | 19 | 10 | <0.05 | 0.54 | 37 | <0.5 | <0.5 | <0.5 | 35 | 27 | | |
| PH7-2' | 4/28/15 | 0.56 | 3.6 | 190 | 0.55 | <0.25 | 64 | 18 | 29 | 14 | 0.094 | <0.5 | 77 | <0.5 | <0.5 | <0.5 | 46 | 53 | | |
| PH7-3' | 4/28/15 | <0.5 | 2.6 | 140 | 0.67 | <0.25 | 40 | 18 | 23 | 11 | 0.11 | <0.5 | 50 | <0.5 | <0.5 | <0.5 | 39 | 41 | | |
| PH7-4' | 4/28/15 | <0.5 | 5.9 | 100 | 0.51 | <0.25 | 38 | 5.1 | 21 | 5.7 | 0.081 | 2.3 | 26 | <0.5 | <0.5 | <0.5 | 38 | 37 | | |
| PH8-2' | 4/28/15 | <0.5 | 3.3 | 180 | 0.67 | <0.25 | 43 | 13 | 22 | 9.9 | 0.14 | <0.5 | 46 | <0.5 | <0.5 | <0.5 | 37 | 37 | | |
| PH8-4' | 4/28/15 | <0.5 | 4.7 | 66 | 0.5 | <0.25 | 44 | 9.1 | 25 | 19 | 0.19 | <0.5 | 43 | <0.5 | <0.5 | <0.5 | 39 | 78 | | |
| PH9-2' | 4/28/15 | <0.5 | 2.1 | 110 | 0.57 | <0.25 | 35 | 8.8 | 17 | 6.8 | 0.088 | <0.5 | 35 | <0.5 | <0.5 | <0.5 | 28 | 28 | | |
| PH9-4' | 4/28/15 | 1.2 | 7.9 | 160 | 0.7 | 0.44 | 73 | 12 | 56 | 59 | 0.41 | 0.97 | 68 | <0.5 | <0.5 | <0.5 | 60 | 220 | | |
| PH10-2' | 4/28/15 | 0.72 | 7.0 | 250 | 0.8 | 0.43 | 54 | 17 | 38 | 38 | 0.18 | 0.66 | 65 | <0.5 | <0.5 | <0.5 | 53 | 210 | | |
| PH10-4' | 4/28/15 | 1.2 | 6.8 | 220 | 0.66 | 0.85 | 64 | 11 | 78 | 66 | 0.27 | 0.88 | 78 | <0.5 | <0.5 | <0.5 | 55 | 260 | | |
| PH11-1' | 4/28/15 | <0.5 | 3.1 | 210 | 0.79 | <0.25 | 53 | 8.7 | 26 | 11 | 0.16 | <0.5 | 47 | <0.5 | <0.5 | <0.5 | 45 | 44 | | |
| **PH11-2.5'** | 4/28/15 | 3.5 | 13 | 250 | 0.67 | 3.5 | 63 | 16 | 140 | **500** | 0.94 | 1.6 | 70 | <0.5 | 0.51 | <0.5 | 53 | **1400** | **41** | <0.2 |
| PH11-4' | 4/28/15 | <0.5 | 8.9 | 180 | 0.65 | 0.49 | 78 | 13 | 44 | 24 | 0.51 | 0.64 | 77 | <0.5 | <0.5 | <0.5 | 61 | 160 | | |
| PH11-5' | 4/28/15 | <0.5 | 14 | 67 | 0.62 | 0.32 | 46 | 6.9 | 44 | 12 | 0.15 | 1.9 | 35 | 0.57 | <0.5 | <0.5 | 49 | 57 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH12-1' | 4/28/15 | <0.5 | 3.1 | 290 | <1.0 | <0.25 | 52 | 9.5 | 25 | 7.6 | 0.24 | <0.5 | 52 | <0.5 | <0.5 | <0.5 | 46 | 40 | | |
| **PH12-2.5'** | 4/28/15 | 2.3 | 11 | 240 | <1.0 | 2.3 | 57 | 16 | 89 | **290** | 0.42 | 1.0 | 60 | <0.5 | <0.5 | <0.5 | 46 | **810** | **10** | <0.2 |
| PH12-3.5' | 4/28/15 | 0.8 | 4.3 | 87 | <1 | 1 | 49 | 9.2 | 77 | 85 | 0.38 | <0.5 | 50 | <0.5 | <0.5 | <0.5 | 36 | 350 | | |
| PH12-4.5' | 4/28/15 | <0.5 | 2.5 | 140 | <1.0 | 0.78 | 25 | 4.2 | 30 | 6.4 | 0.078 | 1.0 | 36 | 0.7 | <0.5 | <0.5 | 31 | 62 | | |
| **PH13-2'** | 4/28/15 | <0.5 | 4.0 | 110 | <1.0 | <0.25 | 32 | **115** | 16 | 14 | 0.10 | 0.76 | 45 | <0.5 | <0.5 | <0.5 | 33 | 44 | | |
| PH13-4' | 4/28/15 | <0.5 | 6.4 | 160 | <1.0 | <0.25 | 31 | 12 | 14 | 5.9 | 0.056 | <05 | 33 | <0.5 | <0.5 | <0.5 | 45 | 29 | | |
| PH14-1' | 4/28/15 | 0.78 | 3.5 | 120 | <1.0 | 2.7 | 58 | 14 | 31 | 40 | 0.21 | <0.5 | 53 | <0.5 | <0.5 | <0.5 | 62 | 95 | | |
| PH14-2.5' | 4/28/15 | 0.62 | 3.5 | 180 | <0.5 | <0.25 | 50 | 15 | 26 | 21 | 0.18 | <0.5 | 48 | <0.5 | <0.5 | <0.5 | 51 | 80 | | |
| **PH14-4'** | 4/28/15 | 3.8 | 8.2 | 160 | <1.0 | 2.3 | 58 | 15 | 92 | **390** | 0.45 | 1.5 | 64 | <0.5 | <0.5 | <0.5 | 62 | **840** | **15** | 0.87 |
| **PH14-5'** | 4/28/15 | <0.5 | 8.1 | 210 | <1.0 | <0.25 | 41 | **44** | 17 | 8.9 | 0.051 | 0.93 | 44 | <0.5 | <0.5 | <0.5 | 59 | 33 | | |
| PH15-2' | 4/28/15 | <0.5 | 6.9 | 160 | <1.0 | <0.25 | 53 | 14 | 22 | 54 | 0.19 | <0.5 | 59 | <0.5 | <0.5 | <0.5 | 45 | 77 | | |
| PH15-4' | 4/28/15 | <0.5 | 8.5 | 180 | <1.0 | <0.25 | 43 | 24 | 27 | 27 | 0.18 | 1.4 | 53 | <0.5 | <0.5 | <0.5 | 55 | 210 | | |
| PH15-5' | 4/28/15 | <0.5 | 9.8 | 160 | <1.0 | <0.25 | 48 | 12 | 20 | 7.4 | 0.065 | <0.5 | 38 | <0.5 | <0.5 | <0.5 | 67 | 35 | | |
| **PH16-1'** | 4/28/15 | 3.3 | 48 | 250 | <1.0 | 0.8 | 60 | 19 | 130 | **300** | 0.29 | 1.7 | 59 | <0.5 | <0.5 | <0.5 | 59 | 490 | | |
| **PH16-2.5'** | 4/28/15 | 5.3 | 6.4 | 240 | <0.5 | 1.9 | 54 | 13 | 130 | **400** | 0.20 | 0.56 | 56 | <0.5 | <0.5 | <0.5 | 44 | **960** | **27** | <0.2 |
| **PH16-4'** | 4/28/15 | 3.5 | 5.5 | 240 | 0.59 | 0.83 | 50 | 12 | 76 | **160** | 0.46 | <0.5 | 49 | <0.5 | <0.5 | <0.5 | 53 | 480 | | |
| **PH16-5'** | 4/28/15 | <0.5 | 8.0 | 310 | 0.66 | <0.25 | 40 | **36** | 19 | 9.9 | 0.050 | 0.56 | 42 | <0.5 | <0.5 | <0.5 | 54 | 30 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL

Highlighted data exceeds the industrial/commercial ESL

Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH17-1' | 4/28/15 | 0.70 | 3.9 | 160 | <0.5 | <0.25 | 79 | 13 | 29 | 7.8 | 0.059 | <0.5 | 75 | <0.5 | <0.5 | <0.5 | 51 | 45 | | |
| PH17-2.5' | 4/28/15 | 0.56 | 3.2 | 270 | 0.75 | 0.66 | 55 | 12 | 30 | 40 | 0.25 | <0.5 | 66 | <0.5 | <0.5 | <0.5 | 42 | 170 | | |
| PH17-4' | 4/28/15 | 0.89 | 6.4 | 160 | 0.73 | 1.3 | 59 | 14 | 63 | 23 | 0.24 | 1.3 | 59 | <0.5 | <0.5 | <0.5 | 63 | 470 | | |
| PH17-5' | 4/28/15 | <0.5 | 4.7 | 110 | 0.71 | <0.25 | 43 | 5.6 | 13 | 7.9 | <0.05 | 0.71 | 28 | <0.5 | <0.5 | <0.5 | 47 | 30 | | |
| PH18-1' | 4/28/15 | 2.3 | 9.6 | 440 | 0.53 | <0.25 | 47 | 16 | 52 | **99** | 0.12 | 1.1 | 57 | <0.5 | <0.5 | <0.5 | 63 | 92 | | |
| PH20-2.5' | 10/5/15 | | | | | | | | | 27 | | | | | | | | | | |
| PH21-2.25' | 10/5/15 | | | | | | | | | 900 | | | | | | | | | | |
| PH22-2' | 10/5/15 | | | | | | | | | 420 | | | | | | | | | | |
| PH23-2' | 10/5/15 | | | | | | | | | 1900 | | | | | | | | | | |
| PH24-3' | 10/5/15 | | | | | | | | | 430 | | | | | | | | | | |
| PH25-2' | 10/5/15 | | | | | | | | | 710 | | | | | | | | | | |
| PH26-2' | 10/5/15 | | | | | | | | | 520 | | | | | | | | | | |
| PH27-2.5' | 10/5/15 | | | | | | | | | 5000 | | | | | | | | | | 4.8 |
| PH28-3' | 10/5/15 | | | | | | | | | 920 | | | | | | | | | | |
| PH29-1.5' | 10/5/15 | | | | | | | | | 1000 | | | | | | | | | | |
| PH30.3' | 10/5/15 | | | | | | | | | 10000 | | | | | | | | | | <0.2 |
| PH31-3' | 10/5/15 | | | | | | | | | 5400 | | | | | | | | | | <0.2 |
| PH32-3.5' | 10/5/15 | | | | | | | | | 1900 | | | | | | | | | | |
| PH33-3.5' | 10/5/15 | | | | | | | | | 4700 | | | | | | | | | | |
| PH34-3' | 10/5/15 | | | | | | | | | 4600 | | | | | | | | | | |
| PH35-3' | 10/5/15 | | | | | | | | | 2300 | | | | | | | | | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH36-2' | 10/5/15 | | | | | | | | | 1200 | | | | | | | | | | |
| PH37-2.5' | 10/5/15 | | | | | | | | | 1300 | | | | | | | | | | |
| PH38-3' | 10/5/15 | | | | | | | | | 4300 | | | | | | | | | | |
| PH39-1.5' | 10/5/15 | | | | | | | | | 2100 | | | | | | | | | | |
| PH1,6,11,17-1' comp | 4/28/15 | | 7.5 | 180 | | 1.6 | 45 | | | **250** | 0.17 | | | <0.5 | <0.5 | | | | <0.2 | |
| PH1,6,11,17-2.5' comp | 4/28/15 | | 6.6 | 180 | | <0.25 | 35 | | | 17 | <0.05 | | | <0.5 | <0.5 | | | | | |
| PH1,11,17,4' PH6-3.5'comp | 4/28/15 | | 3.3 | 110 | | <0.25 | 40 | | | 7.5 | 0.12 | | | <0.5 | <0.5 | | | | | |
| PH3-3', 18-3', 12-2.5' comp | | | | | | | | | | **180** | | | | | | | | | | |
| PH1,11,17,5' PH6-4.5'comp | 4/28/15 | | 7.4 | 140 | | <0.25 | 43 | | | 8.1 | 0.054 | | | <0.5 | <0.5 | | | | | |
| PH2,4,14,16-1' comp | 4/28/15 | | 3.9 | 240 | | 0.05 | 67 | | | 22 | 0.23 | | | <0.5 | <0.5 | | | | | |
| PH4,14,16-2' PH2-2.5'comp | 4/28/15 | | 6.2 | 150 | | 1.1 | 45 | | | **270** | 0.21 | | | <0.5 | <0.5 | | | | **12.00** | |
| PH2,4,14,16-4' comp | 4/28/15 | | 1.8 | 42 | | 0.28 | 41 | | | 10 | 0.16 | | | <0.5 | <0.5 | | | | | |
| PH2,4,14,16-5' comp | 4/28/15 | | 5.3 | 130 | | <0.25 | 37 | | | 8.4 | 0.079 | | | <0.5 | <0.5 | | | | | |
| Ph23, 30, 32, 34 comp | 10/5/15 | | 33 | 3200 | | 6.60 | 58.00 | | | **2100.00** | 0.67 | | | <0.5 | 2.20 | | | | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

**Table 2**
**95% UCL Calculation**
**Lead Concentrations in Soils**
2592 Lakeville Highway, Petaluma, California

| Sample Location - Sample Depth (ft) | Field Results (mg/kg) | Post Removal (mg/kg) |
|---|---|---|
| PH1-2.5 | 250 | 250 |
| PH2-2.5 | 1300 | 10 |
| PH3-3 | 520 | 10 |
| PA-3 | 1800 | 10 |
| PH4-4 | 240 | 240 |
| PH5-2 | 1900 | 10 |
| PH6-2.5 | 120 | 120 |
| PH7-3 | 11 | 11 |
| PH8-4 | 19 | 19 |
| PH9-4 | 59 | 59 |
| PH10-4 | 66 | 66 |
| PH11-2.5 | 500 | 10 |
| PH12-2.5 | 290 | 10 |
| PH13-2 | 14 | 14 |
| PH14-4 | 390 | 10 |
| PH15-2 | 54 | 50 |
| PH16-2.5 | 400 | 10 |
| PH17-2.5 | 40 | 40 |
| PH18-1 | 99 | 99 |
| PH20-2.5' | 27 | 27 |
| PH21-2.25' | 900 | 10 |
| PH22-2' | 420 | 10 |
| PH23-2' | 1900 | 10 |
| PH24-3' | 430 | 10 |
| PH25-2' | 710 | 10 |
| PH26-2' | 520 | 10 |
| PH27-2.5' | 5000 | 10 |
| PH28-3' | 920 | 10 |
| PH29-1.5' | 1000 | 10 |
| PH30.3' | 10000 | 10 |
| PH31-3' | 5400 | 10 |
| PH32-3.5' | 1900 | 10 |
| PH33-3.5' | 4700 | 10 |
| PH34-3' | 4600 | 10 |
| PH35-3' | 2300 | 10 |
| PH36-2' | 1200 | 10 |
| PH37-2.5' | 1300 | 10 |
| PH38-3' | 4300 | 10 |
| PH39-1.5' | 2100 | 10 |
| | | |
| **arithmetic mean** | 1479.462 | 32.436 |
| **standard deviation** | 2077.406 | 56.034 |
| **CV = SD / mean** | 1.404 | 1.728 |
| **count (r)** | 39 | 39 |
| **alpha (95% = 0.05)** | 0.05 | 0.05 |
| **t(alpha, df=r-1)** | 1.69 | 1.69 |
| **Student's t UCL** | 2040.30 | 47.56 |
| **Chebychev UCL** | 2929.45 | 71.55 |

# PLATES




Drawn by P. Dellavalle February 2015. Base layers are aerials provided by ArcGIS Online.



California



Sonoma County




Petaluma

**Explanation**

- Site Boundary
- Railroad
- Parcels

0 250 500 1,000

Scale in Feet

CKG Environmental, Inc.

Site Location Map
2592 Lakeville Highway
Petaluma, California

Plate
1




**Explanation**

- Previous Sample Location
- Confirmation Sample Location
- Historic Building Footprints
- Excavation Area
- Site Boundary

N

S

0 80 160

Scale in Feet

CKG Environmental, Inc.

Site Plan and Former Sample Locations
2592 Lakeville Highway
Petaluma, California

Plate
2




**Explanation**

- Sample Location
- Pot Hole Location October 2015
- Pot Hole Location April 2015
- Pot Hole Location (No Visible Debris)
- Pb Concentrations > TTLC or STLC Dashed where covered by overburden
- Metal Concentration > Res. ESL
- Pb Conentration < 80 ppm
- Historic Building Footprints
- Site Boundary

N

S

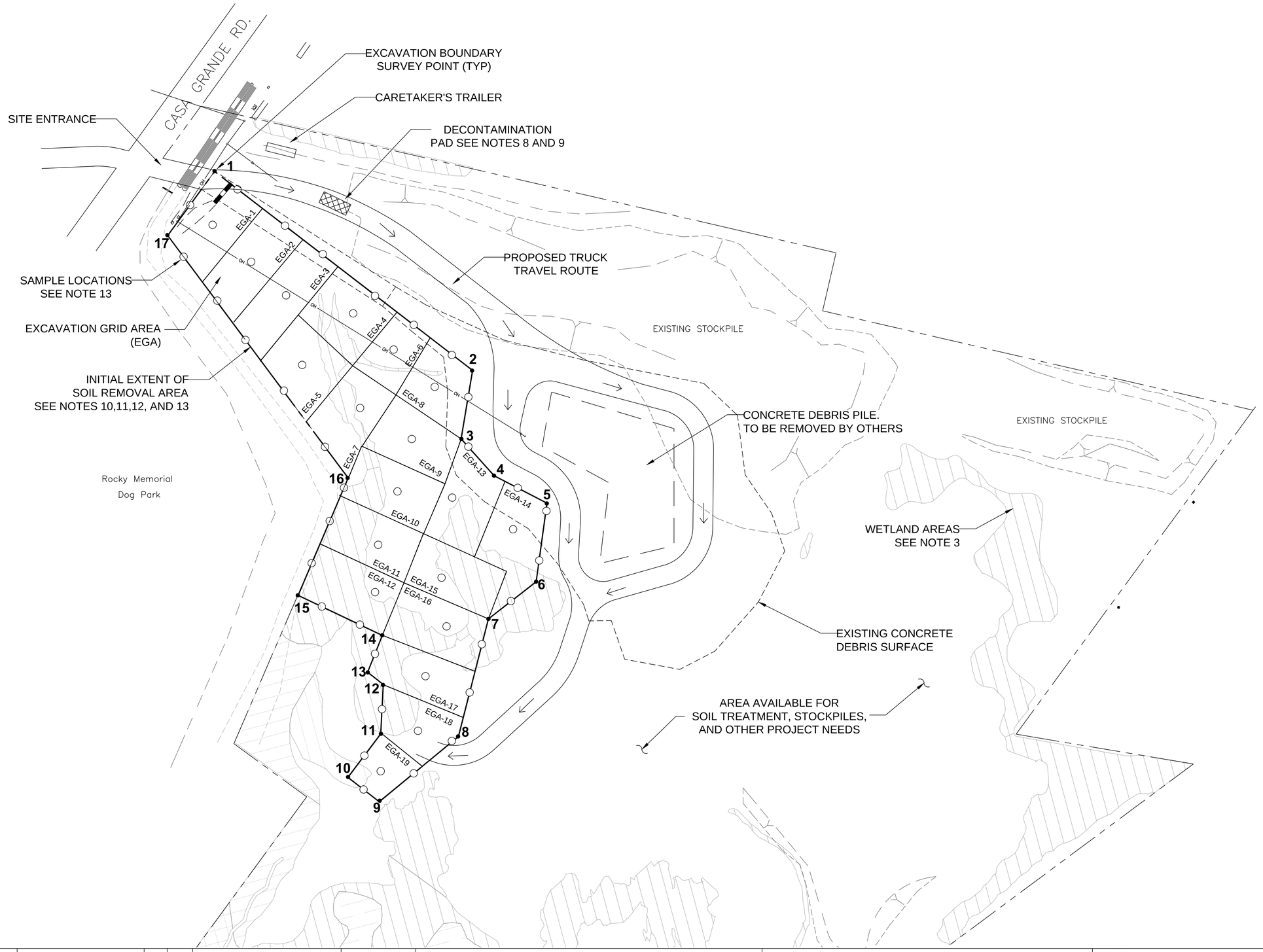
0 50 100

Scale in Feet

CKG Environmental, Inc.

Pot Hole Locations and Residual Lead Map
2592 Lakeville Highway
Petaluma, California

Plate
3




GENERAL NOTES:

1. BASE MAP PROVIDED BY STEVEN J. LAFRANCHI & ASSOCIATES, INC., DATED 10/7/2015.
2. A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE PROVIDED PRIOR TO BEGINNING WORK.
3. PROTECT WETLAND AREAS OUTSIDE OF THE EXTENT OF SOIL REMOVAL AREAS. THE CONTRACTOR SHALL PLACE A BARRIER, SUCH AS SILT FENCES, ALONG DESIGNATED WETLAND BOUNDARIES.
4. CONTRACTOR SHALL PROVIDE WORK SCHEDULE AND PROJECT–SPECIFIC HEALTH AND SAFETY PLAN AT THE PRE–CONSTRUCTION MEETING.
5. LIMIT TRUCK HAULING OPERATIONS ON LAKEVILLE HIGHWAY TO WEEKDAYS BETWEEN 7A.M TO 4:30 P.M.
6. LOCATE SUBSURFACE UTILITIES PRIOR TO BEGINNING EXCAVATION ACTIVITIES.
7. GRADING AREAS AND TEMPORARY TRUCK HAULING ROUTES SHALL BE WATERED TO CONTROL DUST.
8. HAULING TRUCKS SHALL BE DECONTAMINATED ON DECONTAMINATION PAD PRIOR TO LEAVING THE SITE.
9. DECONTAMINATION PAD SHALL BE CONSTRUCTED OF 1.5–INCH DIAMETER CRUSHED ROCK, 6 INCHES THICK, APPROXIMATELY 20 FEET WIDE AND 30 FEET LONG.
10. REMOVE EXISTING ONE TO TWO FEET OF NON–HAZARDOUS COVER MATERIAL AND STOCKPILE ON SITE.
11. EXCAVATE, TREAT, AND REMOVE VISUALLY IDENTIFIABLE LEAD CONTAMINATED DEBRIS LAYER MATERIALS LOCATED APPROXIMATELY TWO TO FOUR FEET BELOW GRADE.
12. CKG WILL PERFORM XRF MEASUREMENTS OF LEAD CONTENT AT EXCAVATION SIDEWALLS AND BOTTOM. EXCAVATIONS SHALL CONTINUE TO THE EXTENT NECESSARY SUCH THAT XRF READINGS ARE LESS THAN 250 MG/KG LEAD.
13. CKG WILL SAMPLE EXCAVATION SIDEWALLS AND BOTTOM FOR LABORATORY TESTING AND CONFIRMATION THAT THE EXTENT OF IMPACTED SOILS HAVE BEEN REMOVED. ONE SAMPLE WILL BE COLLECTED FOR EVERY 50 FEET OF EXCAVATION SIDEWALL AND ONE SAMPLE WILL BE COLLECTED FROM THE EXCAVATION BOTTOM FOR EVERY 5,000 SQUARE FEET (I.E. ONE BOTTOM SAMPLE PER EGA).
14. NON–IMPACTED SOIL AND IMPORTED FILL MATERIAL SHALL BE USED TO BACKFILL EXCAVATED AREAS TO WITHIN 2 FEET OF ORIGINAL GRADE. BACKFILLED AREAS WILL BE COMPACTED IN 1–FOOT MAXIMUM LIFTS TO 95% DENSITY. A GEOTECHNICAL ENGINEER WILL PERFORM FIELD COMPACTION TESTS TO VERIFY THE PLACEMENT AND COMPACTION METHODS.
15. USE STOCKPILED SURFACE MATERIALS AS FINAL BACKFILL MATERIAL. SEE NOTE 10.
16. RESTORE SURFACE BY HYDROSEEDING WITH NATIVE GRASSES AND VEGETATION SEED MIXTURE.

EXCAVATION BOUNDARY SURVEY POINTS

| Survey Pt. | Northing | Easting |
|---|---|---|
| 1 | 5197.68 | 10998.74 |
| 2 | 4997.06 | 11258.93 |
| 3 | 4928.03 | 11247.35 |
| 4 | 4890.78 | 11280.70 |
| 5 | 4863.11 | 11333.95 |
| 6 | 4783.86 | 11323.05 |
| 7 | 4746.42 | 11274.91 |
| 8 | 4627.68 | 11244.62 |
| 9 | 4562.02 | 11164.78 |
| 10 | 4586.60 | 11133.22 |
| 11 | 4630.97 | 11166.94 |
| 12 | 4680.30 | 11168.86 |
| 13 | 4692.61 | 11153.10 |
| 14 | 4729.77 | 11167.90 |
| 15 | 4770.14 | 111083.01 |
| 16 | 4888.51 | 11133.45 |
| 17 | 5133.11 | 10951.51 |

| No. | DATE | REVISIONS | BY | CHK |
|---|---|---|---|---|
| | | | | |

DRAWN: YK/MH
ENGINEER: JB
CHECKED: JB
DATE: 12/03/2015

SCALE
0 25 50
1" = 50'

SIERRA WEST CONSULTANTS, INC.
4227 Sunrise Boulevard, Suite 220
Fair Oaks, California 95628
Ph: (916) 863-3220 Fax: (916) 863-3225

CKG Environmental, Inc.

TITLE:
# DEBRIS AREA EXCAVATION PLAN
2592 LAKEVILLE HWY
PETALUMA, CA

PLATE:
4

`

# DEBRIS LAYER
# INVESTIGATION REPORT

## 2592 LAKEVILLE HIGHWAY
## PETALUMA, CALIFORNIA

CKG Environmental, Inc.
P.O. Box 246
St. Helena, CA 94574

`

A Report Prepared for:

Mr. Keith Roberson
California Regional Water Quality Control Board – San Francisco Bay Region
1515 Clay Street
Oakland, CA 94612

**DEBRIS LAYERINVESTIGATION REPORT**
**2592 LAKEVILLE HIGHWAY**
**PETALUMA, CALIFORNIA**

November 24, 2015

Prepared by:




Christina J. Kennedy R.G.

Principal

CKG Environmental, Inc.
P.O. Box 246
St. Helena, California 94574
(707) 967-8080

`

## TABLE OF CONTENTS


**1.0 EXECUTIVE SUMMARY ..... 1**

**2.0 INTRODUCTION ..... 4**

2.1 SITE DESCRIPTION ..... 5
2.2 BACKGROUND ..... 5

**3.0 GEOPHYSICAL SURVEY ..... 8**

3.1 TF ANOMALIES ..... 9
3.2 TC ANOMALIES ..... 9
3.3 MD AND GPR SURVEYS ..... 10
3.4 COMPILATION MAP ..... 10
3.5 CONCLUSIONS OF THE GEOPHYSICAL SURVEY ..... 10

**4.0 SOIL GAS SURVEY ..... 11**

**5.0 SOIL INVESTIGATIONS ..... 12**

5.1 APRIL INVESTIGATION ..... 12
5.2 OCTOBER INVESTIGATION AND GROUNDWATER SAMPLE ..... 12
5.3 CHEMICAL ANALYSES ..... 13

**6.0 SOIL SAMPLING RESULTS ..... 14**

6.1 METALS DATA SUMMARY ..... 14
6.2 STATISTICAL ANALYSES FOR METALS ..... 15
6.3 DATA SUMMARY FOR OTHER CONSTITUENTS ..... 15

**7.0 DISCUSSION ..... 16**

**8.0 CONCLUSIONS AND RECOMMENDATIONS ..... 17**

8.1 CONCLUSIONS ..... 17
8.2 RECOMMENDATIONS ..... 17

**9.0 REFERENCES ..... 18**

**10.0 LIMITATIONS ..... 20**


**TABLES**


Table 1 Concentration of Metals in Soil Samples
Table 2 Petroleum Hydrocarbon Concentrations in Soil Samples


**PLATES**


Plate 1 Site Location Map
Plate 2 Site Plan and Former Sample Locations
Plate 3 Site Investigation Area Overlain on 1953 Aerial Photograph
Plate 4 Site Investigation Area Overlain on 1965 Aerial Photograph
Plate 5 Pothole Locations and Residual Lead Map


**APPENDICES**


Appendix A Geophysical Investigation Report – Norcal Geophysical Consultants, Inc. October 6, 2015
Appendix B Limited Soil Gas Investigation Report – Ninyo & Moore, October 13, 2015
Appendix C Analytical Laboratory Reports
Appendix D ProUCL Statistical Analyses for Lead and Cobalt

`

## 1.0 EXECUTIVE SUMMARY

The site, located at 2592 Lakeville Highway, Petaluma, California, has been the subject of subsurface explorations and soil remediation in the vicinity of the former underground fuel storage tanks. The fuel cleanup was regulated by the County of Sonoma Department of Health Services, Environmental Health Division (SCEHD) and received regulatory closure on July 30, 2004. A subsequent investigation in 2014 by a prospective property buyer, uncovered potential concerns in the vicinity of former wastewater ponds operated at the site. Elevated concentrations of petroleum hydrocarbons and metals were discovered in soil at one location at a depth of approximately 2.5 feet below ground surface. In April 2015, CKG Environmental, Inc., on behalf of the property owner, Baywood LLC completed a shallow subsurface investigations to assess the extent of the impact. Based on the initial investigation, CKG discovered burned landfill debris thought to be associated with a closed landfill at an adjacent property. Initial soil sampling indicated that the debris was impacted by lead at levels characteristic of a California Hazardous Waste.

Baywood LLC then contacted the County of Sonoma Local Enforcement Agency (LEA), who entered the site into the State of California Solid Waste Information System (SWIS) and then contacted Calrecyle (California Department of Resources Recycling and Recovery) and referred Baywood to the State of California Regional Water Quality Control Board, San Francisco Bay Region, (RWQCB). The RWQCB is the lead agency for this investigation. In accordance with guidance on investigations for abandoned landfills prepared by Calrecycle, Baywood completed investigations to assess the following:

- Assess the extent of the debris (using geophysics)
- Evaluate the potential for landfill gas
- Collect additional soil data to better delineate the lead distribution in the fill
- Evaluate the potential for groundwater impact from lead.

CKG contracted with Norcal Geophysical in September 2015 to evaluate the distribution of debris at the site. Norcal utilized a total of four geophysical methods to evaluate the area. The

`

extent of debris material was well delineated except in a small area that is presently covered with a stockpile of crushed concrete, and potentially beneath the driveway that enters the site. Metal debris within the concrete including rebar made it difficult to distinguish landfill debris from the concrete.

CKG contracted with Ninyo & Moore in September 2015 to install soil vapor probes and collect soil vapor samples to evaluate the soil gas. Probes were installed within the debris area and outside the known debris area. Soil vapor samples did not contain evidence of landfill gas related compounds. There were some volatile constituents detected that are consistent with gasoline which is not surprising given the former presence of underground gasoline tanks at the site and an associated release of gasoline to the subsurface.

Soil samples were collected within and adjacent to the debris area in two separate investigations. The first investigation occurred in April 2015 and included 18 potholes located in the southern part of the debris area. Soil sampling from debris and from soil above and below the debris layer demonstrated that the only constituent of concern is lead, which occurs exclusively in the debris layer. Lead does not occur immediately below the debris or above it. Composite samples analyzed for other potential constituents of concern (petroleum hydrocarbons, volatile organic constituents, Semivolatile organics, polychlorinated biphenyls, and other metals) indicate that only motor oil range petroleum hydrocarbons were detected in one isolated location at concentrations slightly above residential screening levels.

A second investigation was completed in October 2015. Another 20 potholes were excavated and sampled to confirm the presence and distribution of debris and lead impacts. A groundwater sample also was collected from a pothole located within debris layer at the downgradient (south) end of the debris area. No lead was detected in the groundwater sample.

The two potholing investigations have delineated the vertical and lateral extents of lead impacted debris at the site. California hazardous concentrations of lead occur in an area that parallels the western property boundary and extends north to the present driveway and east to a former drainage ditch. The northern extent of the fill underneath the concrete stockpile and driveway is

`

uncertain however historical aerial photographs show that there were a number of buildings in the vicinity that may have limited the area available for the debris.

Lead concentrations in the debris material exceed the residential and industrial State of California Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs) and the California Code of Regulations Title 22 Total Threshold Limit Concentration (TTLC) and the Soluble Threshold Limit Concentration (STLC). Materials that exceed the STLC or TTLC are considered California Hazardous Waste for the purposes of disposal.

In addition to lead, cobalt, nickel and zinc were detected in isolated area at concentrations that also exceeded the residential ESL. These metals exceedances coincide with the lead impacts except in the vicinity of one sample location (PH13).

CKG completed a statistical analysis of the lead and cobalt data utilizing the EPA's ProUCL calculator. Based on a 95% upper confidence limit (UCL), the statistical evaluation demonstrates that removing material with a lead concentration of 250 mg/kg or greater will result in the site meeting the residential ESL of 80 mg/kg. The same analysis for cobalt demonstrates that the current 95% UCL average cobalt concentration is less than the residential ESL of 23 mg/kg without removing any soil. Although nickel and zinc exceed the residential ESL in a few locations they are collocated with the elevated lead.

Based on the results of this sampling approximately 8,593 tons of California Hazardous Waste exists at the Site. Although there are some uncertainties in the exact volumes of affected material (specifically underneath the stockpile and driveway) there is sufficient information to plan and implement a clean closure remediation to allow residential redevelopment of the property.

CKG recommends that Baywood LLC submit this report to the RWQCB. CKG will prepare a clean closure plan also to be submitted to the RWQCB for review and concurrence before proceeding.

`

## 2.0 INTRODUCTION

The following report presents the results and conclusions of a number of investigative efforts to prepare this landfill investigation report for 2592 Lakeville Highway, Petaluma, California, conducted by CKG Environmental, Inc.

The site, located at 2592 Lakeville Highway, Petaluma, California, has been the subject of subsurface explorations and soil remediation in the vicinity of the former underground fuel storage tanks. The fuel cleanup was regulated by the County of Sonoma Department of Health Services, Environmental Health Division (SCEHD) and received regulatory closure on July 30, 2004. A subsequent investigation in 2014 by a prospective property buyer, uncovered potential concerns in the vicinity of former wastewater ponds operated at the site. Elevated concentrations of petroleum hydrocarbons and metals were discovered in soil at one location at a depth of approximately 2.5 feet below ground surface. In April 2015, CKG Environmental, Inc., on behalf of the property owner, Baywood LLC completed a shallow subsurface investigations to assess the extent of the impact. Based on the initial investigation, CKG discovered burned landfill debris thought to be associated with a closed landfill at an adjacent property. Initial soil sampling indicated that the debris was impacted by lead at levels characteristic of a California Hazardous Waste.

Baywood LLC then contacted the County of Sonoma Local Enforcement Agency (LEA), who entered the site into the State of California Solid Waste Information System (SWIS) and then contacted Calrecyle (California Department of Resources Recycling and Recovery) and referred Baywood to the State of California Regional Water Quality Control Board, San Francisco Bay Region, (RWQCB). The RWQCB is the lead agency for this investigation. In accordance with guidance on investigations for abandoned landfills prepared by Calrecycle, Baywood completed investigations to assess the following:

- Assess the extent of the debris (using geophysics)
- Evaluate the potential for landfill gas
- Collect additional soil data to better delineate the lead distribution in the fill
- Evaluate the potential for groundwater impact from lead.

`

## 2.1 SITE DESCRIPTION

The subject site (Site) consists of vacant land located to the south of Lakeville Highway and southeast of Casa Grande Road in a mixed commercial and residential area of Petaluma, California (Plate 1). The Site is approximately 13 acres in size and is surrounded by a barbed-wire security fence (Plate 2).

## 2.2 BACKGROUND

The Site has been the subject of several subsurface explorations and remediation due to the former presence of underground fuel storage tanks. Soil remediation activities were performed to address gasoline-range hydrocarbons present in soil to a depth of 5 feet below grade level (bgl) (Plate 2). The former owner, Darling Delaware (Darling) conducted the soil remediation in accordance with the approved Soil Remediation Work Plan for the Site prepared by MFG (MFG, 2000).

Implementation of the Soil Remediation Work Plan began in November 2000 and was completed in August 2002. Between November 2000 and June 2001, approximately 2,390 cubic yards of gasoline impacted soil were removed from the area of the former gasoline UST excavations. The excavated soil was treated by enhanced bioremediation in on-site stockpiles. After the soil had been successfully treated, it was placed and compacted back into the excavation. Final confirmation samples from each stockpile section demonstrated that the soil reused at the Site did not contain detectable Total Petroleum Hydrocarbons as gasoline (TPHg), at a reporting limit of 1.0 mg/kg. Similarly, benzene, toluene, ethylbenzene, or xylenes (BTEX) compounds were not detected at concentrations greater than 0.0075 mg/kg.

Confirmation soil sample data from excavation sidewalls and floor demonstrated that the TPHg and BTEX remaining in the soil at the Site did not exceed Risk Based Screening Levels (RBSLs), which were selected as the cleanup goals for the Site. The fuel release was regulated by the County of Sonoma Department of Health Services, Environmental Health Division (SCEHD) and received regulatory closure on July 30, 2004.

`

In 2014, AEI Consultants of Walnut Creek, California, on behalf of DeNova Homes conducted a Phase II subsurface investigation of potential concerns associated with former wastewater ponds operated at the site (AEI Consultants, 2014). Of six samples collected in former pond areas only one sample, PA-3, contained elevated concentrations of analytes as follows:

| Analyte (mg/kg) | PA-3 6/18/2014 |
|---|---|
| TPH mo | 660 |
| Antimony | 22 |
| Copper | 280 |
| Lead | 930 |
| Zinc | 2000 |

AEI sample locations are shown on Plate 2. PA-3 was collected at a depth of 2.5 feet (ft.) bgl and appeared to be below sediments deposited in the former pond. Further, the boring log for PA-3 described debris such as brick and glass fragments in the sample, suggesting that some kind of debris may have been placed on the Site property.

To assess whether PA-3 was an isolated anomaly or was the result of a more widespread impact, CKG collected four soil samples with an excavator on February 12, 2015. One sample was collected at the original location of PA-3. The three other samples were collected 10 feet away from PA-3 to the north, southeast, and southwest. The samples were collected from soil excavated from a depth of 2.5 (ft. bgl), and analyzed for antimony, copper, lead, zinc, and TPH quantified as motor oil (TPHmo).

TPHmo and the metals antimony, copper, lead, and zinc were detected in all of the soil samples except one in concentrations at or exceeding the ESLs for residential use, (Table 1)

Based on these sampling results, it is apparent that elevated metals and TPHmo in the vicinity of PA-3 were not just anomalous or limited. In addition, debris was noted in the samples collected.

CKG then evaluated the location and extent of potential past debris disposal by reviewing historical aerial photographs provided by Environmental Data Resources, Inc. (EDR). The aerial

`

photographs were from various years from 1942 through 2012. Based on the aerial photography it appears that the Casa Grande Landfill was operated on the property west of the Site from possibly before 1942. The landfill stopped accepting wastes in 1991 and was officially closed in 1994. During the early 1940s and 1950s the landfill activity was close to the boundary between the two properties and it appears that some debris material may have been placed onto the Site. This debris potentially contains materials that have high concentrations of metals. Plate 3 and 4 illustrate sample locations collected by AEI and by CKG in February 2015 overlain onto the 1953 and 1965 aerial photographs. Whitish material and soil disturbances are visible in the southwest corner of the Property in both photographs.

In April 20015 CKG collected soil samples from 18 potholes excavated in the vicinity of PA-3. The results of that investigation are presented in CKGs *Report of Potholing Exploration and Soil Sampling, dated August 5, 2015* and are also presented below in Section 5.1.

`

## 3.0 GEOPHYSICAL SURVEY

CKG contracted with Norcal Geophysical in September 2015 to evaluate the distribution of debris at the site. A copy of the Norcal report is included in Appendix A. Norcal used a total of four geophysical methods to evaluate the area as follows:

1. Total Field Magnetic (TF) Survey: The TF method can define localized variations in the earth's magnetic field that may be caused by buried USTs, drums, underground vaults, reinforced concrete pads, and other miscellaneous debris.

2. Terrain Conductivity (TC) Survey: The TC method is used to delineate localized variations in the electrical conductivity of the subsurface materials. These variations are typically caused by changes in soil type, certain changes in soil chemistry, porosity, moisture content, and fill areas. The presence of buried metallic and non-metallic debris can affect the conductivity of the subsurface as well.

3. Electromagnetic Metal Detection (MD) Survey: The MD method is used to detect and delineate shallowly buried metallic objects. It is typically used to characterize suspect metallic objects initially delineated with the TF and TC methods.

4. Ground penetrating radar (GPR) Survey: GPR is used to image the shallow subsurface by measuring the variations of radar signal transmission and reflection. Distinctive reflection variations can be caused by buried objects, voids, and changes in material. Typically, GPR is used to further characterize targets identified with the other methods noted above. Under favorable conditions GPR can aid in delineating the approximate size and depth of burial of a detected object.

More detailed descriptions of the geophysical methods, standard data acquisition and analysis procedures, the geophysical instrumentation and the limitations of the geophysical methods are provided in Appendix A.

`

## 3.1 TF ANOMALIES

The results of the TF survey are shown on Plate 2 in Appendix A. This map displays data contour lines that represent the variation of magnetic intensity. Some of the contour lines are highly contorted and form contour closures. Such highly contorted contours are typically considered anomalous and often can be attributed to buried metallic ferrous debris.

Several zones of suspected metal debris are depicted on the map by the figures with a red hachured pattern.The highest concentration of these patterns is located in the northern portion of the study area, especially in the areas adjoining the concrete rubble pile. The large irregularly-shaped zones contour closures probably represent areas with multiple subsurface metallic objects buried in close proximity to each other. The smaller isolated contour closures comprised of either single semi-circular patterns or pairs of contour closures probably represent single isolated buried metal objects. This result is not unexpected considering the presence of rebar in the concrete and the potential presence of concrete foundation debris from former buildings that were located in that area.

## 3.2 TC ANOMALIES

The results of the TC survey are shown on the contour map presented on Plate 3 in Appendix A. This map displays the variation of terrain conductivity using a combination of data contours and color shading. Areas having average, or "background", conductivity values are assigned a pale yellow hue. Areas having elevated conductivity values are assigned a brown hue. Areas having lower conductivity values are assigned a blue hue.

Several zones of anomalous conductivity were apparent. Some of the zones represent areas with elevated terrain conductivity, as depicted by the hachured brown shapes figures. These zones typically can be attributed to accumulations of silt and clay, areas of higher soil moisture, buried metal objects, and concentrations of disseminated metal particles and their oxides (i.e. residue found in debris and burn pits). Other anomalous zones represent areas with lowered terrain conductivity, as depicted by the hachured blue figures. These latter zones are typically attributed to areas having lower silt and clay content, lower soil moisture, or buried material with lower electrical conductivity such as brick, concrete debris, and wood.

`

## 3.3 MD AND GPR SURVEYS

The MD survey defined a single anomalous feature that could be identified as an isolated metallic object. This object is located in the southern portion of the survey area and appears to be approximately 10-feet long and 4-feet wide, as depicted on Plates 2-4 in Appendix A by the small blue rectangle. The MD instrument response was consistent with the object possibly being an underground storage tank, though the other similarly sized objects (such as a buried reinforced concrete pad or foundation) cannot be ruled out. Several GPR survey traverses were conducted over the MD anomaly in an effort to further characterize it, but the results were inconclusive.

## 3.4 COMPILATION MAP

Plate 4 of Appendix A is a compilation map that combines the findings of February 2015 CKG investigation with the results of the geophysical investigation. The map depicts the locations of the gasoline UST excavation and various "lead distribution" zones delineated by CKG (shaded solid figures) and the NORCAL interpreted anomalous zones resulting from this latest investigation (colored hachured figures). Also depicted are the locations of the former building footprints and various soil sample and pothole locations from the February 2015 investigation, and the UST investigation.

## 3.5 CONCLUSIONS OF THE GEOPHYSICAL SURVEY

The geophysical survey produced a number of responses that are consistent with debris fill as well as responses that could be caused by moist soil from the wetlands, and concrete rubble and former foundations. These data will be used in concert with subsurface investigations and historical aerial photograph review to understand the extent of debris at the site.

`

## 4.0 SOIL GAS SURVEY

CKG contracted with Ninyo & Moore in September 2015 to complete a soil gas investigation. A copy of the Ninyo & Moore report is included in Appendix B. On September 22, 2015, Ninyo & Moore installed five temporary soil gas probes and collect soil gas samples to evaluate them for the presence of landfill gas. Probes were installed within the fill area and outside the known fill area as shown on Figure 2 of Appendix B. A detailed descriptions of the soil gas probe installation and sampling methods are provided in Appendix B

Soil gas samples collected contained some volatile organic constituents such as benzene, toluene, eithylbenzene and xylenes, but all were below ESLs for soil gas. It is probable that these are present in the soil gas due to the former underground storage tanks at the site and associated gasoline release. Although methane was detected in the soil gas samples its concentration was below Title 27 screening levels and may be present because of the marshy nature of the site.

`

# 5.0 SOIL INVESTIGATIONS

CKG completed the subsurface soil investigation in two phases. The first phase was conducted in April 2015, and the second in October 2015 as described below.

## 5.1 APRIL INVESTIGATION

On April 28, 2015, CKG personnel and a hired excavator conducted a pothole exploration program in an area that extends outward from PA-3 and encompasses the southwest corner of the Site, as shown on Plate 5. A total of 19 potholes were excavated and sampled (PH-1 through PH-19). The maximum planned depth of excavation was 10 ft. bgl, which is the maximum depth that could be reached with the excavator. Samples were collected in each sampling location at depths of 1 foot, 2 or 2.5 ft. bgl, and at the base of apparent fill. The maximum depth of the fill encountered during the exploration was approximately 5 ft. bgl. The deepest sample from each pothole was collected directly below the maximum depth of the fill in that area. Samples were collected from the excavator bucket in 2-inch-diameter stainless steel sample sleeves that were then sealed, labeled, and stored with ice in an ice chest. Pothole locations are shown on Plate 5. If no debris was observed in a pothole samples were not collected and the area was presumed to be free of elevated metals at that location.

## 5.2 OCTOBER INVESTIGATION AND GROUNDWATER SAMPLE

On October 5 and 6, 2015, CKG excavated 20 additional potholes (PH20—PH39) to delineate the northern extent of debris and confirm the lead concentrations within it. Another composite sample was collected and analyzed for the full suite of analyses described above for the purposes of profiling. Selected samples were submitted for analysis of TCLP lead. To assess the potential that groundwater is impacted by lead, a grab groundwater sample was collected at PH24. This pothole was selected because it is downgradient of most of the burn debris but still within the burn debris. The groundwater sample was analyzed for soluble lead with none detected above the laboratory reporting limit.

`

## 5.3 CHEMICAL ANALYSES

Soil samples were submitted under chain-of-custody to McCampbell Analytical Laboratory in Pittsburg, California. The following chemical analysis was performed on discrete samples collected from the potholes:

- CAM 17 metals by EPA Method 6020

The samples also included four-point composite samples that were made from soil collected at selected sampling locations. These composite samples were analyzed to provide data to characterize the material for future excavation and disposal. These composite samples were analyzed as follows:

- RCRA Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag)
- Volatile Organic Constituents (VOCs)—EPA Method 5035/8260B
- Semivolatile Organic Constituents (SVOCs)—EPA Method 8270D
- Polychlorinated biphenyls (PCBs)—EPA Method 3540/8082A
- TPH as gasoline, diesel and motor oil—EPA Method 8015C

If a metal exceeded ten times the Soluble Threshold Limit Concentration (STLC) for the metal, selected samples were analyzed for soluble concentrations of the metal. Selected samples that exceeded the STLC also were analyzed by the Toxicity Characteristic Leaching Procedure (TCLP), to evaluate if the materials would be characterized as a RCRA waste.

`

## 6.0 SOIL SAMPLING RESULTS

The following describes the results of the soil sampling and chemical analysis from the April 28, and October 5-6, 2015 potholing excavations at the Site. Concentrations of detected metals are compared to the residential and industrial ESLs, as compiled in the: "Derivation and Application of Environmental Screening Levels", San Francisco Bay Regional Water Quality Control Board, December 2013. Concentrations of metals also were compared to California Code of Regulations (CCR) Title 22 Total Threshold Limit Concentration (TTLC) and the Soluble Threshold Limit Concentration (STLC). Sample results are presented in Table 1. Analytical laboratory reports are included in Appendix C. Pothole locations are presented on Plate 5.

### 6.1 METALS DATA SUMMARY

Lead was detected at concentrations exceeding both the residential and industrial ESLs of 80 and 320 milligrams per kilogram (mg/kg) in 42 of 79 discrete samples analyzed and in four of ten composite samples analyzed. Of those samples, 20 exceeded the TTLC of 1000 mg/kg. Selected samples where the metals concentration exceeded 10 times the STLC were analyzed for soluble lead. Seven of the 12 samples analyzed for soluble lead exceeded the STLC of 5 mg/l. Ten samples also were analyzed for TCLP lead as shown on Table 2. TCLP lead was not detected above 5 mg/l. Metal distributions are illustrated on Plate 5.

Nickel was detected in soil sample PH4-1' at a concentration exceeding both ESLs. Cobalt was detected in soil samples PH-14, and PH-16 at a concentration exceeding the residential ESL and in PH-13 at a concentration exceeding the residential and industrial ESLs. Zinc was detected in soil samples PH4-4', PH5-2', PH11-2.5', PH12-2.5' PH14-4', and PH16-2.5' at concentrations exceeding both ESLs. These metals were not detected at concentrations exceeding the TTLC or 10 times the STLC. No other metals were detected above any of the screening concentrations in soils samples collected during this sampling event.

`

## 6.2 STATISTICAL ANALYSES FOR METALS

To evaluate the metals concentrations in the burn debris samples CKG used ProUCL, 5.0, a statistical program developed by the U.S Environmental Protection Agency. The program evaluates the population of data at a given site and calculates the mean, the standard deviation and the upper confidence limit of the data as established by the user. The 95% UCL was used for these analyses. CKG used the lead data collected from the actual burn debris and samples collected immediately below it. If the 95% UCL exceeded the desired cleanup goal, then selected "hot spots" are removed until the cleanup goal is met. In the case of lead, the initial 95% UCL was 1240-1890 mg/kg depending on whether or not the analysis considered the data to be normally distributed, lognormally distributed or nonparametric. This is illustrated in the first analyses contained in Appendix D. If all soil with a lead concentration of 250 mg/kg or higher is removed, then the 95% UCL dropped below the residential ESL of 80 mg/kg as illustrated in the following 3 analyses contained in Appendix D.

The same process was applied to Cobalt and the 95% UCL was 18.72 to 24.52 which is slightly higher than the residential ESL of 23. Printouts of the ProUCL output for lead and cobalt are contained in Appendix D.

## 6.3 DATA SUMMARY FOR OTHER CONSTITUENTS

No VOCs, SVOCs, or PCBs were detected above laboratory reporting limits in the composite samples analyzed. Low concentrations of petroleum hydrocarbons were detected in composite samples as presented in Table 2. Residential and industrial ESLs for motor oil were exceeded in initial discrete samples but not in the composite samples.

`

## 7.0 DISCUSSION

The potholing exploration program, in addition to previous soil sampling data, has confirmed that elevated metals occur at the Site and the source of those metals is debris that was placed at the Site in the past. The debris is consistent with burned landfill material and the operation of the now closed Casa Grande Landfill to the west is the suspected source of the debris. The main constituent of concern is lead, although there are some elevated concentrations of cobalt, nickel and zinc that for the most part occur with the lead. Minor incidental heavy petroleum hydrocarbons also occur with the debris. There is one location that appears to have a cobalt concentration above its residential ESL without elevated lead. The source of the cobalt is not clear. Only lead has concentrations that exceed its TTLC or STLC. The TCLP for lead was not exceeded.

In the State of California if a constituent exceeds its STLC or TTLC it is considered a California Hazardous Waste for the purposes of disposal. Based on the potholing exploration and soil sampling results, the elevated lead occurs exclusively within the debris layer, and has not leached into soil or groundwater below the debris layer. Field observations indicate that the debris occurs typically at a depth of 2.5 feet bgl, although it can be shallower in some locations. Also the debris layer varies from one to three feet thick but is typically approximately 2 feet thick, potentially tapering off to the northwest toward Casa Grande Road.

The distribution of the lead impacted debris as shown on Plate 5 was interpreted by using the analytical data, field observations, and examining aerial photographs from 1953 and particularly 1965. The boundaries of each impacted area are estimated based on looking for boundaries of what appeared to be disturbed soil in the historical photographs and what was observed in the potholes. These boundaries are estimates and some areas are uncertain as indicated by question marks on Plate 5. Despite the uncertainties, the approximate areal extent of impacts and the volume of debris classified as California hazardous waste are:

| | |
|---|---|
| Total Area ($ft^2$) | 77,000 or 80,000$ft^2$ (1.77 acres) |
| Total Volume ($ft^3$) | 155,000 or 160,000$ft^3$ |
| Total Volume ($yards^3$) | 5,700 or 6,000 $yd^3$ |
| Total Tonnage (1.5x $yd^3$) | 8,600 or 9,000 tons |

`

# 8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the debris layer investigation the following conclusions and recommendations can be made:

## 8.1 CONCLUSIONS

The approximate vertical and lateral extent of the debris waste and associated metal impacts have been determined by a synthesis of data provided through a geophysical survey, aerial photography, understanding of historical operations and soil potholing investigations. Areas of uncertainty remain with respect to the extent of debris underneath the concrete stockpile and immediately north of the investigation area in the vicinity of the driveway.

Based on the results of recent investigations, approximately 9,000 tons of material exist at the Site with lead concentrations characterized as California Hazardous Waste.

Soil vapor sampling did not indicate the presence of landfill gas within and adjacent to the burn debris area. Soluble lead was not detected in groundwater collected from immediately below the debris area.

Although there are some uncertainties in the exact volumes of affected materials there is sufficient information to plan and implement a soil remediation project. Based on proposed future land use, Baywood will prepare a plan for Clean Closure.

## 8.2 RECOMMENDATIONS

CKG will prepare a clean closure plan on behalf of Baywood LLC. This plan will be submitted to the RWQCB for review and concurrence before implementing the plan.

`

## 9.0 REFERENCES


AEI Consultants, *Draft Phase II Subsurface Investigation, 2592 Lakeville Highway, Petaluma, California,* September 2, 2014.

California Regional Water Quality Control Board – San Francisco Bay Region, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Final*, December 2013.

CKG Environmental, Inc., 2015 *Report of Potholing Exploration and Soil Sampling, 2592 Lakeville Highway, Petaluma, CA,* August 5, 2015.

CKG Environmental, Inc., 2015 *Technical Memorandum, Summary of Soil Sampling to Confirm AEI findings at PA-3, 2592 Lakeville Highway, Petaluma, CA*, March 13, 2015.

California Regional Water Quality Control Board (RWQCB). 2013 Application *of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater, Interim Final*. December 2013.

Delta Environmental Consultants, Inc. (Delta).1996.*Monitoring Well Installation and Ground Water Sampling Results*. December 3, 1996

Delta Environmental Consultants, Inc. (Delta).1997.*Well Destruction Report*. June 9, 1997

Delta Environmental Consultants, Inc. (Delta).2000.*Appendix B Closure Report*, Darling International, Inc., Former Royal Tallow & Soap Company Property, 2592 Lakeville Highway, Petaluma, California. March 30, 2000.

Duvergé, Dylan Jacques, *Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region,* Masters Thesis, San Francisco State University, 2011.

Ecology and Environmental, Inc. (EEl). 1990. *Royal Tallow and Soap Company, Petaluma, California, Underground Storage Tank Site Characterization Report*. August 14, 1990.

Ecology and Environmental, Inc. (EEl). 1991. *Royal Tallow and Soap Company, Petaluma, California, Supplemental Site Characterization Report.* August 23, 1991.

MFG, Inc.2000. *Remediation Work Plan, Former Royal Tallow and Soap Facility, 2592 Lakeville Highway, Petaluma, California.* October 25, 2000.

Risk-Based Decisions (RBD). 1996. *Risk-Based Corrective Action Report for the Former Royal Tallow and Soap Company Site in Petaluma, California.* January 29, 1996

Sonoma County Department of Health Services, Environmental Health Division (SCDHS-EHD). 2000a. Letter to Darling International, Inc. *-Subject: 2592 Lakeville Highway, Petaluma- Leaking Underground Storage Tank Site,* [SCDHS-EHD Site# 1359, SFBRWQB Site #49-0142}. April 20, 2000.

`

Sonoma County Department of Health Services, Environmental Health Division (SCDHS-EHD). 2000b. Letter to Darling International, Inc. -*Subject: 2592 Lakeville Highway, Petaluma- Leaking Underground Storage Tank Site*, [SCDHS-EHD Site # 1359, SFBRWQB Site #49-0142]. October 30. 2000.

Sonoma County Department of Health Services, Environmental Health Division (SCDHS-EHD). 2001. Letter to Darling International, Inc. -*Subject: 2592 Lakeville Highway, Petaluma - Leaking Underground Storage Tank Site*, SCDHS-EHD Site # 1359, SFBRWQB Site #49-0142, Review of Analytical Test Results for Excavation of Contaminated Soil and Exploratory Step-out Borings. June 11. 2001,

`

## 10.0 LIMITATIONS

CKG Environmental, Inc. prepared this report in accordance with generally accepted standards of care which exist in Northern California at this time. It should be recognized that definition and evaluation of geologic and environmental conditions is a difficult and an inexact science.

Conclusions and recommendations presented in this report are based on the results of excavating potholes and collecting soil samples and quantitative analysis of those samples conducted by McCampbell Analytical. Only work described herein was performed. As such CKG cannot render opinions on issues not resulting directly from the work performed.

Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present. More extensive studies, including additional subsurface investigations, may be performed to reduce uncertainties. If the client wishes to reduce the uncertainties of this investigation, CKG should be notified for additional consultation. No warranty, expressed or implied, is made.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify CKG of such intended use. Based on the intended use of the report, CKG may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release CKG from any liability resulting from the use of this report by any unauthorized party.

# TABLES

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Previous Investigation Data** | | | | | | | | | | | | | | | | | | | | |
| PA-3 | 6/18/14 | 22 | | | | | | | 280 | 930 | | | | | | | | 2000 | | |
| CS PA-3 | 2/12/15 | 18 | | | | | | | 270 | 1800 | | | | | | | | 4300 | | |
| CS PA-3N | 2/12/15 | 20 | | | | | | | 810 | 1400 | | | | | | | | 3400 | | |
| CS PA-3SW | 2/12/15 | 24 | | | | | | | 1300 | 2800 | | | | | | | | 3900 | | |
| CS PA-3SE | 2/12/15 | 25 | | | | | | | 670 | 1500 | | | | | | | | 3600 | | |
| **Data Collected During Potholing Investigation** | | | | | | | | | | | | | | | | | | | | |
| PH1-1' | 4/28/15 | <0.5 | 1.9 | 170 | 0.56 | <0.25 | 34 | 7.9 | 18 | 6.40 | 0.17 | <0.5 | 40 | <0.5 | <0.5 | <0.5 | 30 | 31 | | |
| **PH1-2.5'** | 4/28/15 | 2.6 | 6.7 | 180 | <0.5 | 1.7 | 45 | 14 | 49 | **250** | 0.19 | 0.74 | 38 | <0.5 | <0.5 | <0.5 | 32 | 620 | 2.8 | <0.2 |
| PH1-4' | 4/28/15 | <0.5 | 4.0 | 310 | 0.92 | 0.28 | 62 | 9.4 | 33 | 20 | 0.10 | 0.69 | 44 | <0.5 | <0.5 | <0.5 | 57 | 81 | | |
| PH1-5' | 4/28/15 | <0.5 | 6.9 | 180 | 0.62 | <0.25 | 34 | 7.1 | 24 | 16 | <0.05 | 0.54 | 29 | <0.5 | <0.5 | <0.5 | 33 | 58 | | |
| PH2-2.5" | 4/28/15 | | | | | | | | | **1300** | | | | | | | | | | <0.2 |
| PH3-1.5' | 4/28/15 | <0.5 | 2.8 | 100 | <0.5 | <0.25 | 34 | 10 | 15 | 6.6 | 0.098 | <0.5 | 37 | <0.5 | <0.5 | <0.5 | 30 | 29 | | |
| PH3-3' | 4/28/15 | 3.9 | 15 | 270 | <0.5 | 2.1 | 65 | 13 | 170 | **520** | 0.63 | 3.3 | 78 | <0.5 | <0.5 | <0.5 | 45 | 690 | **18** | |
| PH3-4' | 4/28/15 | <0.5 | 1.8 | 38 | 0.52 | <0.25 | 40 | 6.7 | 28 | 9.2 | 0.13 | 0.6 | 37 | <0.5 | <0.5 | <0.5 | 29 | 54 | | |
| **PH4-1'** | 4/28/15 | <0.5 | 1.8 | 190 | 0.58 | <0.25 | 32 | 7.2 | 18 | 6.3 | 0.15 | <0.5 | **335** | <0.5 | <0.5 | <0.5 | 26 | 29 | 1.7 Ni | |
| PH4-2.5' | 4/28/15 | 0.65 | 6.6 | 160 | 0.58 | 0.27 | 41 | 14 | 32 | 50 | 0.12 | 0.63 | 44 | <0.5 | <0.5 | <0.5 | 36 | 200 | | |
| **PH4-4'** | 4/28/15 | 2.5 | 6.5 | 180 | 0.58 | 0.86 | 53 | 13 | 94 | **240** | 0.36 | 0.67 | 50 | <0.5 | <0.5 | <0.5 | 46 | **1100** | 4.8 | |
| PH4-5' | 4/28/15 | <0.5 | 9.8 | 150 | 0.84 | <0.25 | 40 | 11 | 22 | 8.7 | 0.062 | 0.53 | 44 | <0.5 | <0.5 | <0.5 | 52 | 36 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PH5-2'** | 4/28/15 | 50 | 7.4 | 320 | <0.25 | 2.4 | 54 | 11 | 210 | **1900** | 0.42 | 0.7 | 58 | <0.5 | 0.69 | <0.5 | 39 | **1300** | **110** | 0.77 |
| PH5-4' | 4/28/15 | 1.8 | 2.4 | 220 | 0.88 | 0.54 | 48 | 12 | 41 | 43 | 0.28 | <0.5 | 55 | <0.5 | <0.5 | <0.5 | 38 | 160 | | |
| PH5-5' | 4/28/15 | <0.5 | 3.2 | 140 | 0.63 | <0.25 | 38 | 7.1 | 18 | 7.8 | <0.05 | <0.5 | 36 | <0.5 | <0.5 | <0.5 | 43 | 25 | | |
| PH6-1' | 4/28/15 | <0.5 | 3.7 | 140 | 0.69 | <0.25 | 43 | 12 | 24 | 13 | 0.14 | <0.5 | 41 | <0.5 | <0.5 | <0.5 | 39 | 44 | | |
| **PH6-2.5'** | 4/28/15 | 1.9 | 4.4 | 160 | 0.56 | 0.83 | 54 | 15 | 55 | **120** | 0.14 | <0.5 | 65 | <0.5 | <0.5 | <0.5 | 37 | 330 | 3.0 | |
| PH6-3.5 | 4/28/15 | <0.5 | 4.7 | 110 | 0.84 | 0.32 | 53 | 9.6 | 34 | 10 | 0.19 | 0.83 | 55 | <0.5 | <0.5 | <0.5 | 45 | 72 | | |
| PH6-4.5' | 4/28/15 | <0.5 | 6.5 | 170 | 0.64 | <0.25 | 34 | 25 | 19 | 10 | <0.05 | 0.54 | 37 | <0.5 | <0.5 | <0.5 | 35 | 27 | | |
| PH7-2' | 4/28/15 | 0.56 | 3.6 | 190 | 0.55 | <0.25 | 64 | 18 | 29 | 14 | 0.094 | <0.5 | 77 | <0.5 | <0.5 | <0.5 | 46 | 53 | | |
| PH7-3' | 4/28/15 | <0.5 | 2.6 | 140 | 0.67 | <0.25 | 40 | 18 | 23 | 11 | 0.11 | <0.5 | 50 | <0.5 | <0.5 | <0.5 | 39 | 41 | | |
| PH7-4' | 4/28/15 | <0.5 | 5.9 | 100 | 0.51 | <0.25 | 38 | 5.1 | 21 | 5.7 | 0.081 | 2.3 | 26 | <0.5 | <0.5 | <0.5 | 38 | 37 | | |
| PH8-2' | 4/28/15 | <0.5 | 3.3 | 180 | 0.67 | <0.25 | 43 | 13 | 22 | 9.9 | 0.14 | <0.5 | 46 | <0.5 | <0.5 | <0.5 | 37 | 37 | | |
| PH8-4' | 4/28/15 | <0.5 | 4.7 | 66 | 0.5 | <0.25 | 44 | 9.1 | 25 | 19 | 0.19 | <0.5 | 43 | <0.5 | <0.5 | <0.5 | 39 | 78 | | |
| PH9-2' | 4/28/15 | <0.5 | 2.1 | 110 | 0.57 | <0.25 | 35 | 8.8 | 17 | 6.8 | 0.088 | <0.5 | 35 | <0.5 | <0.5 | <0.5 | 28 | 28 | | |
| PH9-4' | 4/28/15 | 1.2 | 7.9 | 160 | 0.7 | 0.44 | 73 | 12 | 56 | 59 | 0.41 | 0.97 | 68 | <0.5 | <0.5 | <0.5 | 60 | 220 | | |
| PH10-2' | 4/28/15 | 0.72 | 7.0 | 250 | 0.8 | 0.43 | 54 | 17 | 38 | 38 | 0.18 | 0.66 | 65 | <0.5 | <0.5 | <0.5 | 53 | 210 | | |
| PH10-4' | 4/28/15 | 1.2 | 6.8 | 220 | 0.66 | 0.85 | 64 | 11 | 78 | 66 | 0.27 | 0.88 | 78 | <0.5 | <0.5 | <0.5 | 55 | 260 | | |
| PH11-1' | 4/28/15 | <0.5 | 3.1 | 210 | 0.79 | <0.25 | 53 | 8.7 | 26 | 11 | 0.16 | <0.5 | 47 | <0.5 | <0.5 | <0.5 | 45 | 44 | | |
| **PH11-2.5'** | 4/28/15 | 3.5 | 13 | 250 | 0.67 | 3.5 | 63 | 16 | 140 | **500** | 0.94 | 1.6 | 70 | <0.5 | 0.51 | <0.5 | 53 | **1400** | **41** | <0.2 |
| PH11-4' | 4/28/15 | <0.5 | 8.9 | 180 | 0.65 | 0.49 | 78 | 13 | 44 | 24 | 0.51 | 0.64 | 77 | <0.5 | <0.5 | <0.5 | 61 | 160 | | |
| PH11-5' | 4/28/15 | <0.5 | 14 | 67 | 0.62 | 0.32 | 46 | 6.9 | 44 | 12 | 0.15 | 1.9 | 35 | 0.57 | <0.5 | <0.5 | 49 | 57 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH12-1' | 4/28/15 | <0.5 | 3.1 | 290 | <1.0 | <0.25 | 52 | 9.5 | 25 | 7.6 | 0.24 | <0.5 | 52 | <0.5 | <0.5 | <0.5 | 46 | 40 | | |
| **PH12-2.5'** | 4/28/15 | 2.3 | 11 | 240 | <1.0 | 2.3 | 57 | 16 | 89 | **290** | 0.42 | 1.0 | 60 | <0.5 | <0.5 | <0.5 | 46 | **810** | **10** | <0.2 |
| PH12-3.5' | 4/28/15 | 0.8 | 4.3 | 87 | <1 | 1 | 49 | 9.2 | 77 | 85 | 0.38 | <0.5 | 50 | <0.5 | <0.5 | <0.5 | 36 | 350 | | |
| PH12-4.5' | 4/28/15 | <0.5 | 2.5 | 140 | <1.0 | 0.78 | 25 | 4.2 | 30 | 6.4 | 0.078 | 1.0 | 36 | 0.7 | <0.5 | <0.5 | 31 | 62 | | |
| **PH13-2'** | 4/28/15 | <0.5 | 4.0 | 110 | <1.0 | <0.25 | 32 | **115** | 16 | 14 | 0.10 | 0.76 | 45 | <0.5 | <0.5 | <0.5 | 33 | 44 | | |
| PH13-4' | 4/28/15 | <0.5 | 6.4 | 160 | <1.0 | <0.25 | 31 | 12 | 14 | 5.9 | 0.056 | <05 | 33 | <0.5 | <0.5 | <0.5 | 45 | 29 | | |
| PH14-1' | 4/28/15 | 0.78 | 3.5 | 120 | <1.0 | 2.7 | 58 | 14 | 31 | 40 | 0.21 | <0.5 | 53 | <0.5 | <0.5 | <0.5 | 62 | 95 | | |
| PH14-2.5' | 4/28/15 | 0.62 | 3.5 | 180 | <0.5 | <0.25 | 50 | 15 | 26 | 21 | 0.18 | <0.5 | 48 | <0.5 | <0.5 | <0.5 | 51 | 80 | | |
| **PH14-4'** | 4/28/15 | 3.8 | 8.2 | 160 | <1.0 | 2.3 | 58 | 15 | 92 | **390** | 0.45 | 1.5 | 64 | <0.5 | <0.5 | <0.5 | 62 | **840** | **15** | 0.87 |
| **PH14-5'** | 4/28/15 | <0.5 | 8.1 | 210 | <1.0 | <0.25 | 41 | **44** | 17 | 8.9 | 0.051 | 0.93 | 44 | <0.5 | <0.5 | <0.5 | 59 | 33 | | |
| PH15-2' | 4/28/15 | <0.5 | 6.9 | 160 | <1.0 | <0.25 | 53 | 14 | 22 | 54 | 0.19 | <0.5 | 59 | <0.5 | <0.5 | <0.5 | 45 | 77 | | |
| PH15-4' | 4/28/15 | <0.5 | 8.5 | 180 | <1.0 | <0.25 | 43 | 24 | 27 | 27 | 0.18 | 1.4 | 53 | <0.5 | <0.5 | <0.5 | 55 | 210 | | |
| PH15-5' | 4/28/15 | <0.5 | 9.8 | 160 | <1.0 | <0.25 | 48 | 12 | 20 | 7.4 | 0.065 | <0.5 | 38 | <0.5 | <0.5 | <0.5 | 67 | 35 | | |
| **PH16-1'** | 4/28/15 | 3.3 | 48 | 250 | <1.0 | 0.8 | 60 | 19 | 130 | **300** | 0.29 | 1.7 | 59 | <0.5 | <0.5 | <0.5 | 59 | 490 | | |
| **PH16-2.5'** | 4/28/15 | 5.3 | 6.4 | 240 | <0.5 | 1.9 | 54 | 13 | 130 | **400** | 0.20 | 0.56 | 56 | <0.5 | <0.5 | <0.5 | 44 | **960** | **27** | <0.2 |
| **PH16-4'** | 4/28/15 | 3.5 | 5.5 | 240 | 0.59 | 0.83 | 50 | 12 | 76 | **160** | 0.46 | <0.5 | 49 | <0.5 | <0.5 | <0.5 | 53 | 480 | | |
| **PH16-5'** | 4/28/15 | <0.5 | 8.0 | 310 | 0.66 | <0.25 | 40 | **36** | 19 | 9.9 | 0.050 | 0.56 | 42 | <0.5 | <0.5 | <0.5 | 54 | 30 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL

Highlighted data exceeds the industrial/commercial ESL

Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH17-1' | 4/28/15 | 0.70 | 3.9 | 160 | <0.5 | <0.25 | 79 | 13 | 29 | 7.8 | 0.059 | <0.5 | 75 | <0.5 | <0.5 | <0.5 | 51 | 45 | | |
| PH17-2.5' | 4/28/15 | 0.56 | 3.2 | 270 | 0.75 | 0.66 | 55 | 12 | 30 | 40 | 0.25 | <0.5 | 66 | <0.5 | <0.5 | <0.5 | 42 | 170 | | |
| PH17-4' | 4/28/15 | 0.89 | 6.4 | 160 | 0.73 | 1.3 | 59 | 14 | 63 | 23 | 0.24 | 1.3 | 59 | <0.5 | <0.5 | <0.5 | 63 | 470 | | |
| PH17-5' | 4/28/15 | <0.5 | 4.7 | 110 | 0.71 | <0.25 | 43 | 5.6 | 13 | 7.9 | <0.05 | 0.71 | 28 | <0.5 | <0.5 | <0.5 | 47 | 30 | | |
| PH18-1' | 4/28/15 | 2.3 | 9.6 | 440 | 0.53 | <0.25 | 47 | 16 | 52 | **99** | 0.12 | 1.1 | 57 | <0.5 | <0.5 | <0.5 | 63 | 92 | | |
| PH20-2.5' | 10/5/15 | | | | | | | | | 27 | | | | | | | | | | |
| PH21-2.25' | 10/5/15 | | | | | | | | | 900 | | | | | | | | | | |
| PH22-2' | 10/5/15 | | | | | | | | | 420 | | | | | | | | | | |
| PH23-2' | 10/5/15 | | | | | | | | | 1900 | | | | | | | | | | |
| PH24-3' | 10/5/15 | | | | | | | | | 430 | | | | | | | | | | |
| PH25-2' | 10/5/15 | | | | | | | | | 710 | | | | | | | | | | |
| PH26-2' | 10/5/15 | | | | | | | | | 520 | | | | | | | | | | |
| PH27-2.5' | 10/5/15 | | | | | | | | | 5000 | | | | | | | | | | 4.8 |
| PH28-3' | 10/5/15 | | | | | | | | | 920 | | | | | | | | | | |
| PH29-1.5' | 10/5/15 | | | | | | | | | 1000 | | | | | | | | | | |
| PH30.3' | 10/5/15 | | | | | | | | | 10000 | | | | | | | | | | <0.2 |
| PH31-3' | 10/5/15 | | | | | | | | | 5400 | | | | | | | | | | <0.2 |
| PH32-3.5' | 10/5/15 | | | | | | | | | 1900 | | | | | | | | | | |
| PH33-3.5' | 10/5/15 | | | | | | | | | 4700 | | | | | | | | | | |
| PH34-3' | 10/5/15 | | | | | | | | | 4600 | | | | | | | | | | |
| PH35-3' | 10/5/15 | | | | | | | | | 2300 | | | | | | | | | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH36-2' | 10/5/15 | | | | | | | | | 1200 | | | | | | | | | | |
| PH37-2.5' | 10/5/15 | | | | | | | | | 1300 | | | | | | | | | | |
| PH38-3' | 10/5/15 | | | | | | | | | 4300 | | | | | | | | | | |
| PH39-1.5' | 10/5/15 | | | | | | | | | 2100 | | | | | | | | | | |
| PH1,6,11,17-1' comp | 4/28/15 | | 7.5 | 180 | | 1.6 | 45 | | | **250** | 0.17 | | | <0.5 | <0.5 | | | | <0.2 | |
| PH1,6,11,17-2.5' comp | 4/28/15 | | 6.6 | 180 | | <0.25 | 35 | | | 17 | <0.05 | | | <0.5 | <0.5 | | | | | |
| PH1,11,17,4' PH6-3.5'comp | 4/28/15 | | 3.3 | 110 | | <0.25 | 40 | | | 7.5 | 0.12 | | | <0.5 | <0.5 | | | | | |
| PH3-3', 18-3', 12-2.5' comp | | | | | | | | | | **180** | | | | | | | | | | |
| PH1,11,17,5' PH6-4.5'comp | 4/28/15 | | 7.4 | 140 | | <0.25 | 43 | | | 8.1 | 0.054 | | | <0.5 | <0.5 | | | | | |
| PH2,4,14,16-1' comp | 4/28/15 | | 3.9 | 240 | | 0.05 | 67 | | | 22 | 0.23 | | | <0.5 | <0.5 | | | | | |
| PH4,14,16-2' PH2-2.5'comp | 4/28/15 | | 6.2 | 150 | | 1.1 | 45 | | | **270** | 0.21 | | | <0.5 | <0.5 | | | | **12.00** | |
| PH2,4,14,16-4' comp | 4/28/15 | | 1.8 | 42 | | 0.28 | 41 | | | 10 | 0.16 | | | <0.5 | <0.5 | | | | | |
| PH2,4,14,16-5' comp | 4/28/15 | | 5.3 | 130 | | <0.25 | 37 | | | 8.4 | 0.079 | | | <0.5 | <0.5 | | | | | |
| Ph23, 30, 32, 34 comp | 10/5/15 | | 33 | 3200 | | 6.60 | 58.00 | | | **2100.00** | 0.67 | | | <0.5 | 2.20 | | | | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 2
Petroleum Hydrocarbon Concentrations
2592 Lakeville Highway
Petaluma, CA

| Sample ID | Sample Date | TPHg | Benzene | Toluene | Ethylbenzene | Xylenes | MTBE | TPHd | TPHmo |
|---|---|---|---|---|---|---|---|---|---|
| **Previous Investigation Data** | | | | | | | | | |
| PA-3 | 6/18/14 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 89 | 660 |
| CS PA-3 | 2/12/15 | | | | | | | | 1000 |
| CS PA-3N | 2/12/15 | | | | | | | | 150 |
| CS PA-3SW | 2/12/15 | | | | | | | | 130 |
| CS PA-3SE | 2/12/15 | | | | | | | | 590 |
| **Data Collected During Potholing Investigation** | | | | | | | | | |
| PH1,6,11,17-1' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH1,6,11,17-2.5' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH1,11,17,4' PH6-3.5'comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH3-3', 18-3', 12-2.5' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH1,11,17,5' PH6-4.5'comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH2,4,14,16-1' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 2.1 | 5.6 |
| PH4,14,16-2' PH2-2.5'comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 1.3 | 21 |
| PH2,4,14,16-4' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 2.8 | 30 |
| PH2,4,14,16-5' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH28, 30, 32, 34 3' comp | 10/5/15 | 19 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 60 | 78 |
| Res. ESL | | 100 | 0.74 | 9.3 | 4.7 | 11 | 8.4 | 100 | 100 |
| Ind. ESL | | 500 | 1.2 | 9.3 | 4.7 | 11 | 8.4 | 110 | 500 |

all data in mg/kg: milligrams per kilogram
If blank analyte was not analyzed.

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL

# PLATES




Drawn by P. Dellavalle February 2015. Base layers are aerials provided by ArcGIS Online.



California



Sonoma County




Petaluma

**Explanation**

- Site Boundary
- Railroad
- Parcels

0 250 500 1,000

Scale in Feet

CKG Environmental, Inc.

Site Location Map
2592 Lakeville Highway
Petaluma, California

Plate
1




**Explanation**

- Previous Sample Location
- Confirmation Sample Location
- Historic Building Footprints
- Excavation Area
- Site Boundary

N

S

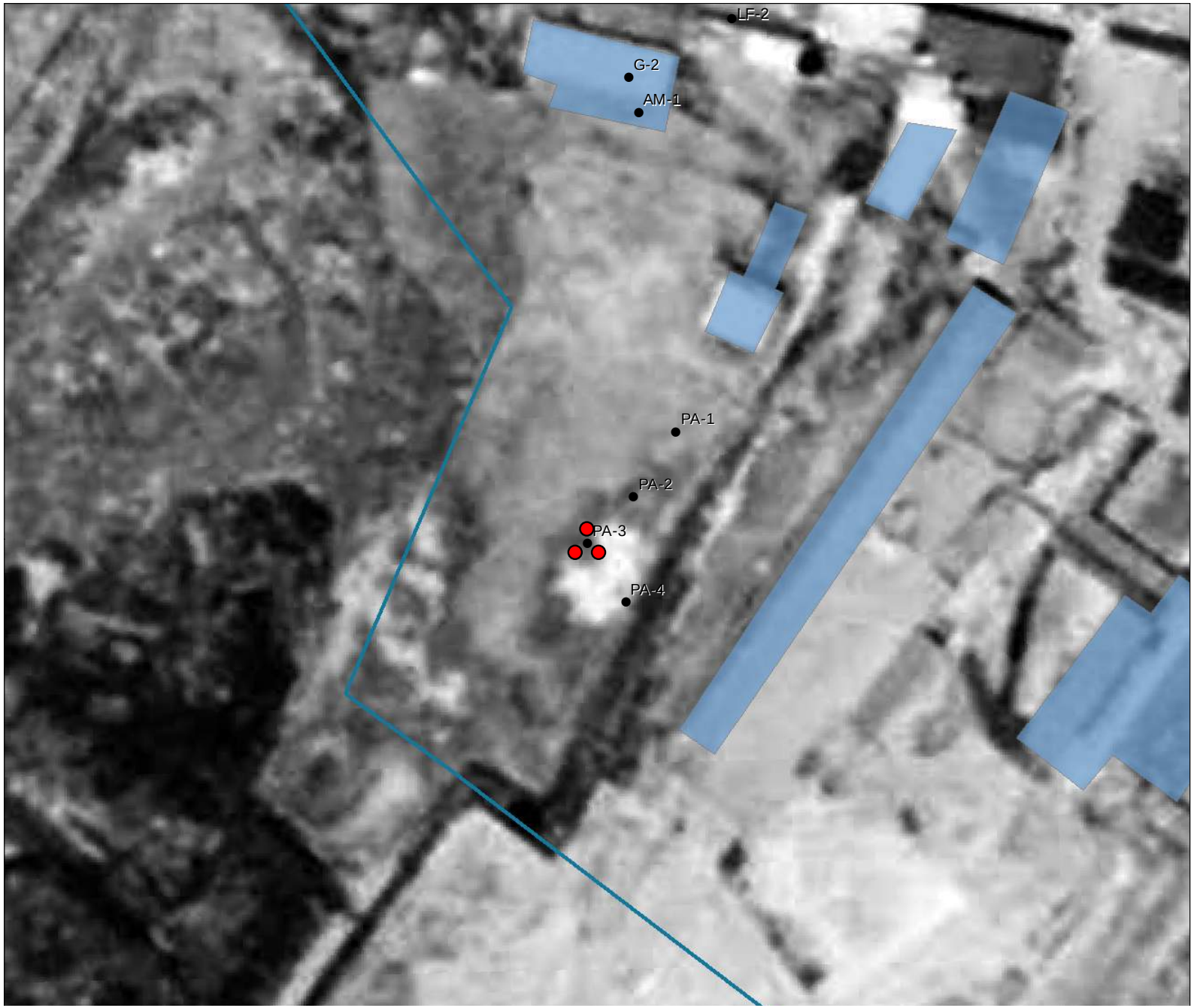
0 80 160

Scale in Feet

CKG Environmental, Inc.

Site Plan and Former Sample Locations
2592 Lakeville Highway
Petaluma, California

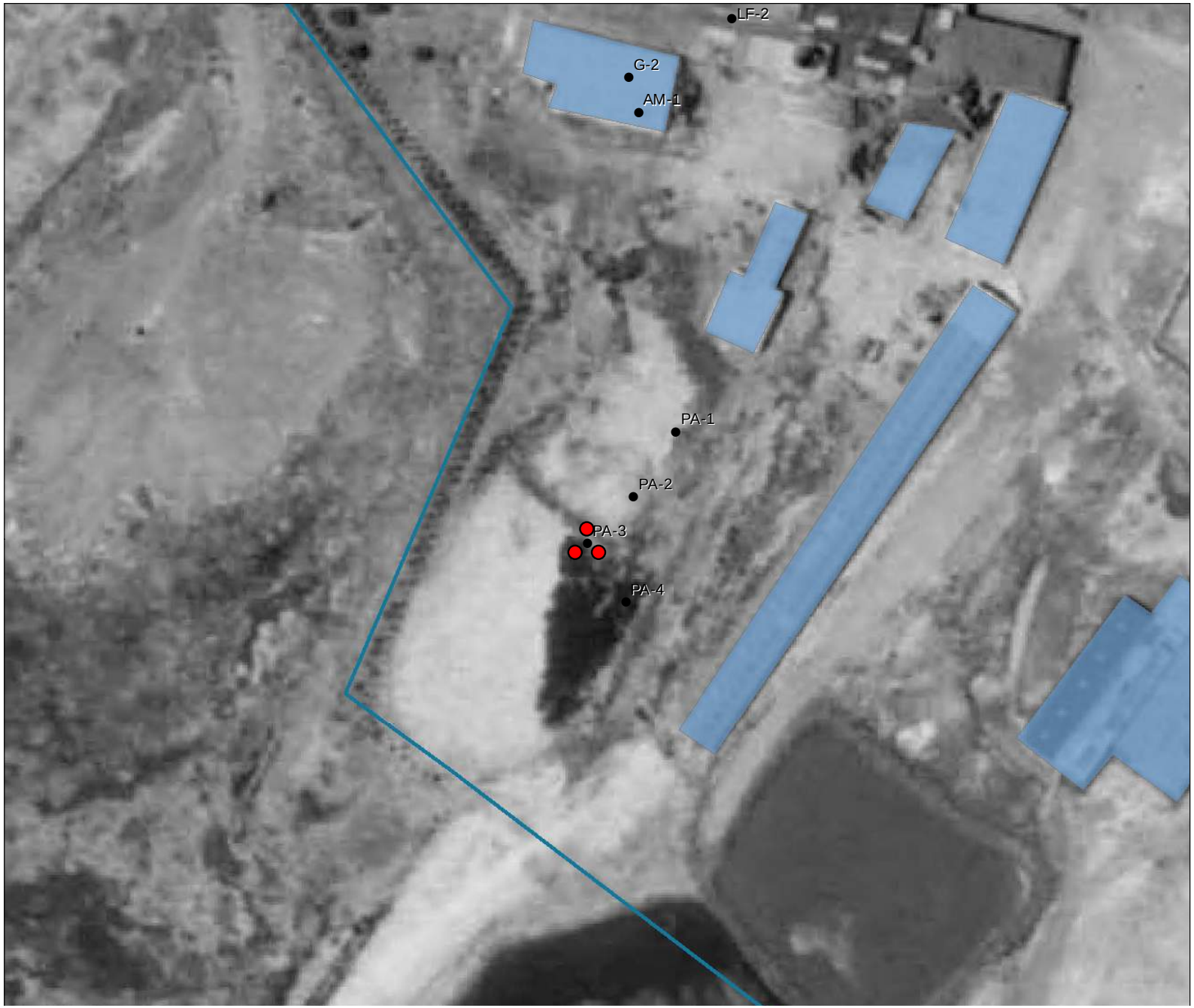
Plate
2




CKG Environmental, Inc.

Site Investigation Area Overlain on 1953 Aerial Photograph
2592 Lakeville Highway
Petaluma, California

Plate
3




**Explanation**

- Sample Location
- Confirmation Sample Location
- Historic Building Footprints
- Site Boundary

N

S

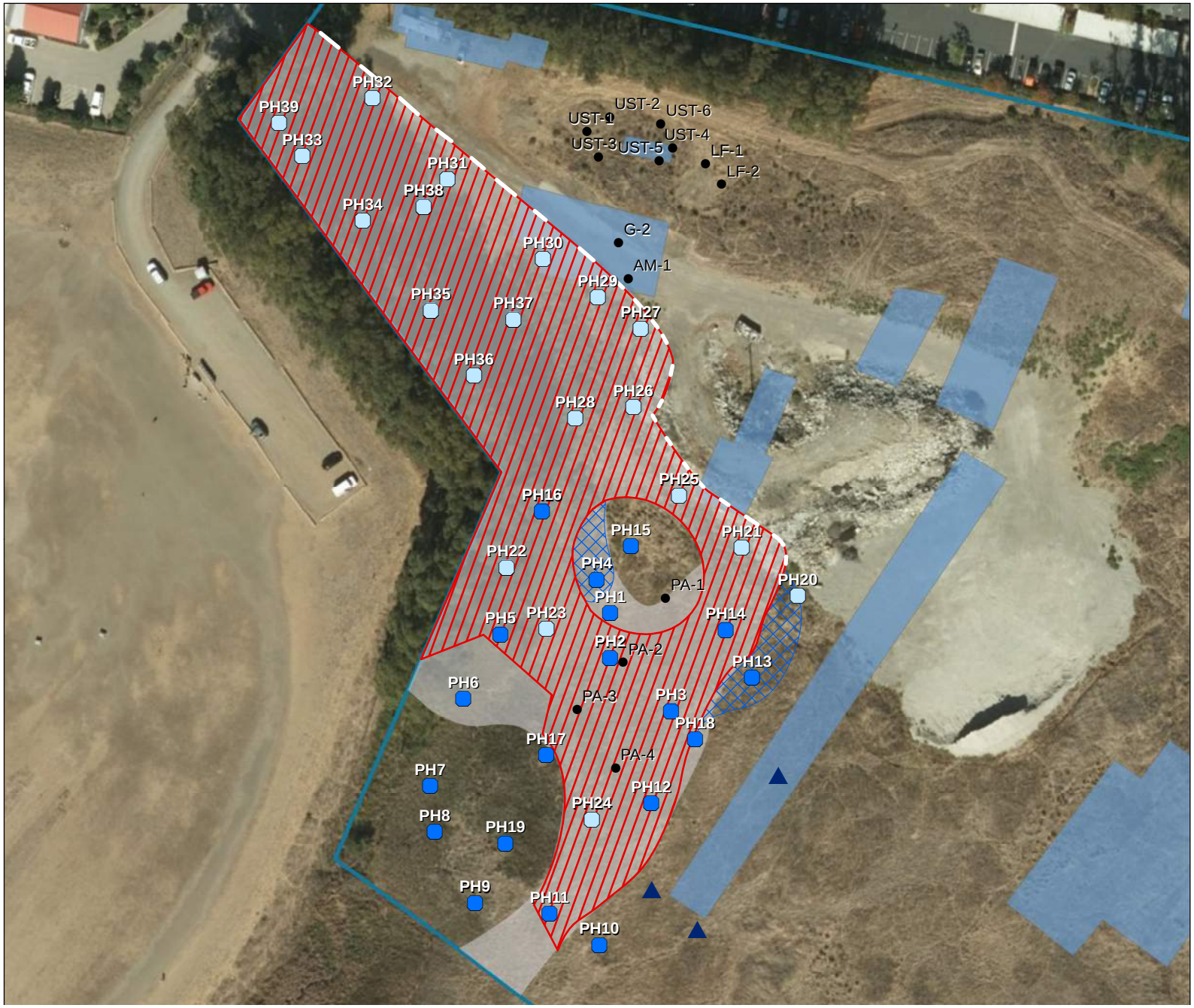
0 50 100

Scale in Feet

CKG Environmental, Inc.

Site Investigation Area Overlain on 1965 Aerial Photograph
2592 Lakeville Highway
Petaluma, California

Plate
4




**Explanation**

- Sample Location
- Pot Hole Location October 2015
- Pot Hole Location April 2015
- Pot Hole Location (No Visible Debris)
- Pb Concentrations > TTLC or STLC Dashed where covered by overburden
- Metal Concentration > Res. ESL
- Pb Conentration > 80 ppm
- Historic Building Footprints
- Site Boundary

N

S

0 50 100

Scale in Feet

CKG Environmental, Inc.

Pot Hole Locations and Residual Lead Map
2592 Lakeville Highway
Petaluma, California

Plate
5

`

# REPORT OF POTHOLING EXPLORATION AND SOIL SAMPLING

## 2592 LAKEVILLE HIGHWAY
## PETALUMA, CALIFORNIA

CKG Environmental, Inc.
P.O. Box 246
St. Helena, CA 94574

`

A Report Prepared for:

Mr. Larry Wasem
Baywood LLC
414 Aviation Boulevard.
Santa Rosa, CA 95403-1069

**REPORT OF POTHOLING EXPLORATION AND SOIL SAMPLING**

**2592 LAKEVILLE HIGHWAY PETALUMA, CALIFORNIA**

August 5, 2015

Prepared by:




Christina J. Kennedy R.G.

Principal

CKG Environmental, Inc.
P.O. Box 246
St. Helena, California 94574
(707) 967-8080

`

## TABLE OF CONTENTS


**1.0 EXECUTIVE SUMMARY ..... 1**

**2.0 INTRODUCTION ..... 3**

2.1 SITE DESCRIPTION ..... 3
2.2 BACKGROUND ..... 3

**3.0 POTHOLE EXCAVATION AND SOIL SAMPLING ..... 6**

3.1 POTHOLE EXCAVATION AND SOIL SAMPLING ..... 6
3.2 CHEMICAL ANALYSIS ..... 6

**4.0 SOIL SAMPLING RESULTS ..... 8**

**5.0 DISCUSSION ..... 9**

**6.0 CONCLUSIONS AND RECOMMENDATIONS ..... 11**

6.1 CONCLUSIONS ..... 11
6.2 RECOMMENDATIONS ..... 11

**7.0 REFERENCES ..... 12**

**8.0 LIMITATIONS ..... 14**

**TABLES**

Table 1 Concentration of Metals in Soil Samples
Table 2 Petroleum Hydrocarbon Concentrations in Soil Samples

**PLATES**

Plate 1 Site Location Map
Plate 2 Site Plan and Former Sample Locations
Plate 3 Site Investigation Area Overlain on 1953 Aerial Photograph
Plate 4 Site Investigation Area Overlain on 1965 Aerial Photograph
Plate 5 Pothole Locations and Residual Lead Map

**APPENDICES**

Appendix A Analytical Laboratory Reports

`

## 1.0 EXECUTIVE SUMMARY

The subject site, located at 2592 Lakeville Highway, Petaluma, California, has been the subject of several subsurface explorations and soil remediation due to a gasoline release from former underground fuel storage tanks at the site. The fuel release was regulated by the County of Sonoma Department of Health Services, Environmental Health Division (SCEHD) and received regulatory closure on July 30, 2004. A subsequent investigation in 2014 by a prospective property buyer uncovered potential concerns in the vicinity of the former wastewater ponds operated at the site. Elevated concentrations of petroleum hydrocarbons and metals were discovered in soil at one location at a depth of approximately 2.5 feet below ground surface. In 2015, CKG Environmental, Inc. completed shallow subsurface sampling to assess the extent of the impact.

This potholing exploration and soil sampling report has confirmed the approximate vertical and lateral extents impacted fill and the associated metals in soil. California hazardous concentrations of lead occur in a “T” shaped area that partially parallels a former drainage ditch then extends westward to the row of trees at the western property line. In this location lead was detected in soil samples at concentrations exceeding both the residential and industrial State of California Regional Water Quality Control Board, San Francisco Bay Region (SFBRWQCB) Environmental Screening Levels (ESLs) and the Califonria Code of Regulations Title 22 Total Threshold Limit Concentration (TTLC) and the Soluble Threshold Limit Concentration (STLC). Materials that exceed the STLC or TTLC are considered California Hazardous Waste for the purposes of disposal. Lead in exceedance of the residential ESL was detected in samples from just outside the boundaries of the California Hazardous Waste area.

In addition to lead, cobalt nickel and zinc were detected at concentrations that also exceeded the residential ESL. These metals exceedances coincide with the lead impacts except in the vicinity of one sample location (PH13)

Based on the results of this sampling approximately 3,666 tons of California Hazardous Waste exists at the Site and another 1500 tons of material exceed the residential ESL. The exact extent of metals impact is uncertain and could be refined with additional sampling. Although there are

`

some uncertainties in the exact volumes of affected materials there is sufficient information to plan and implement a soil remediation project depending on Baywood's proposed future use of the property.

CKG recommends that Baywood LLC submit this report to SCEHD so that they can reopen a case and provide regulatory oversight with respect to future work done at the site. In addition to providing this document to the SCEHD, Baywood LLC should meet with SCEHD to discuss next steps for the site and prepare a Corrective Action Plan to mitigate the elevated metals at the site.

`

## 2.0 INTRODUCTION

The following report presents the results and conclusions of the potholing exploration and soil sampling at 2592 Lakeville Highway, Petaluma, California, conducted by CKG Environmental, Inc.

### 2.1 SITE DESCRIPTION

The subject site (Site) consists of vacant land located to the south of Lakeville Highway and southeast of Casa Grande Road in a mixed commercial and residential area of Petaluma, California (Plate 1). The Site is approximately 13 acres in size and is surrounded by a barbed-wire security fence (Plate 2). The Site is not currently improved.

### 2.2 BACKGROUND

The Site has been the subject of several subsurface explorations and remediation due to the former presence of underground fuel storage tanks. Soil remediation activities were performed to address gasoline-range hydrocarbons present in soil to a depth of 5 feet below grade level (bgl) in the vicinity of two former gasoline UST excavations at the Site, (Plate 2). The former owner, Darling Delaware (Darling) implemented the soil remediation in accordance with the approved Soil Remediation Work Plan for the Site prepared by MFG (MFG, 2000).

Implementation of the Soil Remediation Work Plan began in November 2000 and was completed in August 2002. Between November 2000 and June 2001, approximately 2,390 cubic yards of gasoline impacted soil were removed to a depth of approximately 5 feet bgl from the area of the former gasoline UST excavations. The excavated soil was treated by enhanced bioremediation in on-site stockpiles. After the soil had been successfully treated, it was placed and compacted back into the excavation. All final confirmation samples from each stockpile section demonstrated that the soil reused at the Site did not contain detectable Total Petroleum Hydrocarbons as gasoline (TPHg), at a reporting limit of 1.0 mg/kg or either benzene, toluene, ethylbenzene, or xylenes (BTEX) compounds at a concentration greater than 0.0075 mg/kg.

`

Confirmation soil sample data from excavation sidewalls and floor demonstrated that the TPHg and BTEX remaining in the soil at the Site did not exceed Risk Based Screening Levels (RBSLs), which were selected as the cleanup goals for the Site. The fuel release was regulated by the County of Sonoma Department of Health Services, Environmental Health Division (SCEHD) and received regulatory closure on July 30, 2004.

In 2014, AEI Consultants of Walnut Creek, California, on behalf of DeNova Homes conducted a Phase II subsurface investigation of potential concerns associated with former wastewater ponds operated at the site (AEI Consultants, 2014). Of six samples collected in former pond areas only one sample, PA-3, contained elevated concentrations of analytes as follows:

| Analyte (mg/kg) | PA-3 6/18/2014 |
|---|---|
| TPH mo | 660 |
| Antimony | 22 |
| Copper | 280 |
| Lead | 930 |
| Zinc | 2000 |

AEI sample locations are shown on Plate 2. PA-3 was collected at a depth of 2.5 feet ft bgl and appeared to be below sediments deposited in the former pond. Further, the boring log for PA-3 described debris such as brick and glass fragments in the sample, suggesting that some fill material may have been dumped in the vicinity.

To assess whether PA-3 was an isolated anomaly or was the result of a more widespread impact CKG collected four soil samples with an excavator on February 12, 2015. One sample was collected at the original location of PA-3. The three other samples were collected 10 feet away from PA-3 to the north, southeast, and southwest. All samples were collected from soil excavated from a depth of 2.5 (ft bgl), and analyzed for antimony, copper, lead, zinc, and TPH quantified as motor oil (TPHmo).

TPHmo and the metals antimony, copper, lead, and zinc were detected in all of the soil samples except one in concentrations at or exceeding the State of California Regional Water Quality

`

Control Board, San Francisco Bay Region (SFBRWQCB), Environmental Screening Levels (ESLs) for residential use, (Table 1)

Based on these sampling results CKG concluded that elevated metals and oil in the vicinity of PA-3 were not just anomalous or limited. In addition, debris was noted in all the samples collected.

CKG then evaluated the location and extent of potential past debris disposal by reviewing historical aerial photographs provided by Environmental Data Resources, Inc. (EDR). The aerial photographs reviewed were from various years from 1942 through 2012. Based on the aerial photography it appears that a landfill was operated on the property west of the Site from possibly as early as 1942 through at least 1982. During the early 1950s the landfill activity was close to the boundary between the two properties and it appears that some fill material may have been placed onto the Site. This fill potentially contains materials that have high concentrations of metals. Plate 3 and 4 illustrate sample locations collected by AEI and by CKG in February 2015 overlain onto the 1953 and 1965 aerial photographs. Whitish material and soil disturbances are visible in the southwest corner of the Property in both photographs.

CKG then recommended collecting additional samples to confirm that fill from the adjacent landfill was the source of the detected analytes, and to assess the lateral and vertical extent of impact.

`

# 3.0 POTHOLE EXCAVATION AND SOIL SAMPLING

## 3.1 POTHOLE EXCAVATION AND SOIL SAMPLING

On April 28, 2015, CKG personnel and a hired excavator conducted a pothole exploration program in an area that extends outward from PA-3 and encompasses the southwest corner of the Site, as shown on Plate 5. The maximum planned depth of excavation was 10 ft bgl, which is the maximum depth that could be reached with the excavator. Samples were collected in each sampling location at depths of 1 foot, 2 or 2.5 ft, bgl, and at the base of apparent fill. The maximum depth of the fill encountered during the exploration was approximately 5 ft bgl. The deepest sample from each pothole was collected directly below the maximum depth of the fill in that area. Samples were collected from the excavator bucket in 2-inch-diameter stainless steel sample sleeves which were then sealed, labeled, and stored with ice in an ice chest. Pothole locations are shown on Plate 5. If no debris was observed in a pothole samples were not collected and the area was presumed to be free of elevated metals at that location.

## 3.2 CHEMICAL ANALYSIS

Soil samples were submitted under chain-of-custody to McCampbell Analytical Laboratory in Pittsburg, California. The following chemical analysis was performed on discrete samples collected from the potholes:

- CAM 17 metals by EPA Method 6020

The samples also included four-point composite samples that were made from soil collected at selected sampling locations. These composite samples were analyzed to provide data to characterize the material for future excavation and disposal. These composite samples were analyzed as follows:

- RCRA Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag)
- Volatile Organic Constituents (VOCs)—EPA Method 5035/8260B
- Semivolatile Organic Constituents (SVOCs)—EPA Method 8270D
- Polychlorinated biphenyls (PCBs)—EPA Method 3540/8082A
- TPH as gasoline, diesel and motor oil—EPA Method 8015C

`

If a metal exceeded ten times the Soluble Threshold Limit Concentration (STLC) for the metal, that sample was analyzed for soluble concentrations of the metal. Selected samples that exceeded the STLC also were analyzed by the Toxicity Characteristic Leaching Procedure (TCLP), to evaluate if the materials would be characterized as a RCRA waste.

`

## 4.0 SOIL SAMPLING RESULTS

The following describes the results of the soil sampling and chemical analysis from the April 28, 2015 potholing excavations at the Site. Concentrations of all detected metals are compared to the residential and industrial ESLs, as compiled in the: "Derivation and Application of Environmental Screening Levels", San Francisco Bay Regional Water Quality Control Board, December 2013. Concentrations of metals also were compared to California Code of Regulations (CCR) Title 22 Total Threshold Limit Concentration (TTLC) and the Soluble Threshold Limit Concentration (STLC). Sample results are presented in Table 1. Analytical laboratory reports are included in Appendix A. Pothole locations are presented on Plate 5.

Lead was detected at concentrations exceeding both the residential and industrial ESLs of 80 and 320 milligrams per kilogram (mg/kg) in 22 of 59 discrete samples analyzed and in three of nine composite samples analyzed. Of those samples 12 exceeded the TTLC of 1000 mg/kg. Selected samples where the metals concentration exceeded 10 times the STLC were analyzed for soluble lead. Seven of the 11 samples analyzed for soluble lead exceeded the STLC of 5 mg/l. Seven samples also were analyzed for TCLP lead as shown on Table 2. TCLP lead was not detected above 5 mg/l. Metal distributions are illustrated on Plate 5.

Nickel was detected in soil sample PH4-1' at a concentration exceeding both ESLs. Cobalt was detected in soil samples PH-14, and PH-16 at a concentration exceeding the residential ESL and in PH-13 at a concentration exceeding the residential and industrial ESLs. Zinc was detected in soil samples PH4-4', PH5-2', PH11-2.5', PH12-2.5' PH14-4', and PH16-2.5' at concentrations exceeding both ESLs. These metals were not detected at concentrations exceeding the TTLC or 10 times the STLC. No other metals were detected above any of the screening concentrations in soils samples collected during this sampling event.

No VOCs, SVOCs, or PCBs were detected above laboratory reporting limits in the composite samples analyzed. Low concentrations of petroleum hydrocarbons were detected in composite samples as presented in Table 2. Residential and industrial ESLs for motor oil were exceeded in initial discrete samples but not in the composite samples.

`

## 5.0 DISCUSSION

The potholing exploration program, in addition to previous soil sampling data has confirmed the hypothesis that elevated metals occur at the Site and the source of those metals is debris that was placed at the Site in the past. The main constituent of concern is lead, although there are some elevated concentrations of cobalt, nickel and zinc that for the most part occur with the lead. Minor incidental heavy petroleum hydrocarbons also occur with the debris. There is one location that appears to have a cobalt concentration above its residential ESL without elevated lead. The source of the cobalt is not clear. Only lead has concentrations that exceed its TTLC or STLC. The TCLP for lead was not exceeded.

In the State of California if a constituent exceeds its STLC or TTLC it is considered a California Hazardous Waste for the purposes of disposal. If it also exceeds the TCLP it would be considered a RCRA Hazardous Waste, but the lead TCLP was not exceeded. Based on the potholing exploration and soil sampling results it can be stated that the elevated lead occurs exclusively within the debris, and has not leached into soil below the debris (based on low concentrations of lead in samples collected below the debris). Field observations indicate that the debris occurs typically at a depth of 2.5 feet bgl, although it can be shallower in some locations. Also the debris layer varies from one to three feet thick but is typically approximately 2 feet thick.

The distribution of the lead impacted debris as shown on Plate 5 was interpreted by using the analytical data, field observations, and examining aerial photographs from 1953 and particularly 1965. The boundaries of each impacted area are estimated based on looking for boundaries of what appeared to be disturbed soil in the historic photographs. These boundaries are estimates and some areas are uncertain as indicated by question marks on Plate 5. Despite the uncertainties CKG has calculated approximate volumes of debris that may exist for the waste. These are very rough estimates and could be refined with additional data.

`

California Hazardous Waste (red hatches on Plate 5):

| | |
|---|---|
| Total Area ($ft^2$) | 33,000 $ft^2$ |
| Total Volume ($ft^3$) | 66,000 $ft^2$ |
| Total Volume ($yards^3$) | 2,444 $yd^3$ |
| Total Tonnage (1.5x $yd^3$) | 3,666 tons |

Non Hazardous Soil to be Disposed to meet Residential ESL

| | |
|---|---|
| Total Area ($ft^2$) | 13,500 $ft^2$ |
| Total Volume ($ft^3$) | 27,000 $ft^2$ |
| Total Volume ($yards^3$) | 1,000 $yd^3$ |
| Total Tonnage (1.5x $yd^3$) | 1,500 tons |

`

# 6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the potholing exploration and soil sampling results the following conclusions and recommendations can be made:

## 6.1 CONCLUSIONS

This potholing exploration and soil sampling event has confirmed the approximate vertical and lateral extents of the fill and the associated metals in it.

Based on the results of this sampling approximately 3,666 tons of California Hazardous Waste exists at the Site and another 1500 tons of material exceed the residential ESL.

The exact extent of metals impacts are uncertain and could be refined with additional sampling.

Although there are some uncertainties in the exact volumes of affected materials there is sufficient information to plan and implement a soil remediation project depending on Baywood's proposed future use of the property.

## 6.2 RECOMMENDATIONS

CKG recommends that Baywood LLC. Submit this report to SCEHD so that they can reopen a case and provide regulatory oversight with respect to future work done at the site.

In addition to providing this document to the SCEHD, Baywood LLC should meet with SCEHD to discuss next steps for the site and prepare a Corrective Action Plan to mitigate the elevated metals at the site.

`

## 7.0 REFERENCES


AEI Consultants, *Draft Phase II Subsurface Investigation, 2592 Lakeville Highway, Petaluma, California,* September 2, 2014.

California Regional Water Quality Control Board – San Francisco Bay Region, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Final*, December 2013.

CKG Environmental, Inc., 2015 *Technical Memorandum, Summary of Soil Sampling to Confirm AEI findings at PA-3, 2592 Lakeville Highway, Petaluma, CA,* March 13, 2015.

California Regional Water Quality Control Board (RWQCB). 2013 Application *of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater, Interim Final*. December 2013.

Delta Environmental Consultants, Inc. (Delta).1996.*Monitoring Well Installation and Ground Water Sampling Results*. December 3, 1996

Delta Environmental Consultants, Inc. (Delta).1997.*Well Destruction Report*. June 9, 1997

Delta Environmental Consultants, Inc. (Delta).2000.*Appendix B Closure Report,* Darling International, Inc., Former Royal Tallow & Soap Company Property, 2592 Lakeville Highway, Petaluma, California. March 30, 2000.

Duvergé, Dylan Jacques, *Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region,* Masters Thesis, San Francisco State University, 2011.

Ecology and Environmental, Inc. (EEl). 1990. *Royal Tallow and Soap Company, Petaluma, California, Underground Storage Tank Site Characterization Report*. August 14, 1990.

Ecology and Environmental, Inc. (EEl). 1991. *Royal Tallow and Soap Company, Petaluma, California, Supplemental Site Characterization Report.* August 23, 1991.

MFG, Inc.2000. *Remediation Work Plan, Former Royal Tallow and Soap Facility, 2592 Lakeville Highway, Petaluma, California.* October 25, 2000.

Risk-Based Decisions (RBD). 1996. *Risk-Based Corrective Action Report for the Former Royal Tallow and Soap Company Site in Petaluma, California.* January 29, 1996

Sonoma County Department of Health Services, Environmental Health Division (SCDHS-EHD). 2000a. Letter to Darling International, Inc. -*Subject: 2592 Lakeville Highway, Petaluma-Leaking Underground Storage Tank Site,* [SCDHS-EHD Site# 1359, SFBRWQB Site #49-0142}. April 20, 2000.

Sonoma County Department of Health Services, Environmental Health Division (SCDHS-EHD). 2000b. Letter to Darling International, Inc. -*Subject: 2592 Lakeville Highway, Petaluma-*

`

*Leaking Underground Storage Tank Site*, [SCDHS-EHD Site # 1359, SFBRWQB Site #49-0142]. October 30. 2000.

Sonoma County Department of Health Services, Environmental Health Division (SCDHS-EHD). 2001. Letter to Darling International, Inc. -*Subject: 2592 Lakeville Highway, Petaluma - Leaking Underground Storage Tank Site,* SCDHS-EHD Site # 1359, SFBRWQB Site #49-0142, Review of Analytical Test Results for Excavation of Contaminated Soil and Exploratory Step-out Borings. June 11. 2001,

`

## 8.0 LIMITATIONS

CKG Environmental, Inc. prepared this report in accordance with generally accepted standards of care which exist in Northern California at this time. It should be recognized that definition and evaluation of geologic and environmental conditions is a difficult and an inexact science.

Conclusions and recommendations presented in this report are based on the results of excavating potholes and collecting soil samples and quantitative analysis of those samples conducted by McCampbell Analytical. Only work described herein was performed. As such CKG cannot render opinions on issues not resulting directly from the work performed.

Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present. More extensive studies, including additional subsurface investigations, may be performed to reduce uncertainties. If the client wishes to reduce the uncertainties of this investigation, CKG should be notified for additional consultation. No warranty, expressed or implied, is made.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify CKG of such intended use. Based on the intended use of the report, CKG may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release CKG from any liability resulting from the use of this report by any unauthorized party.

# TABLES

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Previous Investigation Data** | | | | | | | | | | | | | | | | | | | | |
| PA-3 | 6/18/14 | 22 | | | | | | | 280 | 930 | | | | | | | | 2000 | | |
| CS PA-3 | 2/12/15 | 18 | | | | | | | 270 | 1800 | | | | | | | | 4300 | | |
| CS PA-3N | 2/12/15 | 20 | | | | | | | 810 | 1400 | | | | | | | | 3400 | | |
| CS PA-3SW | 2/12/15 | 24 | | | | | | | 1300 | 2800 | | | | | | | | 3900 | | |
| CS PA-3SE | 2/12/15 | 25 | | | | | | | 670 | 1500 | | | | | | | | 3600 | | |
| **Data Collected During Potholing Investigation** | | | | | | | | | | | | | | | | | | | | |
| PH1-1' | 4/28/15 | <0.5 | 1.9 | 170 | 0.56 | <0.25 | 34 | 7.9 | 18 | 6.40 | 0.17 | <0.5 | 40 | <0.5 | <0.5 | <0.5 | 30 | 31 | | |
| **PH1-2.5'** | 4/28/15 | 2.6 | 6.7 | 180 | <0.5 | 1.7 | 45 | 14 | 49 | **250** | 0.19 | 0.74 | 38 | <0.5 | <0.5 | <0.5 | 32 | 620 | 2.8 | <0.2 |
| PH1-4' | 4/28/15 | <0.5 | 4.0 | 310 | 0.92 | 0.28 | 62 | 9.4 | 33 | 20 | 0.10 | 0.69 | 44 | <0.5 | <0.5 | <0.5 | 57 | 81 | | |
| PH1-5' | 4/28/15 | <0.5 | 6.9 | 180 | 0.62 | <0.25 | 34 | 7.1 | 24 | 16 | <0.05 | 0.54 | 29 | <0.5 | <0.5 | <0.5 | 33 | 58 | | |
| PH2-2.5" | 4/28/15 | | | | | | | | | **1300** | | | | | | | | | | <0.2 |
| PH3-1.5' | 4/28/15 | <0.5 | 2.8 | 100 | <0.5 | <0.25 | 34 | 10 | 15 | 6.6 | 0.098 | <0.5 | 37 | <0.5 | <0.5 | <0.5 | 30 | 29 | | |
| PH3-3' | 4/28/15 | 3.9 | 15 | 270 | <0.5 | 2.1 | 65 | 13 | 170 | **520** | 0.63 | 3.3 | 78 | <0.5 | <0.5 | <0.5 | 45 | 690 | **18** | |
| PH3-4' | 4/28/15 | <0.5 | 1.8 | 38 | 0.52 | <0.25 | 40 | 6.7 | 28 | 9.2 | 0.13 | 0.6 | 37 | <0.5 | <0.5 | <0.5 | 29 | 54 | | |
| **PH4-1'** | 4/28/15 | <0.5 | 1.8 | 190 | 0.58 | <0.25 | 32 | 7.2 | 18 | 6.3 | 0.15 | <0.5 | **335** | <0.5 | <0.5 | <0.5 | 26 | 29 | 1.7 Ni | |
| PH4-2.5' | 4/28/15 | 0.65 | 6.6 | 160 | 0.58 | 0.27 | 41 | 14 | 32 | 50 | 0.12 | 0.63 | 44 | <0.5 | <0.5 | <0.5 | 36 | 200 | | |
| **PH4-4'** | 4/28/15 | 2.5 | 6.5 | 180 | 0.58 | 0.86 | 53 | 13 | 94 | **240** | 0.36 | 0.67 | 50 | <0.5 | <0.5 | <0.5 | 46 | **1100** | 4.8 | |
| PH4-5' | 4/28/15 | <0.5 | 9.8 | 150 | 0.84 | <0.25 | 40 | 11 | 22 | 8.7 | 0.062 | 0.53 | 44 | <0.5 | <0.5 | <0.5 | 52 | 36 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PH5-2'** | 4/28/15 | 50 | 7.4 | 320 | <0.25 | 2.4 | 54 | 11 | 210 | **1900** | 0.42 | 0.7 | 58 | <0.5 | 0.69 | <0.5 | 39 | **1300** | **110** | 0.77 |
| PH5-4' | 4/28/15 | 1.8 | 2.4 | 220 | 0.88 | 0.54 | 48 | 12 | 41 | 43 | 0.28 | <0.5 | 55 | <0.5 | <0.5 | <0.5 | 38 | 160 | | |
| PH5-5' | 4/28/15 | <0.5 | 3.2 | 140 | 0.63 | <0.25 | 38 | 7.1 | 18 | 7.8 | <0.05 | <0.5 | 36 | <0.5 | <0.5 | <0.5 | 43 | 25 | | |
| PH6-1' | 4/28/15 | <0.5 | 3.7 | 140 | 0.69 | <0.25 | 43 | 12 | 24 | 13 | 0.14 | <0.5 | 41 | <0.5 | <0.5 | <0.5 | 39 | 44 | | |
| **PH6-2.5'** | 4/28/15 | 1.9 | 4.4 | 160 | 0.56 | 0.83 | 54 | 15 | 55 | **120** | 0.14 | <0.5 | 65 | <0.5 | <0.5 | <0.5 | 37 | 330 | 3.0 | |
| PH6-3.5 | 4/28/15 | <0.5 | 4.7 | 110 | 0.84 | 0.32 | 53 | 9.6 | 34 | 10 | 0.19 | 0.83 | 55 | <0.5 | <0.5 | <0.5 | 45 | 72 | | |
| PH6-4.5' | 4/28/15 | <0.5 | 6.5 | 170 | 0.64 | <0.25 | 34 | 25 | 19 | 10 | <0.05 | 0.54 | 37 | <0.5 | <0.5 | <0.5 | 35 | 27 | | |
| PH7-2' | 4/28/15 | 0.56 | 3.6 | 190 | 0.55 | <0.25 | 64 | 18 | 29 | 14 | 0.094 | <0.5 | 77 | <0.5 | <0.5 | <0.5 | 46 | 53 | | |
| PH7-3' | 4/28/15 | <0.5 | 2.6 | 140 | 0.67 | <0.25 | 40 | 18 | 23 | 11 | 0.11 | <0.5 | 50 | <0.5 | <0.5 | <0.5 | 39 | 41 | | |
| PH7-4' | 4/28/15 | <0.5 | 5.9 | 100 | 0.51 | <0.25 | 38 | 5.1 | 21 | 5.7 | 0.081 | 2.3 | 26 | <0.5 | <0.5 | <0.5 | 38 | 37 | | |
| PH8-2' | 4/28/15 | <0.5 | 3.3 | 180 | 0.67 | <0.25 | 43 | 13 | 22 | 9.9 | 0.14 | <0.5 | 46 | <0.5 | <0.5 | <0.5 | 37 | 37 | | |
| PH8-4' | 4/28/15 | <0.5 | 4.7 | 66 | 0.5 | <0.25 | 44 | 9.1 | 25 | 19 | 0.19 | <0.5 | 43 | <0.5 | <0.5 | <0.5 | 39 | 78 | | |
| PH9-2' | 4/28/15 | <0.5 | 2.1 | 110 | 0.57 | <0.25 | 35 | 8.8 | 17 | 6.8 | 0.088 | <0.5 | 35 | <0.5 | <0.5 | <0.5 | 28 | 28 | | |
| PH9-4' | 4/28/15 | 1.2 | 7.9 | 160 | 0.7 | 0.44 | 73 | 12 | 56 | 59 | 0.41 | 0.97 | 68 | <0.5 | <0.5 | <0.5 | 60 | 220 | | |
| PH10-2' | 4/28/15 | 0.72 | 7.0 | 250 | 0.8 | 0.43 | 54 | 17 | 38 | 38 | 0.18 | 0.66 | 65 | <0.5 | <0.5 | <0.5 | 53 | 210 | | |
| PH10-4' | 4/28/15 | 1.2 | 6.8 | 220 | 0.66 | 0.85 | 64 | 11 | 78 | 66 | 0.27 | 0.88 | 78 | <0.5 | <0.5 | <0.5 | 55 | 260 | | |
| PH11-1' | 4/28/15 | <0.5 | 3.1 | 210 | 0.79 | <0.25 | 53 | 8.7 | 26 | 11 | 0.16 | <0.5 | 47 | <0.5 | <0.5 | <0.5 | 45 | 44 | | |
| **PH11-2.5'** | 4/28/15 | 3.5 | 13 | 250 | 0.67 | 3.5 | 63 | 16 | 140 | **500** | 0.94 | 1.6 | 70 | <0.5 | 0.51 | <0.5 | 53 | **1400** | **41** | <0.2 |
| PH11-4' | 4/28/15 | <0.5 | 8.9 | 180 | 0.65 | 0.49 | 78 | 13 | 44 | 24 | 0.51 | 0.64 | 77 | <0.5 | <0.5 | <0.5 | 61 | 160 | | |
| PH11-5' | 4/28/15 | <0.5 | 14 | 67 | 0.62 | 0.32 | 46 | 6.9 | 44 | 12 | 0.15 | 1.9 | 35 | 0.57 | <0.5 | <0.5 | 49 | 57 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1
Concentration of Metals in Soil Samples
2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH12-1' | 4/28/15 | <0.5 | 3.1 | 290 | <1.0 | <0.25 | 52 | 9.5 | 25 | 7.6 | 0.24 | <0.5 | 52 | <0.5 | <0.5 | <0.5 | 46 | 40 | | |
| **PH12-2.5'** | 4/28/15 | 2.3 | 11 | 240 | <1.0 | 2.3 | 57 | 16 | 89 | **290** | 0.42 | 1.0 | 60 | <0.5 | <0.5 | <0.5 | 46 | **810** | **10** | <0.2 |
| PH12-3.5' | 4/28/15 | 0.8 | 4.3 | 87 | <1 | 1 | 49 | 9.2 | 77 | 85 | 0.38 | <0.5 | 50 | <0.5 | <0.5 | <0.5 | 36 | 350 | | |
| PH12-4.5' | 4/28/15 | <0.5 | 2.5 | 140 | <1.0 | 0.78 | 25 | 4.2 | 30 | 6.4 | 0.078 | 1.0 | 36 | 0.7 | <0.5 | <0.5 | 31 | 62 | | |
| **PH13-2'** | 4/28/15 | <0.5 | 4.0 | 110 | <1.0 | <0.25 | 32 | **115** | 16 | 14 | 0.10 | 0.76 | 45 | <0.5 | <0.5 | <0.5 | 33 | 44 | | |
| PH13-4' | 4/28/15 | <0.5 | 6.4 | 160 | <1.0 | <0.25 | 31 | 12 | 14 | 5.9 | 0.056 | <05 | 33 | <0.5 | <0.5 | <0.5 | 45 | 29 | | |
| PH14-1' | 4/28/15 | 0.78 | 3.5 | 120 | <1.0 | 2.7 | 58 | 14 | 31 | 40 | 0.21 | <0.5 | 53 | <0.5 | <0.5 | <0.5 | 62 | 95 | | |
| PH14-2.5' | 4/28/15 | 0.62 | 3.5 | 180 | <0.5 | <0.25 | 50 | 15 | 26 | 21 | 0.18 | <0.5 | 48 | <0.5 | <0.5 | <0.5 | 51 | 80 | | |
| **PH14-4'** | 4/28/15 | 3.8 | 8.2 | 160 | <1.0 | 2.3 | 58 | 15 | 92 | **390** | 0.45 | 1.5 | 64 | <0.5 | <0.5 | <0.5 | 62 | **840** | **15** | 0.87 |
| **PH14-5'** | 4/28/15 | <0.5 | 8.1 | 210 | <1.0 | <0.25 | 41 | **44** | 17 | 8.9 | 0.051 | 0.93 | 44 | <0.5 | <0.5 | <0.5 | 59 | 33 | | |
| PH15-2' | 4/28/15 | <0.5 | 6.9 | 160 | <1.0 | <0.25 | 53 | 14 | 22 | 54 | 0.19 | <0.5 | 59 | <0.5 | <0.5 | <0.5 | 45 | 77 | | |
| PH15-4' | 4/28/15 | <0.5 | 8.5 | 180 | <1.0 | <0.25 | 43 | 24 | 27 | 27 | 0.18 | 1.4 | 53 | <0.5 | <0.5 | <0.5 | 55 | 210 | | |
| PH15-5' | 4/28/15 | <0.5 | 9.8 | 160 | <1.0 | <0.25 | 48 | 12 | 20 | 7.4 | 0.065 | <0.5 | 38 | <0.5 | <0.5 | <0.5 | 67 | 35 | | |
| **PH16-1'** | 4/28/15 | 3.3 | 48 | 250 | <1.0 | 0.8 | 60 | 19 | 130 | **300** | 0.29 | 1.7 | 59 | <0.5 | <0.5 | <0.5 | 59 | 490 | | |
| **PH16-2.5'** | 4/28/15 | 5.3 | 6.4 | 240 | <0.5 | 1.9 | 54 | 13 | 130 | **400** | 0.20 | 0.56 | 56 | <0.5 | <0.5 | <0.5 | 44 | **960** | **27** | <0.2 |
| **PH16-4'** | 4/28/15 | 3.5 | 5.5 | 240 | 0.59 | 0.83 | 50 | 12 | 76 | **160** | 0.46 | <0.5 | 49 | <0.5 | <0.5 | <0.5 | 53 | 480 | | |
| **PH16-5'** | 4/28/15 | <0.5 | 8.0 | 310 | 0.66 | <0.25 | 40 | **36** | 19 | 9.9 | 0.050 | 0.56 | 42 | <0.5 | <0.5 | <0.5 | 54 | 30 | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL
Highlighted data exceeds the STLC or TTLC

TABLE 1

Concentration of Metals in Soil Samples

2592 Lakeville Highway, Petaluma, CA

| Sample ID | Sample Date | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc | STLC Lead | TCLP Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH17-1' | 4/28/15 | 0.70 | 3.9 | 160 | <0.5 | <0.25 | 79 | 13 | 29 | 7.8 | 0.059 | <0.5 | 75 | <0.5 | <0.5 | <0.5 | 51 | 45 | | |
| PH17-2.5' | 4/28/15 | 0.56 | 3.2 | 270 | 0.75 | 0.66 | 55 | 12 | 30 | 40 | 0.25 | <0.5 | 66 | <0.5 | <0.5 | <0.5 | 42 | 170 | | |
| PH17-4' | 4/28/15 | 0.89 | 6.4 | 160 | 0.73 | 1.3 | 59 | 14 | 63 | 23 | 0.24 | 1.3 | 59 | <0.5 | <0.5 | <0.5 | 63 | 470 | | |
| PH17-5' | 4/28/15 | <0.5 | 4.7 | 110 | 0.71 | <0.25 | 43 | 5.6 | 13 | 7.9 | <0.05 | 0.71 | 28 | <0.5 | <0.5 | <0.5 | 47 | 30 | | |
| PH18-1' | 4/28/15 | 2.3 | 9.6 | 440 | 0.53 | <0.25 | 47 | 16 | 52 | **99** | 0.12 | 1.1 | 57 | <0.5 | <0.5 | <0.5 | 63 | 92 | | |
| PH1,6,11,17-1' comp | 4/28/15 | | 7.5 | 180 | | 1.6 | 45 | | | **250** | 0.17 | | | <0.5 | <0.5 | | | | | <0.2 |
| PH1,6,11,17-2.5' comp | 4/28/15 | | 6.6 | 180 | | <0.25 | 35 | | | 17 | <0.05 | | | <0.5 | <0.5 | | | | | |
| PH1,11,17,4' PH6-3.5'comp | 4/28/15 | | 3.3 | 110 | | <0.25 | 40 | | | 7.5 | 0.12 | | | <0.5 | <0.5 | | | | | |
| PH3-3', 18-3', 12-2.5' comp | | | | | | | | | | **180** | | | | | | | | | | |
| PH1,11,17,5' PH6-4.5'comp | 4/28/15 | | 7.4 | 140 | | <0.25 | 43 | | | 8.1 | 0.054 | | | <0.5 | <0.5 | | | | | |
| PH2,4,14,16-1' comp | 4/28/15 | | 3.9 | 240 | | 0.05 | 67 | | | 22 | 0.23 | | | <0.5 | <0.5 | | | | | |
| PH4,14,16-2' PH2-2.5'comp | 4/28/15 | | 6.2 | 150 | | 1.1 | 45 | | | **270** | 0.21 | | | <0.5 | <0.5 | | | | **12.00** | |
| PH2,4,14,16-4' comp | 4/28/15 | | 1.8 | 42 | | 0.28 | 41 | | | 10 | 0.16 | | | <0.5 | <0.5 | | | | | |
| PH2,4,14,16-5' comp | 4/28/15 | | 5.3 | 130 | | <0.25 | 37 | | | 8.4 | 0.079 | | | <0.5 | <0.5 | | | | | |
| Res. ESL | | 20 | 11* | 750 | 4.0 | 12 | 1000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 10 | 20 | 0.78 | 200 | 600 | | |
| Ind. ESL | | 20 | 11* | 1500 | 8 | 12 | 2500 | 80 | 230 | 320 | 10 | 40 | 150 | 10 | 40 | 10 | 200 | 600 | | |
| TTLC | | 500 | 500 | 10,000 | 75 | 100 | 2500 | 8,000 | 2500 | 1000 | 20 | 3500 | 2000 | 100 | 500 | 700 | 2400 | 5000 | 1000 | |
| STLC | | 15 | 5 | 100 | 0.75 | 1 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1.0 | 5 | 7 | 24 | 250 | 5 | |

mg/kg: milligrams per kilogram

Highlighted data exceeds the ESL

Highlighted data exceeds the industrial/commercial ESL

Highlighted data exceeds the STLC or TTLC

TABLE 2
Petroleum Hydrocarbon Concentrations
2592 Lakeville Highway
Petaluma, CA

| Sample ID | Sample Date | TPHg | Benzene | Toluene | Ethylbenzene | Xylenes | MTBE | TPHd | TPHmo |
|---|---|---|---|---|---|---|---|---|---|
| **Previous Investigation Data** | | | | | | | | | |
| PA-3 | 6/18/14 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 89 | 660 |
| CS PA-3 | 2/12/15 | | | | | | | | 1000 |
| CS PA-3N | 2/12/15 | | | | | | | | 150 |
| CS PA-3SW | 2/12/15 | | | | | | | | 130 |
| CS PA-3SE | 2/12/15 | | | | | | | | 590 |
| **Data Collected During Potholing Investigation** | | | | | | | | | |
| PH1,6,11,17-1' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH1,6,11,17-2.5' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH1,11,17,4' PH6-3.5'comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH3-3', 18-3', 12-2.5' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH1,11,17,5' PH6-4.5'comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| PH2,4,14,16-1' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 2.10 | 5.6 |
| PH4,14,16-2' PH2-2.5'comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 1.30 | 21 |
| PH2,4,14,16-4' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | 2.80 | 30 |
| PH2,4,14,16-5' comp | 4/28/15 | <1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 | <1 | <5 |
| | | | | | | | | | |
| Res. ESL | | 100 | 0.74 | 9.3 | 4.7 | 11 | 8.4 | 100 | 100 |
| Ind. ESL | | 500 | 1.2 | 9.3 | 4.7 | 11 | 8.4 | 110 | 500 |

all data in mg/kg: milligrams per kilogram
If blank analyte was not analyzed.

Highlighted data exceeds the ESL
Highlighted data exceeds the industrial/commercial ESL

# PLATES




Drawn by P. Dellavalle February 2015. Base layers are aerials provided by ArcGIS Online.



California



Sonoma County




Petaluma

**Explanation**

- Site Boundary
- Railroad
- Parcels

0 250 500 1,000

Scale in Feet

CKG Environmental, Inc.

Site Location Map
2592 Lakeville Highway
Petaluma, California

Plate
1




**Explanation**

- Previous Sample Location
- Confirmation Sample Location
- Historic Building Footprints
- Excavation Area
- Site Boundary

N

S

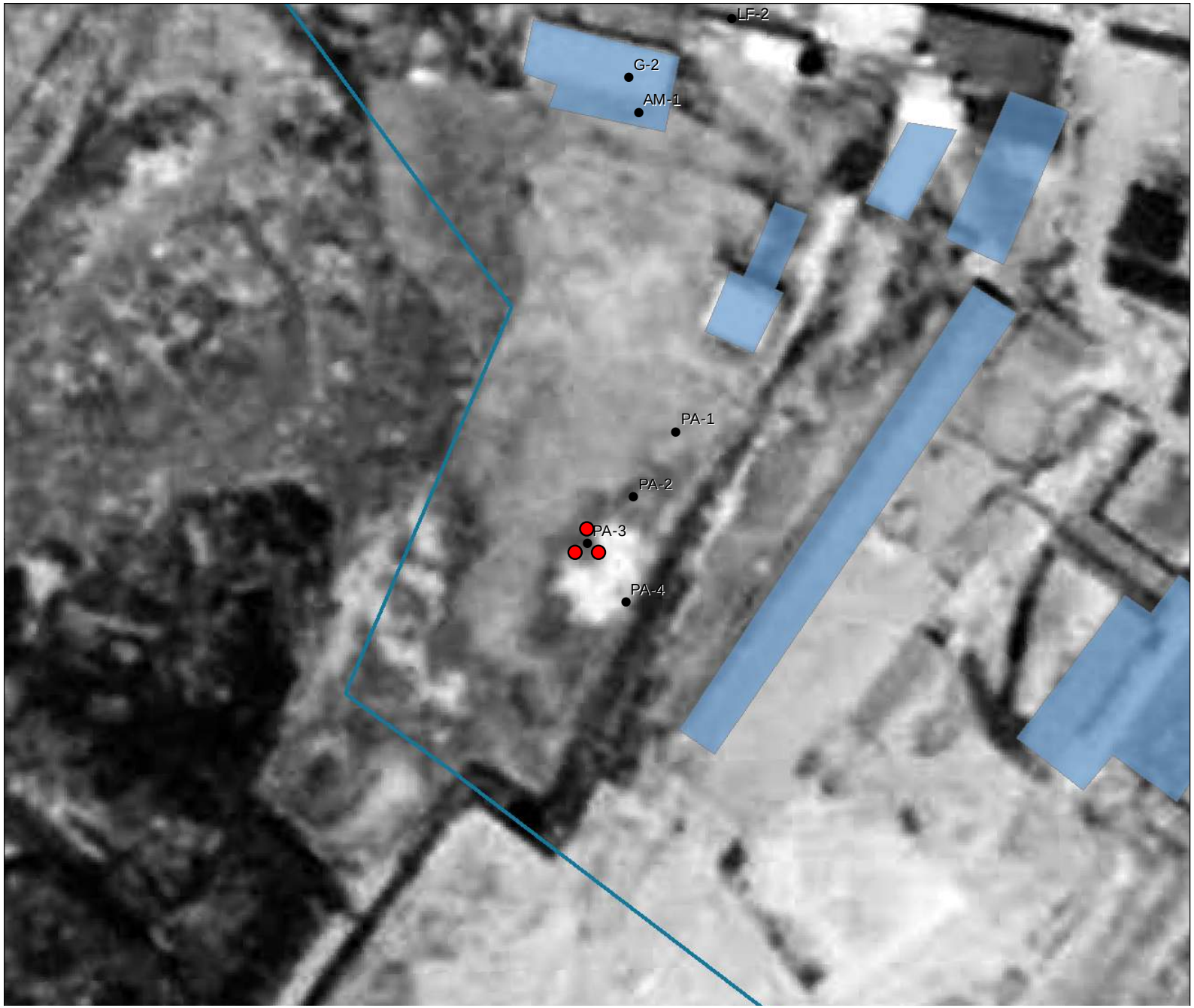
0 80 160

Scale in Feet

CKG Environmental, Inc.

Site Plan and Former Sample Locations
2592 Lakeville Highway
Petaluma, California

Plate
2




**Explanation**

- Sample Location
- Confirmation Sample Location
- Historic Building Footprints
- Site Boundary

N

S

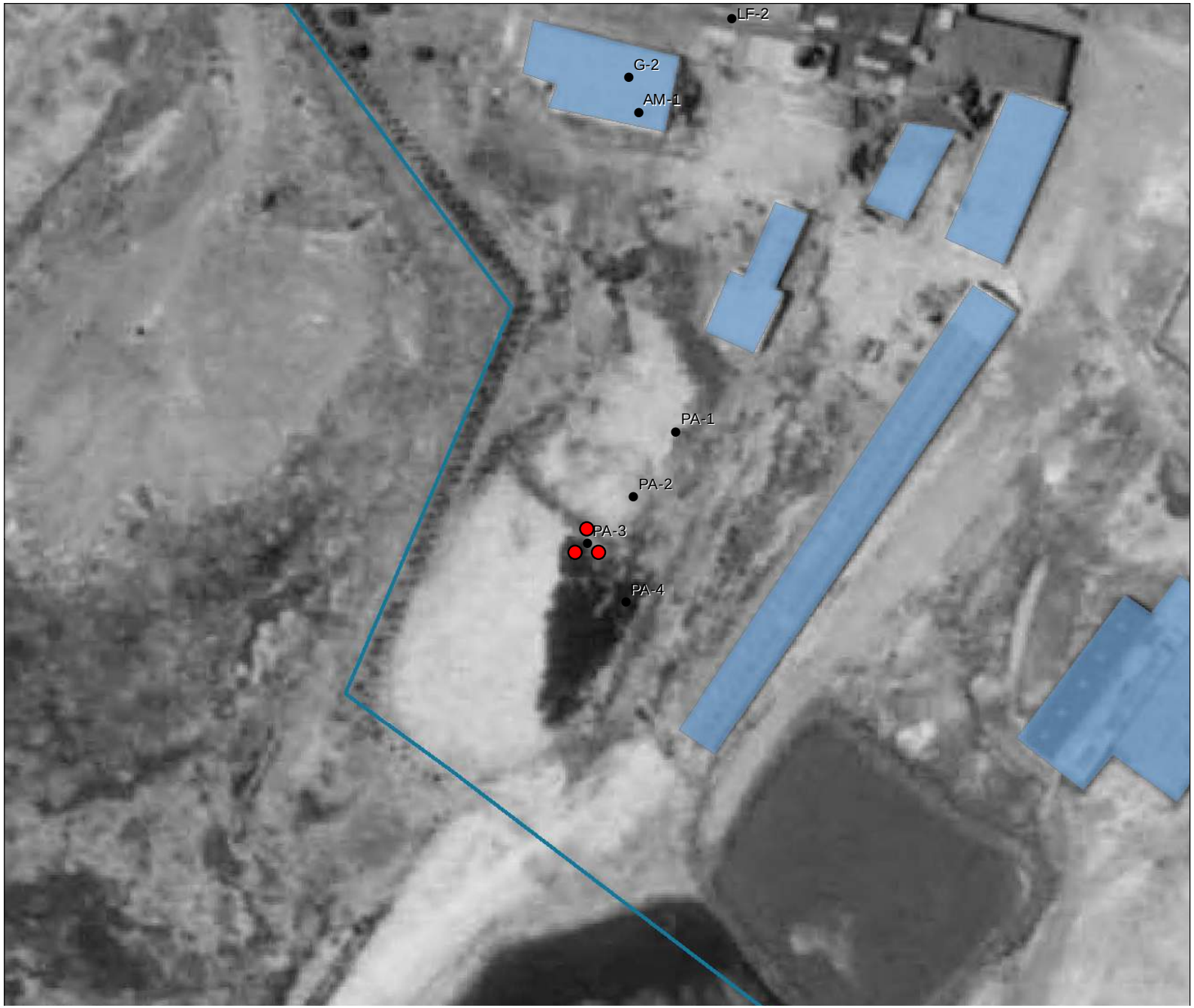
0 50 100

Scale in Feet

CKG Environmental, Inc.

Site Investigation Area Overlain on 1953 Aerial Photograph
2592 Lakeville Highway
Petaluma, California

Plate
3




**Explanation**

- Sample Location
- Confirmation Sample Location
- Historic Building Footprints
- Site Boundary

N

S

0 50 100

Scale in Feet

CKG Environmental, Inc.

Site Investigation Area Overlain on 1965 Aerial Photograph
2592 Lakeville Highway
Petaluma, California

Plate
4




**Explanation**

- Sample Location
- Pot Hole Location
- Pot Hole Location (No Visible Debris)
- Confirmation Sample Location
- Pb Concentrations > TTLC or STLC
- Metal Concentration > Res. ESL
- Pb Concentration > 80 ppm
- Historic Building Footprints
- Site Boundary

N

S

0 50 100

Scale in Feet

CKG Environmental, Inc.

Pot Hole Locations and Residual Lead Map
2592 Lakeville Highway
Petaluma, California

Plate
5

AEI Consultants
Environmental & Engineering Services

September 2, 2014

# PHASE II SUBSURFACE INVESTIGATION

**Property Identification:**

2592 Lakeville Highway
Petaluma, California

AEI Project No. 327703

**Prepared for:**
DeNova Homes, Inc.
1500 Willow Pass Court
Concord, California 94520

**Prepared by:**
AEI Consultants
2500 Camino Diablo
Walnut Creek, California 94597
(925) 746-6000

Environmental & Engineering Due Diligence

Site Investigation & Remediation

Energy Performance & Benchmarking

Industrial Hygiene

Construction Consulting

Construction, Site Stabilization & Stormwater Services

Zoning Analysis Reports & ALTA Surveys

# TABLE OF CONTENTS

**1.0 SITE DESCRIPTION ..... 1**

**2.0 BACKGROUND ..... 2**

**3.0 INVESTIGATION EFFORTS ..... 3**

3.1 Health and Safety Plan ..... 4
3.2 Permitting and Utility Clearance ..... 4
3.3 Drilling and Sample Collection ..... 4
3.4 Soil Gas Sample Collection ..... 7
3.5 Boring Destruction ..... 8
3.6 Investigation Derived Wastes ..... 8

**4.0 FINDINGS ..... 8**

4.1 Geology and Hydrogeology ..... 8
4.2 Analytical Results ..... 8

**5.0 SUMMARY ..... 11**

**6.0 REPORT LIMITATIONS AND RELIANCE ..... 12**

**FIGURES**

Figure 1 Site Location Map
Figure 2 Boring Locations
Figure 3 Stockpile Locations

**TABLES**

Table 1 Soil Sample Data Summary (Organic Constituents)
Table 2 Soil Sample Data Summary (CAM 17 Metals)
Table 3 Stockpiled Soil Data Summary (Organic Constituents)
Table 4 Stockpiled Soil Data Summary (CAM 17 Metals)
Table 5 Groundwater Sample Data Summary (Organic Constituents)
Table 6 Groundwater Sample Data Summary (CAM 17 Metals)
Table 7 Soil Gas Sample Data Summary

**APPENDICES**

Appendix A Permits
Appendix B Boring Logs
Appendix C Laboratory Analytical Reports

September 2, 2014

DeNova Homes, Inc.
Attn: Mr. Trent Sanson
1500 Willow Pass Court
Concord, California 94520

**Subject:** **Phase II Subsurface Investigation**
2592 Lakeville Highway
Petaluma, California
AEI Project No. 327703

Dear Mr. Sanson:

AEI Consultants (AEI) is pleased to provide this report which describes the activities and presents a summary of the results of the Phase II Subsurface Investigation performed at the above referenced subject property (Figure 1). This investigation was completed in general accordance with the authorized scope of services and limitations outlined in AEI proposal number 36788.

## 1.0 SITE DESCRIPTION

The subject property consists of vacant land located to the south of Lakeville Highway and southeast of Casa Grande Road in a mixed commercial and residential area of Petaluma, California (Figure 2).

The subject property totals approximately 13 acres and is surrounded by a barbed-wire security fence. The property is not currently improved with any permanent structures, but it occupied part-time by a caretaker living in a trailer home parked on-site in the northeast corner of the property. Two large mounds of fill material (primarily soil and rock debris), which reportedly originated from an off-site source, are located along the northern boundary of the property. In addition, a pile of concrete construction debris and a smaller pile of Class II Aggregate (concrete and asphalt) are located in the central portion of the property.

The subject property lies at an elevation of about 10 feet above mean sea level. The nearest surface water body is the Petaluma River, located approximately 0.2 miles to the west-southwest. The land surface slope and direction of groundwater flow beneath the subject property are generally towards the Petaluma River. A wetland area lies between the subject property and the Petaluma River.

Based on a review of the United States Geological Survey (USGS) Geologic Map of Parts of Sonoma County, California, the surficial geology consists of artificial fill material and alluvium overlying fine-grained marine and freshwater marsh deposits. Groundwater generally occurs

between 1 and 7 feet below ground surface (bgs). Additional information related to site geology and groundwater conditions are provided in Section 4.1, below.

## 2.0 BACKGROUND

A Phase I Environmental Site Assessment (ESA) was performed by AEI as detailed in a report dated March 24, 2014 (AEI Project Number 327703). Based on the findings of the Phase I ESA, the subject property was occupied by the Royal Tallow and Soap Company (RTSC) facility from at least 1955 through 1986, when operations ceased. The property has been vacant land since the former facility buildings were demolished in 2008. The Phase I ESA documented multiple recognized environmental conditions (RECs) on the subject property, which are discussed further below.

- Records on file with the Sonoma County Environmental Health Department (SCEHD) indicate that former Northwestern Pacific Railroad spur and right of way was located along northern property boundary from at least 1914 until 1980 (Figure 2). According to a representative of the subject property, Mr. Patrick Imbimbo, the railroad spur was removed in 2008. The railroad spur was identified as a REC due to the historical practice of applying of oils that may have contained polychlorinated biphenyls (PCBs), herbicides and arsenic for pest and weed control. There is also the potential presence of creosote in railroad ties as well as issues related to the historical practice of using coal cinders for track fill material which can contain elevated levels of heavy metals.
- Based on an interview with former RTSC employee, Mr. Pete Terribilini, the facility included a clarifier and a series of waste water disposal ponds. According to Mr. Terribilini, the RTSC facility was washed down daily, and water from this process flowed into a sump located in the southern portion of the facility. The water from this cleaning process was reportedly filled with “tallow and grease”, which were skimmed off the sump daily and returned to the facility for reuse in the manufacturing process. The remaining waste water flowed into waste water ponds on the southern portion of the subject property (Figure 2). Mr. Terribilini stated that he had no knowledge of other chemicals or solvents used on-site during the rendering processes or cleaning/maintenance activities. Although the waste water likely contained mostly organic materials, the sump and waste water ponds were identified as RECs due to the potential that that hazardous materials could have been present in the waste water and been deposited in the sump and/or waste water disposal ponds.
- According to a map on file with the SCEHD, two septic tanks were located east adjacent to the main RTSC rendering plant. The associated leach field extended to the southwest. It is unclear whether the septic system was used solely for restroom waste disposal, or if other waste water was discharged into the system. The septic tank and leach field were identified as RECs due to the long industrial nature of the property, the lack of regulatory oversight, and the potential that hazardous materials could have entered the septic system and leach field.
- During its operational history, an auto maintenance garage with two underground storage tanks (USTs) was located on the northwestern portion of the property. Based on information available in the Case Closure Summary and Remedial Action Completion Certificate on file with the State Water Resources Control Board (SWRCB) GeoTracker

online database, one 1,000-gallon UST and one 2,000-gallon UST, both containing regular unleaded gasoline, were removed from the northwestern portion (west of the RTSC facility buildings) of the subject property on June 30, 1990. During tank removal activities, holes were observed in both USTs and the backfill was noted as contaminated around both USTs. Gasoline-related petroleum hydrocarbons were detected in soil and groundwater samples during removal of the former USTs. Remediation activities conducted to address the impacted media included the excavation of approximately 2,400 cubic yards of contaminated soil followed by installation of a 10 groundwater well monitoring network, and extraction, treatment, and disposal of approximately 88,000-gallons of groundwater. Upon site closure, all contaminants in groundwater were below laboratory reporting limits except 1,2-dichloroethane (1,2-DCA) which was detected at 0.0016 parts per million (ppm). However, elevated levels of gasoline constituents were reported as remaining in soils in the vicinity of the USTs. It was also noted that soil and groundwater were not tested for diesel or motor oil.

Additionally, during remediation of soils in the area of the former USTs, soil borings were advanced and samples were taken from the area of the auto maintenance garage which indicated high levels of total petroleum hydrocarbons as gasoline (TPH-g) in soil. However, it does not appear that the soils in this area were excavated, and it appears likely that contamination remains in place.

As a stipulation for granting Site closure, the SCEHD stated that future site development should address residual soil contamination in the vicinity of the former UST area.

- According to the property contact Mr. Patrick Imbimbo, fill material from an off-site source has been stockpiled on the northern portion of the subject property. Mr. Imbimbo stated that the soil was deemed as "clean" before it was deposited on the subject property, and that there are plans to use this fill material redevelopment of the subject property. However, no information has been identified to document the origin of the material. Likewise, no soil testing data was identified to verify that there were contaminants in the material.

Given the potential environmental concerns related to the RECs described above and that the property is under consideration for residential development, AEI recommended a subsurface investigation evaluate potential impacts to the subsurface of the subject property, and to assess the suitability of the on-site fill material for residential use.

## 3.0 INVESTIGATION EFFORTS

AEI was retained to perform additional investigation activities at the subject property, including the collection of soil, soil gas, and groundwater samples to evaluate environment conditions on the subject property. All work was performed under the oversight of a California-licensed professional geologist.

AEI performed a site inspection with Mr. Patrick Imbimbo on June 9, 2014 to measure the stockpiled soils and confirm access to soil boring locations. Based on the results of the site inspection, it was determined that two stockpiles of soil are present along the northern boundary of the property (Figure 3). Field measurements indicate that the stockpiles measure

between 10 and 12 feet in thickness and that the total volume of soil present in the stockpiles is approximately 18,000 cubic yards (western stockpile) and 7,000 cubic yards (eastern stockpile).

Additionally, Mr. Imbimbo stated that the former UST area had been excavated to a depth of 12 feet bgs during removal of the tanks and that following removal of the tanks, the impacted soil was used to backfill the excavation. An employee of Mr. Imbimbo had staked out the approximate area of excavation, which generally corresponded with maps and other documentation provided in the Phase I ESA.

Based on information gathered during the site inspection, it was determined that the former UST area, the former septic tank and leach field, and a significant portion of the footprint of the former facility buildings are located beneath the western stockpile, which is estimated at 12 feet in thickness. Where appropriate, soil samples collected to characterize these areas have been labeled as "SP" (stockpile) samples to account for the thickness of the stockpile material above original ground surface. Thus, where borings were completed through the stockpile, the thickness of the stockpiled soil can be subtracted from the total drilling depth to estimate the soil and groundwater sample depth relative to estimated original ground surface.

## 3.1 Health and Safety Plan

A site-specific health and safety plan was prepared, reviewed by onsite personnel, and kept onsite for the duration of the fieldwork.

## 3.2 Permitting and Utility Clearance

Drilling permits were obtained from SCEHD for this investigation (Appendix A). The public underground utility locating service Underground Service Alert (USA) was notified to identify public utilities in the work area. Soil borings were advanced to approximately 5-feet bgs with a hand-augur before advancing drill rig tooling to clear for utilities.

## 3.3 Drilling and Sample Collection

On June 17 through June 19, and June 23, 2014, a total of 62 soil samples were collected from the subject property (Figures 2 and 3). Soil sampling was conducted using a combination of hand-tools and direct-push drilling. The direct-push borings were performed by Environmental Control Associates (ECA) of Aptos, California using GeoProbe® 6600 and 5410 truck-mounted direct-push drilling rigs.

Direct-push borings were completed using 2.25-inch outer diameter rods. Soil cores were collected continuously from the borings by advancing the rods equipped with acetate sample liners in approximately 4-foot intervals. After each interval, the core was retrieved to the surface, the core barrel was disassembled, and the sample liner was transferred to the onsite geologist. The soil borings were logged using the Unified Soil Classification System. A photo ionization detector (PID) was used to field screen the soil samples for the presence of volatile organic compounds (VOCs). PID readings were included on the boring logs (Appendix B).

Following collection, the soil samples were labeled and placed into an iced cooler for transfer to the analytical laboratory. Following soil sample collection, groundwater samples were collected from borings PA-1 through PA-4, PB-1, SMP-1, ST-1, LF-1 and LF-2, AM-1 through AM-3, UST-1 through UST-6, and BLDG-1 through BLDG-3. Groundwater was collected by placing a temporary polyvinyl chloride (PVC) casing inserted into the borehole, allowing the water to

recharge in the borehole, then collecting a groundwater sample using a peristaltic pump. Following collection, the samples were labeled and placed into an iced cooler for transfer to the analytical laboratory.

Soil and groundwater samples were delivered under appropriate chain-of-custody documentation to McCampbell Analytical, Inc. (MAI) of Pittsburg, California for analysis. Soil gas samples were transported by FedEx under appropriate chain-of-custody documentation to Eurofins Air Toxics of Folsom, California for analysis. Laboratory analytical documentation is provided in Appendix C.

All soil sample locations were marked with labeled wooden stakes. Down-hole equipment was properly decontaminated between successive borings. The location and purpose of each boring, along with a summary of samples analyzed, is discussed briefly below.

**Former Railroad Spur Area**

On June 23, 2014, three borings (RS-1 through RS-3) were advanced along the former railroad spur on the northern portion of the subject property. Soil samples were collected from these borings using a shovel and/or hand-auger. Three soil samples (one each from borings RS-1 through RS-3) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- Organo-chlorine Pesticides and PCBs by EPA Method 8081A/8082
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C
- Chlorinated Herbicides by EPA Method 8151A
- PAHs/PNAs by EPA Method 8270C-SIM
- CAM 17 Metals by EPA Method 6020

**Waste Water Ponds Area**

On June 17, 2014, six borings were advanced in the area of the waste water ponds (PA-1 through PA-4, PB-1, and PB-2) for the collection of soil and groundwater samples. Six soil samples (one each from borings PA-1 through PA-4, PB-1 and PB-2) and two groundwater samples (PA-3 and PB-1) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B
- CAM 17 Metals by EPA Method 6020

**Sump**

On June 19, 2014, one boring was advanced in the area of the process sump (SMP-1) for the collection of soil and groundwater samples. One soil sample and one groundwater sample (SMP-1) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B
- CAM 17 Metals by EPA Method 6020

**Septic Tanks and Leach Field Areas**

On June 19, 2014, three borings were advanced in the area of the septic tank (ST-1) and septic tank leach field (LF-1 and LF-2) for the collection of soil and groundwater

samples. Three soil samples and three groundwater samples (one soil and one groundwater sample from each boring) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B
- CAM 17 Metals by EPA Method 6020

**Former Auto Maintenance Area**

On June 17, 2014, three direct-push borings were advanced within the area of the former auto maintenance area (AM-1 through AM-3) for the collection of soil and groundwater samples. Three soil samples and three groundwater samples (one soil and one groundwater sample from each from boring) were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B

**Former UST Area**

On June 17, 2014, six direct-push borings were advanced around the area of the former USTs (UST-1 through UST-6) for the collection of soil and groundwater samples. Twelve soil samples (two each from borings UST-1 through UST-6) were analyzed for:

- TPH Multi-range by EPA Method 8015M
- Methyl tert-Butyl Ether (MTBE) and Benzene, Toluene, Ethylbenzene, and Xylenes (MBTEX) by EPA Method 8260B

Six groundwater samples (one each from borings UST-1 through UST-6) were analyzed for:

- TPH Multi-range by EPA Method 8015M
- VOCs by EPA Method 8260B

**Former Facility Building Footprint Area**

On June 19, 2014, three direct-push borings (BLDG-1 through BLDG-3) were advanced within the footprint of the former RTSC facility buildings for the collection of soil and groundwater samples. Three soil samples and three groundwater samples (one soil and one groundwater sample from each boring) were analyzed for:

- TPH Multi-range by EPA Method 8015M
- CAM 17 Metals by EPA Method 6020B

**Soil Stockpile Sampling**

Between June 17 and 19, 2014, a total of 26 soil samples were collected from the western stockpile located along the northern portion of the subject property to characterize the material for potential use as on-site fill. The sampling frequency and analyses were selected based on the guidelines outlined in *Information Advisory: Clean Imported Fill Material* by the Department of Toxic Substances Control (DTSC). Twenty-six soil samples collected from nine borings completed in the west stockpile were analyzed for the following:

- TPH Multi-range by EPA Method 8015M
- OC Pesticides and PCBs by EPA Method 8080A
- OP Pesticides by EPA Method 8141
- VOCs by EPA Method 8260
- SVOCs by EPA Method 8270
- Chlorinated Herbicides by EPA Method 8151
- PAHs/PNAs by EPA Method 8270
- CAM 17 Metals by EPA Method 6010
- Asbestos by PLM Carb 435

## 3.4 Soil Gas Sample Collection

On June 17 through June 19, 2014, soil gas sampling was conducted on the subject property (Figure 2). Six direct-push borings (G-1 through G-6) were advanced for the construction of temporary soil gas probes and subsequent collection of soil gas samples. The sampling was conducted in general accordance with the guidelines outlined in *Advisory: Active Soil Gas Investigations* by the DTSC.

- Probes G-1 and G-2 were advanced within the former auto maintenance area on the northwestern portion of the subject property. These probes were constructed at approximately 3 feet bgs due to the presence of shallow groundwater observed in adjacent soil borings.
- Probes G-3 and G-4 were advanced through the stockpiled soil within the area of the former USTs on the north-northwestern portion of the subject property. The probes were constructed at approximately 5 feet bgs.
- Probes G-5 and G-6 were advanced through the stockpiled soil within the building footprint on the northern portion of the subject property. Probe G-5 was constructed at approximately 5 feet bgs. Due elevated water levels in the area probe G-6 was constructed at 3 feet bgs.

The soil gas probes were constructed of 0.25-inch diameter Teflon tubing connected to a 1-inch disposable plastic probe tip. Per DTSC's guidance, the probe tip was placed in the middle of an annular filter pack composed of approximately 1 foot of sand, sealed with an appropriate amount of dry granular bentonite, and finished to near ground surface with hydrated granular bentonite to just below ground surface.

A vacuum tightness test was performed on the sampling train prior to soil gas sampling using a clean 60-milliliter (mL) syringe. Once the sample train passed the tightness test, 3 volumes of air were purged from the sample train using a dedicated purge canister. The soil gas sample was then collected into a 1-liter Summa canisters equipped with a flow regulator set at 200 mL per minute. A vacuum gauge was used to measure the initial vacuum pressure in the sampling. A leak check was performed by applying a cloth rag with isopropyl alcohol to the sampling train connection points during sampling.

Soil gas sampling equipment was obtained from Eurofins Air Toxics of Folsom, California. Each canister was individually checked, tested by the laboratory for air tightness and proper vacuum and batch certified for purity prior to shipping. Once sampling was completed, each summa canister was sealed with a slight vacuum prior to sealing. Following collection, the samples

were labeled and stored for transfer to the analytical laboratory to be analyzed for TPH-g and VOCs including naphthalene by EPA Method TO-15

### 3.5 Boring Destruction

Following completion of sample collection and removal of tooling, the borings were backfilled with neat cement grout as required by the permitting agency and completed at the surface with native soil to match the surrounding conditions.

### 3.6 Investigation Derived Wastes

Investigation derived waste was stored on-site in 5-gallon buckets pending receipt of the analytical data.

## 4.0 FINDINGS

For the purpose of providing context to the data obtained during this investigation, analytical results are compared to the December 2013 Environmental Screening Levels (ESLs) established by the San Francisco Bay Regional Water Quality Control Board. The ESLs are considered to be conservative. Under most circumstances, and within the limitations described in the ESL guidance document, the presence of a chemical in soil, soil gas or groundwater at concentrations below the appropriate ESL can generally be assumed to not pose a significant threat to human health or the environment. Additional evaluation may generally be required at sites where a chemical is present at concentrations above corresponding appropriate ESL values. In certain cases, several ESLs are available which consider several exposure scenarios, land or groundwater use, and other site characteristics, the selection of which may be a matter for regulatory consideration and professional judgment. While a detailed exposure pathway and risk analysis is outside of the scope of this assessment, several ESLs are included in the Tables to provided added context to the results.

### 4.1 Geology and Hydrogeology

Native soil encountered in each of the borings generally consisted of clayey silt underlain by a silty sand layer, which is underlain by a hard plastic clay (Appendix B). Soil encountered while drilling through the stockpile was characterized as a mixture of clay, sand, gravel, asphalt pieces, brick debris, and glass fragments. The average thicknesses of the stockpiles ranged between approximately 10 and 12 feet.

Groundwater was encountered in all borings except PB-2. First groundwater was generally encountered in a saturated, silty sand layer in native soil which occurred at an average depth of approximately 12 feet below original ground surface. Groundwater then rose and equilibrated at to depths ranging from approximately 3 to 8 feet below original ground surface.

### 4.2 Analytical Results

The analytical results of soil samples from the Site are summarized in Tables 1 through 4, groundwater samples in Tables 5 and 6, and soil gas samples in Table 7 and are discussed briefly below by location. As requested, the ESL comparison values discussed below are

generally those for residential land use and consider the assumption that groundwater is not considered a current or potential drinking water source; the reader is referred to the Tables and references for additional information. Sample locations are shown on Figures 2 and 3.

**Arsenic in Soil**

Arsenic was detected above the ESL of 0.39 milligrams per kilogram (mg/kg) in all of the soil samples collected from the Site. However, with the exceptions of two samples (PA-3 [former waste water pond] and SP-10 [stockpiled soil]), the concentrations all fall within the range of naturally occurring background concentrations for California soils, the upper bound of which is 11 mg/kg, as reported in the study entitled Background Concentrations of Trace and Major Elements in California Soils (Bradford, 1996). This study is consistent with the findings of the report entitled Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region (Duverge, 2011).

**Former Railroad Spur Area**

All soil constituents tested for in soil collected in the vicinity of the former railroad spur were either below the analytical reporting limits, their respective ESLs, or within a range of expected naturally occurring concentrations.

**Waste Water Ponds**

All analyzed constituents in soil and groundwater were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in the vicinity of the waste water ponds with the exception of the following:

- TPH-mo was detected above the ESL in the soil sample collected from boring PA-3, which was completed within the northern waste water pond area.
- Arsenic and lead were also detected above their ESLs in the soil sample from PA-3, in the northern waste water pond area.
- The metals arsenic, cadmium, cobalt, copper, nickel, vanadium, and zinc were detected above the ESL in groundwater samples collected from the waste water pond areas.

**Sump**

All analyzed constituents in soil and groundwater were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in the vicinity of the sump with the exception of the metals nickel and vanadium which were detected above the ESL in the groundwater sample collected in the vicinity of the sump.

**Septic Tanks and Leach Field Areas**

All constituents were either below the analytical reporting limits, within expected naturally occurring concentration ranges, or below the referenced ESLs in soil samples collected from the septic tank and leach field areas. However, several petroleum constituents were detected above their ESLs in groundwater samples collected from the former septic tank and leach field.

The metals barium, cobalt, copper, mercury, and nickel were also detected above their ESLs in groundwater samples collected from the septic tank and leach field.

**Former Auto Maintenance Area**

All analyzed constituents in soil, soil vapor, and groundwater were either below the analytical reporting limits or below the referenced ESLs in the vicinity of the former auto maintenance area with the exception of the following:

- TPH-g and TPH-d were detected above the ESLs, in the soil sample collected from boring AM-1, which was completed near the southeast corner of the former auto maintenance area.
- Several petroleum constituents were detected above their ESLs in groundwater samples beneath the former auto maintenance area with the most elevated concentrations in the vicinity of AM-1 in the southeastern portion of the former auto maintenance area.

**Former UST Area**

Petroleum constituents were detected in the majority of the soil, soil gas, and groundwater samples from this area, as summarized below:

- TPH-g, TPH-d, TPH-mo, benzene, ethylbenzene, and xylenes were detected above their ESLs in soil samples collected from the former UST area.
- Elevated petroleum constituents were detected above the ESL in each of the groundwater samples collected from the former UST area.
- The compounds benzene, ethylbenzene, xylenes, tetrachloroethene (PCE), and TPH-g were detected above their ESLs in the soil gas sample collected from boring G-3.

**Former Facility Building Footprint**

All analyzed constituents in soil, soil vapor, and groundwater were either below the analytical reporting limits or below the referenced ESLs in the vicinity of the former facility building footprint with the exception of the following:

- Lead was detected in soil above the ESL in the soil sample collected from 3.5 feet bgs from boring BLDG-1, which was completed within in the western portion of the former building footprint.
- Benzene was detected above the ESL in the groundwater sample from BLDG-3.

**Soil Stockpile**

All analyzed constituents in soil were either below the analytical reporting limits, within established background levels based on the Bradford 1996 study [0.6 to 11 mg/kg (arsenic), 14.3 to 107.9 mg/kg (lead), and 9 to 509 mg/kg (nickel)], or below their respective ESLs in the soil stockpile samples with the exception of the following:

- TPH-d was detected above the ESL in one sample from the stockpiled soil (SP-12 at 11.5 feet).

- TPH-mo was detected above the ESL for shallow soil (<3 meters) in six samples from the stockpiled soil.
- The OC pesticide dieldrin was detected above the ESL in one sample from the stockpiled soil (SP-10 at 3.5 feet).
- The SVOC phenol was detected in a number of samples from the stockpiled soil; however, none of these detections exceeded the non-drinking water based soil ESL.
- The lead concentration measured in the sample from SP-6 at 8.5 feet and the nickel concentration measured in the sample from SP-10 at 3.5 feet were elevated when compared to other samples collected from the soil stockpile.

## 5.0 SUMMARY

On June 17 through June 19, and June 23, 2014, a total of 62 soil samples, 18 groundwater samples, and six soil vapor samples were collected from the Site (Figures 2 and 3). The samples were collected to assess current subsurface environmental conditions at the Site. Findings were compared with ESLs and/or referenced background levels, if available. These results should be considered when planning for development and use of the property.

## 6.0 REPORT LIMITATIONS AND RELIANCE

This report presents a summary of work completed by AEI Consultants. The completed work includes observations and descriptions of site conditions encountered. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide the requested information, subject to scope of work for which AEI was retained and limitations inherent in this type of work, but it cannot be assumed that they are representative of areas not sampled. This report should not be regarded as a guarantee that no further contamination beyond that which could have been detected within the scope of this investigation is present beneath the subject property. Undocumented, unauthorized releases of hazardous material, the remains of which are not readily identifiable by visual inspection and are of different chemical constituents, are difficult and often impossible to detect within the scope of a chemical specific investigation.

Conclusions and/or recommendations, if any, are based on these analyses and observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document. These services were performed in accordance with generally accepted practices, in the environmental engineering and construction field, which existed at the time and location of the work. No other warranty, either expressed or implied, has been made.

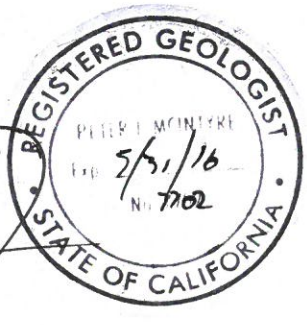
This investigation was prepared for the sole use and benefit of DeNova Homes, Inc. All reports, both verbal and written, whether in draft or final, are for the benefit of DeNova Homes, Inc. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors or assigns. Reliance is provided in accordance with AEI's Proposal and Standard Terms & Conditions executed by DeNova Homes, Inc. on May 27, 2014. The limitation of liability defined in the Terms and Conditions is the aggregate limit of AEI's liability to the client and all relying parties.

If there are any questions regarding our investigation, please do not hesitate to contact AEI at (925) 746-6000.

Sincerely,
**AEI Consultants**

Diego Gonzalez
Project Geologist

David Provance, PG
Senior Project Manager

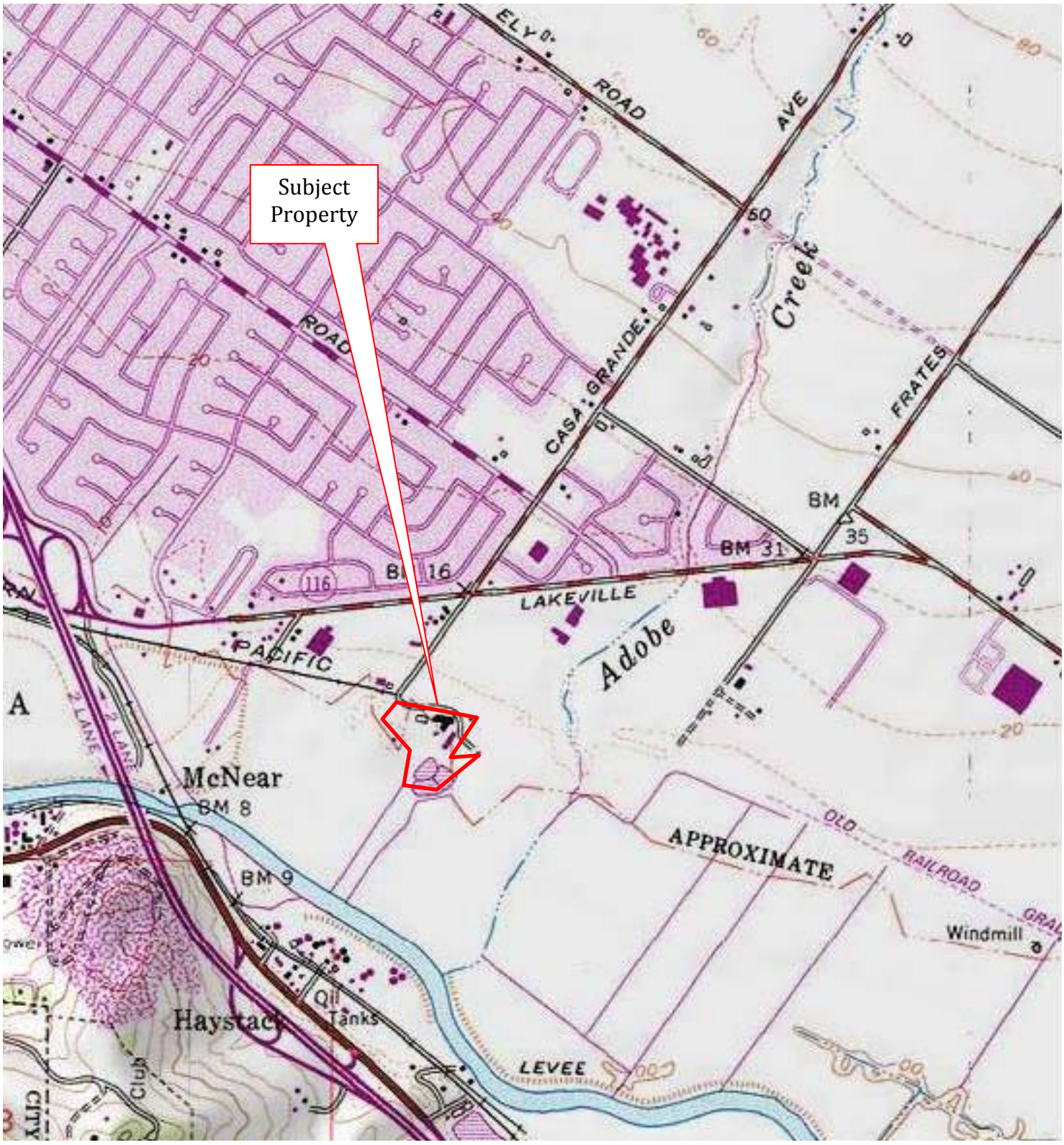



Peter McIntyre, PG
Executive Vice President



AEI Consultants

# FIGURES




# SITE LOCATION MAP

2592 Lakeville Highway, Petaluma, California, 94954

N

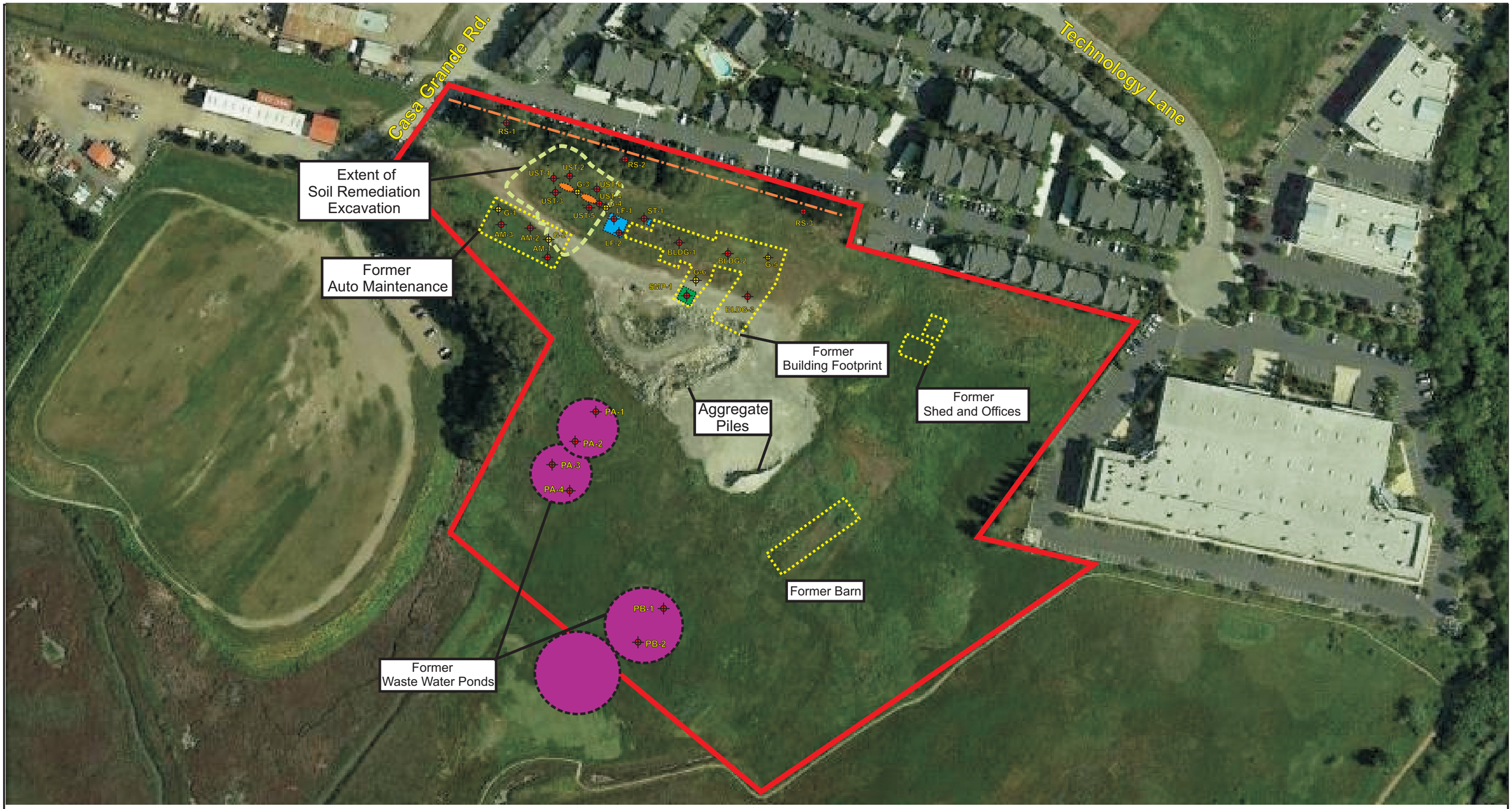
Approximate Property Boundary

Source: USGS Topographic Map, *Petaluma River California* (1980)

**FIGURE 1**

Project Number: 327703

AEI Consultants




## LEGEND

- Approximate Property Boundary
- Former Railroad Spur
- Former Structures
- Former Sump
- Former USTs
- Former Septic System Leach Field
- Former Septic Tanks Area
- Former Wastewater Ponds
- AEI Soil Boring Locations
- AEI Soil Gas Well Locations
- Approximate Extent of 2002 Remedial Excavation
  Source: Site Plan-Darling International, Inc. (Figure 2)
  MFG, Inc. Project No. 030070, 11/08/2006

N

0 65’ 130’

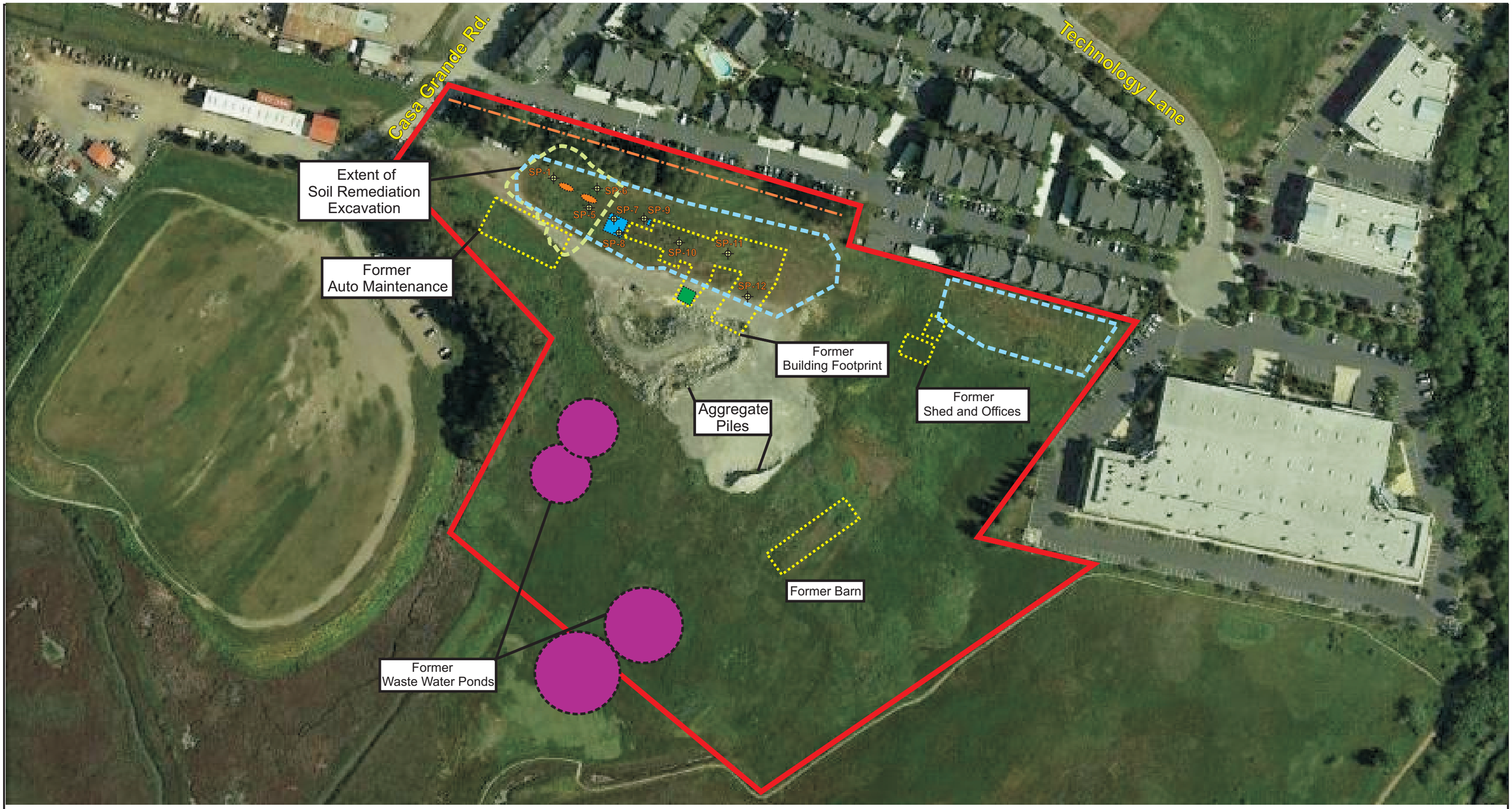
APPROXIMATE SCALE:
1” = 130’

**AEI CONSULTANTS**
2500 CAMINO DIABLO, WALNUT CREEK, CALIFORNIA

BORING LOCATIONS

2592 Lakeville Highway
Petaluma, California

**FIGURE 2**
Project No. 327703




LEGEND

- Approximate Property Boundary
- Former Railroad Spur
- Former Structures
- Approximate Boundaries of Stockpiles
- Former Sump
- Former USTs
- Former Septic System Leach Field
- Former Septic Tanks Area
- Former Wastewater Ponds
- AEI Stockpile Soil Sampling Locations
- Approximate Extent of 2002 Remedial Excavation Source: Site Plan-Darling International, Inc. (Figure 2) MFG, Inc. Project No. 030070, 11/08/2006

N

0 65’ 130’

APPROXIMATE SCALE: 1” = 130’

**AEI CONSULTANTS**

2500 CAMINO DIABLO, WALNUT CREEK, CALIFORNIA

STOCKPILE LOCATIONS

2592 Lakeville Highway
Petaluma, California

**FIGURE 3**
Project No. 327703

# TABLES

**Table 1. Soil Sample Data Summary (Organic Constituents)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | TPH Multi-range by EPA Method 8015M & MBTEX by EPA Method 8260 | | | | | | | | | | OC Pesticides (mg/kg) | PCBs (mg/kg) | SVOCs (mg/kg) | Cl Herbicides (mg/kg) | PAHs/PNAs (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | TPH-g (mg/kg) | TPH-d (mg/kg) | TPH-mo (mg/kg) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Xylenes (mg/kg) | MTBE (mg/kg) | Naphthalene (mg/kg) | Remaining VOCs* (mg/kg) | | | | | |
| **Former Railroad Spur** | | | | | | | | | | | | | | | | | |
| RS-1 | 6/23/2014 | 2.5 | <1.0 | 5.0 | 23 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| RS-2 | 6/23/2014 | 2.5 | <1.0 | 3.6 | 9.9 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| RS-3 | 6/23/2014 | 2.5 | <1.0 | 25 | 46 | NA | NA | NA | NA | NA | NA | NA | <MRL | <MRL | <MRL | <MRL | <MRL |
| **Sump** | | | | | | | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | 7.5 | <1.0 | 1.1 | 6.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Waste Disposal Ponds** | | | | | | | | | | | | | | | | | |
| PA-1 | 6/17/2014 | 2.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-2 | 6/17/2014 | 2.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-3 | 6/19/2014 | 2.5 | <1.0 | 89 | **660** | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PA-4 | 6/19/2014 | 2.5 | <1.0 | <1.0 | 6.1 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PB-1 | 6/19/2014 | 2.5 | <1.0 | 7.5 | 39 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| PB-2 | 6/19/2014 | 2.5 | <1.0 | 1.6 | 7.4 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Septic Tank and Leach Field** | | | | | | | | | | | | | | | | | |
| ST-1 | 6/19/2014 | 7.5 | 17 | 9.5 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| LF-1 | 6/19/2014 | 3.5 | 3.8 | 3.9 | 15 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| LF-2 | 6/19/2014 | 3.5 | 22 | 11 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Former Auto Maintenance Area** | | | | | | | | | | | | | | | | | |
| AM-1 | 6/17/2014 | 7.5 | **610** | **140** | 7.6 | <0.33 | <0.33 | 2.7 | 1.3 | <0.33 | **1.6** | <MRL | NA | NA | NA | NA | NA |
| AM-2 | 6/17/2014 | 5.5 | 5.6 | 6.3 | 5.4 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| AM-3 | 6/17/2014 | 2.5 | <1.0 | <1.0 | <5.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | NA | NA | NA | NA | NA |
| **Former Underground Storage Tank (UST) Area** | | | | | | | | | | | | | | | | | |
| UST-1 | 6/17/2014 | 3.5 | **1,100** | **210** | 17 | <2.0 | 2.1 | **5.8** | **27** | <2.0 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-1 | 6/17/2014 | 11.5 | <1.0 | <1.0 | 5.8 | <0.005 | <0.005 | 0.0081 | 0.026 | <0.005 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-2 | 6/17/2014 | 3.5 | 78 | 40 | **130** | <0.033 | <0.033 | 0.32 | 0.45 | <0.033 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-2 | 6/17/2014 | 11.5 | <1.0 | <1.0 | 9.0 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | NA | <MRL | NA | NA | NA | NA | NA |
| UST-3 | 6/17/2014 | 3.5 | 89 | 11 | 7.2 | **0.26** | <0.05 | 0.63 | 0.7 | <0.05 | NA | NA | NA | NA | NA | NA | NA |
| UST-3 | 6/17/2014 | 7.5 | 35 | 6.8 | <5.0 | **0.085** | <0.033 | 0.15 | 0.079 | <0.033 | NA | NA | NA | NA | NA | NA | NA |
| UST-4 | 6/17/2014 | 3.5 | **430** | 47 | 9.2 | **1.0** | <0.33 | 1.7 | **7.7** | <0.33 | NA | NA | NA | NA | NA | NA | NA |
| UST-4 | 6/17/2014 | 7.5 | **140** | 44 | 8.4 | **0.46** | <0.1 | 0.92 | **3.8** | <0.1 | NA | NA | NA | NA | NA | NA | NA |
| UST-5 | 6/17/2014 | 3.5 | **340** | **150** | 16 | <0.1 | <0.1 | 1.9 | 2.3 | <0.1 | NA | NA | NA | NA | NA | NA | NA |
| UST-5 | 6/17/2014 | 7.5 | **280** | 17 | 6.5 | **0.55** | <0.2 | 0.38 | 0.99 | <0.2 | NA | NA | NA | NA | NA | NA | NA |
| UST-6 | 6/17/2014 | 1.5 | **130** | 14 | 11 | <0.2 | <0.02 | 0.04 | 0.14 | <0.02 | NA | NA | NA | NA | NA | NA | NA |
| UST-6 | 6/17/2014 | 9.5 | 21 | 2.4 | <5.0 | <0.005 | <0.005 | <0.005 | 0.007 | <0.005 | NA | NA | NA | NA | NA | NA | NA |
| **Former Facility Building Footprint** | | | | | | | | | | | | | | | | | |
| BLDG-1 | 6/19/2014 | 3.5 | <1.0 | 2.0 | 8.7 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BLDG-2 | 6/19/2014 | 3.5 | <1.0 | <1.0 | <5.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BLDG-3 | 6/19/2014 | 3.5 | <1.0 | 1.7 | 6.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Comparison Values:** | | | | | | | | | | | | | | | | | |
| ESL Table A-1 (DW) | | | 100 | 100 | 100 | 0.044 | 2.9 | 3.3 | 2.3 | 0.023 | 1.2 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table B-1 (Non-DW) | | | 100 | 100 | 100 | 0.74 | 9.3 | 4.7 | 11 | 8.4 | 3.1 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table C-1 (DW) | | | 500 | 110 | 500 | 0.044 | 2.9 | 3.3 | 2.3 | 0.023 | 1.2 | varies | varies | 0.22 | varies | varies | varies |
| ESL Table D-1 (Non-DW) | | | 500 | 110 | 500 | 0.74 | 9.3 | 4.7 | 11 | 8.4 | 3.1 | varies | varies | 0.22 | varies | varies | varies |

**Notes:**

mg/kg milligrams per kilogram
<MRL = less than the method reporting limit or no ESL
NA = sample for not analyzed for indicated constituent(s)
bgs = below ground surface
DW Drinking Water Comparison Values
Non-DW Non-Drinking Water Comparison Values
**Bold =** Result exceeds Drinking Water Comparison Values
**Bold =** Result exceeds Drinking and Non-Drinking Water Comparison Values

TPH-g = Total Petroleum Hydrocarbons as Gasoline
TPH-d = Total Petroleum Hydrocarbons as Diesel
TPH-mo = Total Petroleum Hydrocarbons as Motor Oil
SVOCs = Semi-Volatile Organic Compounds
PAHs/PNAs = Polyaromatic Hydrocarbons and Polynuclear Aromatic Hydrocarbons
* = Detections for n-Butyl benzene, Isopropyl benzene, n-propyl benzene, 1,2,4-TMB, 1,3,5-TMB are not listed because no ESLs are established for these compounds

MTBE = Methyl tert-Butyl Ether
OC Pesticides = Organo-chlorine Pesticides
PCBs = Polychlorinated Biphenyls
Cl Herbicides = Chlorinated Herbicides

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)
ESL Table C-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table D-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 2. Soil Sample Data Summary (CAM 17 Metals)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | Antimony (mg/kg) | Arsenic (mg/kg) | Barium (mg/kg) | Beryllium (mg/kg) | Cadmium (mg/kg) | Total Chromium (mg/kg) | Cobalt (mg/kg) | Copper (mg/kg) | Lead (mg/kg) | Mercury (mg/kg) | Molybdenum (mg/kg) | Nickel (mg/kg) | Silver (mg/kg) | Vanadium (mg/kg) | Zinc (mg/kg) | Remaining Metals* (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Former Railroad Spur** | | | | | | | | | | | | | | | | | | |
| RS-1 | 6/23/2014 | 2.5 | <0.5 | **3.8** | 110 | <0.5 | 0.39 | 33 | 8.9 | 17 | 26 | 0.084 | <0.5 | 37 | <0.5 | 37 | 200 | <MRL |
| RS-2 | 6/23/2014 | 2.5 | <0.5 | **6.8** | 110 | <0.5 | <0.5 | 30 | 8.5 | 15 | 19 | 0.097 | <0.5 | 25 | <0.5 | 40 | 110 | <MRL |
| RS-3 | 6/23/2014 | 2.5 | 0.52 | **3.9** | 92 | 0.51 | 0.46 | 69 | 14 | 23 | 18 | 0.065 | <0.5 | 45 | <0.5 | 60 | 210 | <MRL |
| **Sump** | | | | | | | | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | 7.5 | 0.83 | **10** | 220 | 1.1 | <0.25 | 77 | 17 | 34 | 11 | 0.3 | <0.5 | <0.5 | <0.5 | 74 | 82 | <MRL |
| **Waste Disposal Ponds** | | | | | | | | | | | | | | | | | | |
| PA-1 | 6/18/2014 | 2.5 | <0.5 | **7.9** | 110 | 0.71 | <0.25 | 74 | 16 | 26 | 9.0 | 0.11 | 0.6 | 86 | <0.5 | 70 | 59 | <MRL |
| PA-2 | 6/18/2014 | 2.5 | <0.5 | **2.7** | 230 | 0.7 | <0.25 | 61 | 6.9 | 22 | 5.5 | 0.23 | <0.5 | 47 | <0.5 | 55 | 37 | <MRL |
| PA-3 | 6/18/2014 | 2.5 | **22** | **15** | 330 | <0.5 | 6.8 | 65 | 15 | **280** | **930** | 1.8 | 2.9 | 69 | 1.1 | 43 | **2,000** | <MRL |
| PA-4 | 6/18/2014 | 2.5 | 0.56 | **4.3** | 130 | 1.0 | 0.47 | 75 | 21 | 40 | 14 | 0.38 | 2.4 | 79 | <0.5 | 77 | 160 | <MRL |
| PB-1 | 6/18/2014 | 2.5 | 0.52 | **6.6** | 250 | 1.0 | <0.25 | 68 | 21 | 47 | 30 | 0.23 | <0.5 | 65 | <0.5 | 68 | 130 | <MRL |
| PB-2 | 6/18/2014 | 2.5 | <0.5 | **5.6** | 240 | 0.72 | <0.25 | 39 | 13 | 18 | 7.2 | 0.26 | <0.5 | 46 | <0.5 | 46 | 46 | <MRL |
| **Septic Tank and Leach Field** | | | | | | | | | | | | | | | | | | |
| ST-1 | 6/19/2014 | 19.5 | <0.5 | **4.7** | 170 | 1.1 | <0.25 | 65 | 17 | 30 | 9.3 | 0.41 | <0.5 | 53 | <0.5 | 65 | 71 | <MRL |
| LF-1 | 6/19/2014 | 15.5 | <0.5 | **8.7** | 260 | 0.88 | <0.25 | 46 | 19 | 17 | 12 | 0.061 | <0.5 | 40 | <0.5 | 67 | 35 | <MRL |
| LF-2 | 6/19/2014 | 15.5 | <0.5 | **4.3** | 150 | 0.69 | <0.25 | 59 | 9.8 | 25 | 8.8 | 0.12 | <0.5 | 49 | <0.5 | 56 | 49 | <MRL |
| **Former Facility Building Footprint** | | | | | | | | | | | | | | | | | | |
| BLDG-1 | 6/19/2014 | 3.5 | 1.3 | **4.9** | 190 | 0.6 | 0.3 | 52 | 14 | 42 | **220** | 0.29 | <0.5 | 48 | <0.5 | 69 | 140 | <MRL |
| BLDG-2 | 6/19/2014 | 3.5 | 0.98 | **4.7** | 150 | 0.96 | <0.25 | 58 | 13 | 26 | 7.6 | 0.2 | <0.5 | 64 | <0.5 | 56 | 57 | <MRL |
| BLDG-3 | 6/19/2014 | 3.5 | 0.52 | **6.4** | 150 | 0.94 | <0.25 | 59 | 15 | 30 | 8.8 | 0.39 | <0.5 | 63 | <0.5 | 65 | 61 | <MRL |
| **Comparison Values:** | | | | | | | | | | | | | | | | | | |
| TTLC(mg/kg) | | | 500 | 500 | 10,000 | 75 | 100 | 2,500 | 8,000 | 2,500 | 1,000 | 20 | 3,500 | 2,000 | 500 | 2,400 | 5,000 | varies |
| STLC(mg/L) | | | 15.0 | 5.0 | 100 | 0.75 | 1.0 | 5.0 | 80 | 25 | 5.0 | 0.2 | 350 | 20 | 5.0 | 24 | 250 | varies |
| TCLP(mg/L) | | | - | 5.0 | 100 | - | 1.0 | 5.0 | - | - | 5.0 | 0.2 | - | - | 5.0 | - | - | varies |
| ESL Table A-1 (DW) | | | 20 | 0.39 | 750 | 4.0 | 12 | 1,000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 20 | 200 | 600 | varies |
| ESL Table B-1 (Non-DW) | | | 20 | 0.39 | 750 | 4.0 | 12 | 1,000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 20 | 200 | 600 | varies |
| ESL Table C-1 (DW) | | | 31 | 0.39 | 2,500 | 160 | 78 | 2,500 | 23 | 2,500 | 80 | 6.7 | 390 | 1,500 | 390 | 390 | 2,500 | varies |
| ESL Table D-1 (Non-DW) | | | 31 | 0.39 | 2,500 | 160 | 78 | 2,500 | 23 | 2,500 | 80 | 6.7 | 390 | 1,500 | 390 | 390 | 2,500 | varies |

**Notes:**

mg/kg = milligrams per kilogram
<MRL = less than the method reporting limit
ESL = Environmental Screening Level
bgs = below ground surface
DW Drinking Water Comparison Values
Non-DW Non-Drinking Water Comparison Values
**Bold =** Result exceeds Drinking Water Comparison Values
**Bold =** Result exceeds Drinking and Non-Drinking Water Comparison Values

* = Remaining metals (not detected) include selenium and thallium
- No established comparison value

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)
ESL Table C-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table D-1: Deep Soil Screening Levels (> 3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 3. Stockpiled Soil Data Summary (Organic Constituents)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | TPH-g mg/kg | TPH-d mg/kg | TPH-mo mg/kg | OC Pesticides: Chlordane (Technical) mg/kg | a-Chlordane mg/kg | g-Chlordane mg/kg | p,p-DDD mg/kg | p,p-DDE mg/kg | p,p-DDT mg/kg | Dieldrin mg/kg | Remaining OC Pesticides mg/kg | PCBs mg/kg | OP Pesticides mg/kg | Cl Herbicides mg/kg | SVOCs: Phenol mg/kg | SVOCs: Other SVOCs mg/kg | Asbestos mg/kg | VOCs mg/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP-1 | 6/18/2014 | 3.5 | <1.0 | 1.6 | 8.5 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | **1.6** | <MRL | ND | <MRL |
| SP-1 | 6/18/2014 | 5.5 | <1.0 | <1.0 | <5.0 | <0.025 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <MRL | <0.05 | <0.1 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-1 | 6/18/2014 | 9.5 | <1.0 | 6.3 | 34 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <5.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-5 | 6/18/2014 | 2.5 | <1.0 | 4.0 | 34 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-5 | 6/18/2014 | 5.5 | <1.0 | 3.4 | 22 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <1.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-5 | 6/18/2014 | 8.5 | <1.0 | 10 | 94 | <0.2 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | <0.25 | <5.0 | <MRL | <2.0 | <MRL | ND | <MRL |
| SP-6 | 6/18/2014 | 2.5 | <1.0 | 54 | **300** | <0.5 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <MRL | <1.0 | <5.0 | <MRL | <4.0 | <MRL | ND | <MRL |
| SP-6 | 6/18/2014 | 5.5 | <1.0 | 2.4 | 7.9 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <1.0 | <MRL | **0.79** | <MRL | ND | <MRL |
| SP-6 | 6/18/2014 | 8.5 | <1.0 | 25 | **130** | <0.5 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <MRL | <1.0 | <5.0 | <MRL | <4.0 | <MRL | ND | <MRL |
| SP-7 | 6/19/2014 | 2.5 | <1.0 | 7.2 | 73 | <0.12 | 0.0092 | 0.0061 | 0.035 | 0.14 | 0.053 | <0.001 | <MRL | <0.25 | <2.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-8 | 6/19/2014 | 2.5 | <1.0 | 5.6 | 94 | <0.12 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <MRL | <0.25 | <5.0 | <MRL | **3.1** | <MRL | ND | <MRL |
| SP-8 | 6/19/2014 | 5.5 | <1.0 | 1.2 | 9.1 | <0.25 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <MRL | <0.05 | <1.0 | <MRL | **1.2** | <MRL | ND | <MRL |
| SP-8 | 6/19/2014 | 8.5 | <1.0 | 7.2 | 100 | <0.12 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 | <MRL | <0.25 | <10 | <MRL | <2.0 | <MRL | ND | <MRL |
| SP-9 | 6/19/2014 | 2.5 | <1.0 | 1.3 | 15 | 0.056 | 0.0073 | 0.0069 | <0.001 | <0.001 | <0.001 | <0.001 | <MRL | <0.05 | <2.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-9 | 6/19/2014 | 5.5 | <1.0 | 2.5 | 33 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | <1.2 | <MRL | ND | <MRL |
| SP-9 | 6/19/2014 | 8.5 | <1.0 | 77 | **440** | <0.25 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <MRL | <0.5 | <10 | <MRL | <4.0 | <MRL | ND | <MRL |
| SP-9 | 6/19/2014 | 11.5 | 2.6 | 1.3 | 6.1 | <0.025 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <MRL | <0.05 | <0.1 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-10 | 6/19/2014 | 3.5 | <1.0 | 7.7 | 28 | 0.14 | 0.021 | 0.016 | 0.0027 | 0.0079 | 0.0055 | **0.0042** | <MRL | <0.1 | <1.0 | <MRL | **0.94** | <MRL | ND | <MRL |
| SP-10 | 6/19/2014 | 7.5 | 3.3 | 80 | 96 | <0.05 | <0.002 | 0.0021 | 0.039 | 0.0078 | 0.019 | <0.002 | <MRL | <0.1 | <1.0 | <MRL | <2.0 | <MRL | ND | <MRL |
| SP-10 | 6/19/2014 | 11.5 | <1.0 | 8.7 | 19 | <0.025 | <0.001 | <0.001 | 0.0022 | 0.0018 | <0.001 | <0.001 | <MRL | <0.05 | <2.0 | <MRL | **0.34** | <MRL | ND | <MRL |
| SP-11 | 6/19/2014 | 2.5 | <1.0 | 2.2 | 34 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | <0.5 | <MRL | ND | <MRL |
| SP-11 | 6/19/2014 | 5.5 | <1.0 | 19 | **140** | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <5.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-11 | 6/19/2014 | 8.5 | <1.0 | 2.1 | 25 | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <MRL | <0.1 | <2.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-11 | 6/19/2014 | 11.5 | <1.0 | 16 | 29 | <0.025 | <0.001 | <0.001 | 0.0014 | 0.001 | <0.001 | <0.001 | <MRL | <0.05 | <1.0 | <MRL | <2.0 | <MRL | ND | <MRL |
| SP-12 | 6/19/2014 | 3.5 | <1.0 | 15 | 100 | <0.5 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <MRL | <1.0 | <2.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-12 | 6/19/2014 | 7.5 | <1.0 | 16 | **290** | <0.25 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <MRL | <0.5 | <5.0 | <MRL | <0.25 | <MRL | ND | <MRL |
| SP-12 | 6/19/2014 | 11.5 | 14 | **280** | **120** | <0.025 | <0.001 | <0.001 | 0.0014 | 0.001 | <0.001 | <0.001 | <MRL | <0.05 | <0.1 | <MRL | <2.0 | <MRL | ND | <MRL |
| **Comparison Values:** | | | | | | | | | | | | | | | | | | | | |
| ESL Table A-1 (DW) | | | 100 | 100 | 100 | 0.44 | - | - | 2.4 | 1.7 | 1.7 | 0.0023 | varies | 0.22 | varies | varies | 0.076 | varies | - | varies |
| ESL Table B-1 (Non-DW) | | | 100 | 100 | 100 | 0.44 | - | - | 2.4 | 1.7 | 1.7 | 0.0023 | varies | 0.22 | varies | varies | 3.9 | varies | - | varies |
| ESL Table C-1 (DW) | | | 500 | 110 | 500 | 0.44 | - | - | 2.4 | 1.7 | 1.7 | 0.0023 | varies | 0.22 | varies | varies | 0.076 | varies | - | varies |
| ESL Table D-1 (Non-DW) | | | 500 | 110 | 500 | 0.44 | - | - | 2.4 | 1.7 | 1.7 | 0.0023 | varies | 0.22 | varies | varies | 3.9 | varies | - | varies |

Notes:

mg/kg = milligrams per kilogram
<MRL = less than the method reporting limit
NA = not analyzed
ND = None Detected (Asbestos analyzed by CARB Method 435)
ESL = Environmental Screening Level
bgs = below ground surface
DW= Drinking Water Comparison Values
Non-DW= Non-Drinking Water Comparison Values
**Bold** = Result exceeds Drinking Water comparison values
**Bold** = Result exceeds Drinking and Non-Drinking Water comparison values

OC Pesticides = Organo-chlorine Pesticides
OP Pesticides = Organo-phosphate Pesticides
PCBs = Polychlorinated Biphenyl
Herbicides = Chlorinated Herbicides
VOCs = Semi-volatile organic compounds
SVOCs = Volatile organic compounds
- No established comparison value

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a not a current or potential drinking water resource)
ESL Table C-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table D-1: Deep Soil Screening Levels (>3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 4. Stockpiled Soil Data Summary (CAM 17 Metals)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Depth (feet bgs) | Antimony mg/kg | Arsenic mg/kg | Barium mg/kg | Beryllium mg/kg | Cadmium mg/kg | Total Chromium mg/kg | Cobalt mg/kg | Copper mg/kg | Lead mg/kg | Mercury mg/kg | Molybdenum mg/kg | Nickel mg/kg | Silver mg/kg | Vanadium mg/kg | Zinc mg/kg | Remaining Metals* (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP-1 | 6/18/2014 | 3.5 | <0.50 | **1.7** | 33 | 0.57 | <0.25 | 17 | 6.0 | 11 | 3.1 | 0.14 | <0.50 | 17 | <0.50 | 27 | 32 | <MRL |
| SP-1 | 6/18/2014 | 5.5 | <0.50 | **2.6** | 83 | <0.50 | <0.25 | 40 | 13 | 16 | 3.8 | 0.12 | <0.50 | 32 | <0.50 | 56 | 32 | <MRL |
| SP-1 | 6/18/2014 | 9.5 | <0.50 | **4.2** | 120 | <0.50 | <0.25 | 46 | 15 | 33 | 23 | 0.075 | <0.50 | 38 | <0.50 | 49 | 71 | <MRL |
| SP-5 | 6/18/2014 | 2.5 | 0.77 | **4.9** | 140 | 0.85 | <0.25 | 80 | 18 | 28 | 6.7 | 0.13 | 1.2 | 76 | <0.50 | 85 | 55 | <MRL |
| SP-5 | 6/18/2014 | 5.5 | <0.50 | **8.8** | 600 | 0.88 | <0.25 | 50 | 36 | 22 | 8.0 | 0.18 | 0.86 | 50 | <0.50 | 85 | 44 | <MRL |
| SP-5 | 6/18/2014 | 8.5 | <0.50 | **5.7** | 160 | 0.55 | <0.25 | 60 | 16 | 30 | 36 | 0.086 | 0.54 | 46 | <0.50 | 73 | 80 | <MRL |
| SP-6 | 6/18/2014 | 2.5 | <0.50 | **4.3** | 130 | 0.57 | <0.25 | 48 | 16 | 22 | 9.0 | 0.096 | <0.50 | 50 | <0.50 | 62 | 52 | <MRL |
| SP-6 | 6/18/2014 | 5.5 | <0.50 | **3.4** | 130 | 0.69 | <0.25 | 44 | 16 | 19 | 6.7 | 0.2 | <0.50 | 41 | <0.50 | 64 | 38 | <MRL |
| SP-6 | 6/18/2014 | 8.5 | 1.0 | **7.4** | 180 | 0.52 | 0.31 | 46 | 14 | 36 | **82** | 0.13 | 0.68 | 41 | <0.50 | 55 | 160 | <MRL |
| SP-7 | 6/19/2014 | 2.5 | <0.50 | **2.8** | 110 | 0.65 | <0.25 | 110 | 19 | 36 | 9.7 | 0.074 | <0.50 | 52 | <0.50 | 100 | 52 | <MRL |
| SP-8 | 6/19/2014 | 2.5 | <0.50 | **6.3** | 160 | <0.50 | <0.25 | 31 | 14 | 32 | 12 | 0.17 | 0.51 | 49 | <0.50 | 37 | 77 | <MRL |
| SP-8 | 6/19/2014 | 5.5 | <0.50 | **3.1** | 96 | 0.56 | <0.25 | 34 | 12 | 24 | 3.5 | 0.056 | <0.50 | 38 | <0.50 | 56 | 38 | <MRL |
| SP-8 | 6/19/2014 | 8.5 | <0.50 | **8.1** | 170 | 0.59 | 0.41 | 48 | 12 | 25 | 13 | 0.25 | 0.79 | 56 | <0.50 | 45 | 60 | <MRL |
| SP-9 | 6/19/2014 | 2.5 | <0.50 | **3.8** | 100 | 0.65 | <0.25 | 78 | 17 | 26 | 6.4 | 0.058 | <0.50 | 83 | <0.50 | 84 | 51 | <MRL |
| SP-9 | 6/19/2014 | 5.5 | 0.81 | **7.3** | 160 | 0.52 | <0.25 | 140 | 18 | 30 | 12 | 0.56 | 0.63 | 120 | <0.50 | 63 | 61 | <MRL |
| SP-9 | 6/19/2014 | 8.5 | <0.50 | **0.82** | 43 | <0.50 | <0.25 | 62 | 14 | 44 | 0.69 | <0.05 | <0.50 | 36 | <0.50 | 42 | 24 | <MRL |
| SP-9 | 6/19/2014 | 11.5 | <0.50 | **5.1** | 160 | 0.6 | <0.25 | 36 | 9.5 | 13 | 13 | <0.05 | <0.50 | 25 | <0.50 | 40 | 40 | <MRL |
| SP-10 | 6/19/2014 | 3.5 | 0.59 | **11** | 140 | 0.55 | <0.25 | 240 | 23 | 35 | 10 | 0.11 | 0.53 | **340** | <0.50 | 78 | 89 | <MRL |
| SP-10 | 6/19/2014 | 7.5 | <0.50 | **3.8** | 110 | 0.66 | <0.25 | 53 | 22 | 21 | 12 | 0.11 | <0.50 | 56 | <0.50 | 52 | 64 | <MRL |
| SP-10 | 6/19/2014 | 11.5 | <0.50 | **4.5** | 120 | <0.50 | <0.25 | 54 | 13 | 23 | 13 | 0.15 | <0.50 | 48 | <0.50 | 60 | 58 | <MRL |
| SP-11 | 6/19/2014 | 2.5 | <0.50 | **4.5** | 160 | 0.63 | <0.25 | 48 | 15 | 24 | 6.8 | 0.31 | <0.50 | 59 | <0.50 | 70 | 45 | <MRL |
| SP-11 | 6/19/2014 | 5.5 | 0.76 | **4.3** | 200 | 0.65 | <0.25 | 92 | 17 | 31 | 43 | 0.38 | 0.56 | 73 | <0.50 | 83 | 110 | <MRL |
| SP-11 | 6/19/2014 | 8.5 | <0.50 | **4.9** | 300 | 0.82 | <0.25 | 59 | 16 | 23 | 10 | 0.86 | 1.3 | 59 | <0.50 | 52 | 51 | <MRL |
| SP-11 | 6/19/2014 | 11.5 | <0.50 | **4.1** | 160 | 0.56 | <0.25 | 71 | 21 | 26 | 16 | 0.17 | <0.50 | 65 | <0.50 | 81 | 150 | <MRL |
| SP-12 | 6/19/2014 | 3.5 | <0.50 | **3.8** | 140 | 0.61 | <0.25 | 35 | 11 | 19 | 14 | 0.28 | 0.61 | 32 | <0.50 | 53 | 65 | <MRL |
| SP-12 | 6/19/2014 | 7.5' | <0.50 | **5.4** | 170 | 0.57 | <0.25 | 77 | 13 | 25 | 12 | 0.11 | 0.81 | 59 | <0.50 | 69 | 54 | <MRL |
| SP-12 | 6/19/2014 | 11.5' | <0.50 | **4.0** | 130 | 0.63 | <0.25 | 55 | 11 | 19 | 6.6 | 0.23 | <0.50 | 47 | <0.50 | 48 | 39 | <MRL |
| Comparison Values: | | | | | | | | | | | | | | | | | | |
| TTCL(mg/kg) | | | 500 | 500 | 10,000 | 75 | 100 | 2,500 | 8,000 | 2,500 | 1,000 | 20 | 3,500 | 2,000 | 500 | 2,400 | 5,000 | varies |
| STLC(mg/L) | | | 15.0 | 5.0 | 100 | 0.75 | 1.0 | 5.0 | 80 | 25 | 5.0 | 0.2 | 350 | 20 | 5.0 | 24 | 250 | varies |
| TCLP(mg/L) | | | - | 5.0 | 100 | - | 1.0 | 5.0 | - | - | 5.0 | 0.2 | - | - | 5.0 | - | - | varies |
| ESL Table A-1 (DW) | | | 20 | 0.39 | 750 | 4.0 | 12 | 1,000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 20 | 200 | 600 | varies |
| ESL Table B-1 (Non-DW) | | | 20 | 0.39 | 750 | 4.0 | 12 | 1,000 | 23 | 230 | 80 | 6.7 | 40 | 150 | 20 | 200 | 600 | varies |

**Notes:**

mg/kg = milligrams per kilogram
<MRL = less than the method reporting limit
bgs = below ground surface
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
TCLP = Toxic Leaching Characteristic Procedure
ESL = Environmental Screening Level
DW Drinking Water Comparison Values
Non-DW Non-Drinking Water Comparison Values

* = Remaining metals (not detected) include selenium and thallium
**Bold=** Result exceeds Drinking Water comparison values
**Bold=** Result exceeds Drinking and Non-Drinking comparison values
- No established comparison value

**Comparison Values:**

ESL Table A-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is a current or potential drinking water resource)
ESL Table B-1: Shallow Soil Screening Levels (<3 meters bgs) Residential Land Use (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 5. Groundwater Data Summary (Organic Constituents)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | TPH-g (µg/L) | TPH-d (µg/L) | TPH-mo (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Xylenes (µg/L) | MTBE (µg/L) | Naphthalene (µg/L) | Remaining VOCs* (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sump** | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | <50 | 60 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Waste Disposal Ponds** | | | | | | | | | | | |
| PA-3 | 6/17/2014 | <50 | <50 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| PB-1 | 6/17/2014 | <50 | <50 | <250 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Septic Tank and Leach Field** | | | | | | | | | | | |
| ST-1 | 6/19/2014 | **29,000** | **3,300** | <250 | **5,900** | **270** | **710** | **1,900** | <100 | **190** | <MRL |
| LF-1 | 6/19/2014 | **6,800** | **3,000** | **280** | **22** | 2.6 | **46** | 7.1 | <2.5 | **15** | <MRL |
| LF-2 | 6/19/2014 | **11,000** | **5,500** | **430** | **130** | **200** | **350** | **1,500** | <10 | **100** | <MRL |
| **Former Auto Maintenance Area** | | | | | | | | | | | |
| AM-1 | 6/17/2014 | **5,600** | **1,800** | **430** | **260** | 16 | **270** | **53** | <0.5 | **100** | <MRL |
| AM-2 | 6/17/2014 | **490** | **160** | <250 | 0.75 | <0.5 | 6.9 | <0.5 | <0.5 | 3.7 | <MRL |
| AM-3 | 6/17/2014 | <50 | 93 | **450** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| **Former Underground Storage Tank (UST) Area** | | | | | | | | | | | |
| UST-1 | 6/17/2014 | **35,000** | **12,000** | **250** | **2,100** | **440** | **1,200** | **3,900** | <50 | NA | NA |
| UST-2 | 6/17/2014 | **1,700** | **690** | <250 | **18** | <1.2 | **34** | **70** | <1.2 | NA | NA |
| UST-3 | 6/17/2014 | **1,300** | **310** | <250 | **74** | 3.9 | **53** | **97** | <2.5 | NA | NA |
| UST-4 | 6/17/2014 | **7,400** | **1,800** | <250 | **320** | **55** | **270** | **1,000** | <10 | NA | NA |
| UST-5 | 6/17/2014 | **2,900** | **700** | <250 | **120** | 4.2 | **75** | **160** | <2.5 | NA | NA |
| UST-6 | 6/17/2014 | **8,600** | **1,000** | <250 | **2,100** | **78** | **290** | **870** | <50 | NA | NA |
| **Former Facility Building Footprint** | | | | | | | | | | | |
| BLDG-1 | 6/19/2014 | <50 | **150** | **620** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <MRL |
| BLDG-2 | 6/19/2014 | **220** | 73 | <250 | **27** | 2.5 | 9.2 | **23** | <0.5 | 2.4 | <MRL |
| BLDG-3 | 6/19/2014 | **320** | 98 | <250 | **39** | 3.0 | 9.7 | 17 | <0.5 | 2.9 | <MRL |
| **Comparison Values:** | | | | | | | | | | | |
| ESL Table F-1a (DW) | | 100 | 100 | 100 | 1.0 | 40 | 30 | 20 | 5.0 | 6.1 | varies |
| ESL Table F-1b (Non-DW) | | 500 | 640 | 640 | 27 | 130 | 43 | 100 | 1,800 | 24 | varies |

**Notes:**

µg/L = micrograms per liter
<MRL = less than the method reporting limit or no ESL
bgs = below ground surface
NA = sample not analyzed for indicated constituent
TPH-g = Total Petroleum Hydrocarbons as Gasoline
TPH-d = Total Petroleum Hydrocarbons as Diesel
TPH-mo = Total Petroleum Hydrocarbons as Motor Oil
MTBE = Methyl tert-Butyl Ether
* = Detections for t-Butyl alcohol, n-Butyl benzene, sec-Butyl benzene, diisopropyl ether, isopropyl benzene, 4-isopropyl toluene, n-Propyl benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and 2-Butanone were not reported because there is no established ESL for these compounds
DW= Drinking Water Comparison Values
Non-DW= Non-Drinking Water Comparison Values
**Bold** = Result exceeds Drinking Water comparison values
**Bold** = Result exceeds Drinking and Non-Drinking Water comparison values

**Comparison Values:**

ESL Table F-1a: Groundwater Screening Levels (groundwater is a current or potential drinking water resource)
ESL Table F-1b: Groundwater Screening Levels (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 6. Groundwater Data Summary (CAM 17 Metals)**
**2592 Lakeville Highway, Petaluma, California**

| Location ID | Date | Antimony (µg/L) | Arsenic (µg/L) | Barium (µg/L) | Cadmium (µg/L) | Cobalt (µg/L) | Copper (µg/L) | Mercury (µg/L) | Molybdenum (µg/L) | Nickel (µg/L) | Vanadium (µg/L) | Zinc (µg/L) | Remaining Metals* (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sump** | | | | | | | | | | | | | |
| SMP-1 | 6/19/2014 | <5.0 | 8.7 | 240 | <2.5 | <5.0 | <5.0 | <0.25 | <5.0 | **420** | **39** | <50 | <MRL |
| **Waste Disposal Ponds** | | | | | | | | | | | | | |
| PA-3 | 6/17/2014 | <5.0 | **39** | 89 | <2.5 | **53** | **15** | <0.25 | 42 | **140** | 13 | **110** | <MRL |
| PB-1 | 6/17/2014 | <5.0 | **24** | 600 | **3.2** | **56** | **10** | <0.25 | 10 | **110** | **23** | **110** | <MRL |
| **Septic Tank and Leach Field** | | | | | | | | | | | | | |
| ST-1 | 6/19/2014 | <5.0 | **16** | **1,100** | <2.5 | **36** | <5.0 | <0.25 | 22 | **76** | 5.3 | <50 | <MRL |
| LF-1 | 6/19/2014 | <5.0 | **12** | **1,300** | <2.5 | **37** | **5.4** | **0.6** | **87** | **270** | 11 | <50 | <MRL |
| LF-2 | 6/19/2014 | <5.0 | <5.0 | 310 | <2.5 | <5.0 | <5.0 | <0.25 | 47 | **45** | 5.4 | <50 | <MRL |
| **Comparison Values:** | | | | | | | | | | | | | |
| ESL Table F-1a (DW) | | 6.0 | 10 | 1,000 | 0.25 | 3.0 | 3.1 | 0.025 | 78 | 8.2 | 19 | 81 | varies |
| ESL Table F-1b (Non-DW) | | 30 | 36 | 1,000 | 0.25 | 3.0 | 3.1 | 0.025 | 240 | 8.2 | 19 | 81 | varies |

**Notes:**

µg/L = micrograms per liter
<MRL = less than the method reporting limit
bgs = below ground surface
* = Remaining metals include silver, beryllium, chromium, lead, mercury, selenium, silver, and thallium. These constituents were not detected above the laboratory reporting limits
ESL = Environmental Screening Level
DW= Drinking Water Comparison Values
Non-DW= Non-Drinking Water Comparison Values
**Bold =** Result exceeds Drinking Water comparison values
**Bold =** Result exceeds Drinking and Non-Drinking Water comparison values

**Comparison Values:**

ESL Table F-1a: Groundwater Screening Levels (groundwater is a current or potential drinking water resource)
ESL Table F-1b: Groundwater Screening Levels (groundwater is not a current or potential drinking water resource)

From Derivation and Application of Environmental Screening Levels, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

**Table 7. Soil Gas Sample Data Summary**
**2592 Lakeville Highway, Petaluma, California**

| | | | Sample Locations | | | | | | Comparison Value |
|---|---|---|---|---|---|---|---|---|---|
| | | | Auto Maintenance Area | | UST Area | | Building Footprint | | |
| Analytical Parameter | Date | Units | G-1 | G-2 | G-3 | G-4 | G-5 | G-6 | ESL Table E-2 |
| 1,2,4-Trimethylbenzene | 06/19/14 | µg/m$^3$ | 6.8 | 7.4 | 14,000 | <5.9 | 19 | <6.6 | NA |
| 1,3,5-Trimethylbenzene | 06/19/14 | µg/m$^3$ | <6.1 | <5.9 | 6,100 | <5.9 | 6.2 | <6.6 | NA |
| Methyl ethyl ketone | 06/19/14 | µg/m$^3$ | 14 | 26 | <7600 | 50 | 130 | 52 | 2,600,000 |
| 4-Ethyltoluene | 06/19/14 | µg/m$^3$ | <6.1 | <5.9 | 18,000 | <5.9 | 20 | <6.6 | NA |
| 4-Methyl-2-pentanone | 06/19/14 | µg/m$^3$ | <5.1 | <5.0 | <2600 | 6.3 | <4.3 | 34 | 1,600,000 |
| Acetone | 06/19/14 | µg/m$^3$ | 39 | 900 | <6100 | 300 | 660 | 160 | 16,000,000 |
| Benzene | 06/19/14 | µg/m$^3$ | 4.9 | 3.9 | **750,000** | 39 | 7.4 | <4.3 | 42 |
| Cumene | 06/19/14 | µg/m$^3$ | <6.1 | <5.9 | 3,800 | <5.9 | <5.1 | <6.6 | NA |
| Cyclohexane | 06/19/14 | µg/m$^3$ | 14 | 22 | 880,000 | 220 | 210 | 20 | NA |
| Ethanol | 06/19/14 | µg/m$^3$ | 13 | 12 | <4900 | <9.0 | 76 | 100 | NA |
| Ethyl Benzene | 06/19/14 | µg/m$^3$ | <5.4 | <5.2 | **83,000** | 14 | 17 | <5.8 | 490 |
| Heptane | 06/19/14 | µg/m$^3$ | <5.1 | <5.0 | 420,000 | 93 | 4.8 | <5.5 | NA |
| Hexane | 06/19/14 | µg/m$^3$ | <4.4 | <4.3 | 1,900,000 | 260 | 11 | 4.9 | NA |
| Xylenes | 06/19/14 | µg/m$^3$ | 10 | 10 | **217,000** | 13 | 84 | <5.8 | 52,000 |
| Naphthalene | 06/19/14 | µg/m$^3$ | <26 | <25 | <14000 | <25 | <22 | <28 | 36 |
| Propylbenzene | 06/19/14 | µg/m$^3$ | <6.1 | <5.9 | 5,400 | <5.9 | 6 | <6.6 | NA |
| Tetrachloroethene | 06/19/14 | µg/m$^3$ | <8.4 | <8.2 | **6,100** | <8.1 | <7.0 | <9.1 | 210 |
| Tetrahydrofuran | 06/19/14 | µg/m$^3$ | 4.7 | 6.4 | <1900 | 5.9 | 210 | 12 | NA |
| Toluene | 06/19/14 | µg/m$^3$ | 14 | 40 | 130,000 | 17 | 46 | 5.8 | 160,000 |
| TPH-g | 06/19/14 | µg/m$^3$ | 600 | 1600 | **43,000,000** | 6000 | 2100 | 900 | 300,000 |

**Notes:**

µg/m$^3$ = micrograms per cubic meter
NA = No established comparison value for indicated constituent
TPH-g = Total Petroleum Hydrocarbons as Gasoline
ESL = Environmental Screening Level
**Bold =** Result exceeds applicable Comparison Value

**Comparison Values:**

ESL Table E-2: Soil Gas Screening Levels for Evaluation of Vapor Intrusion Concerns (Lowest Residential Exposure)

From Derivation and Application of ESLs, prepared by the San Francisco Bay Regional Water Quality Control Board (December 2013)

# APPENDIX A

# PERMITS

DEPT. OF HEALTH SVCS

COUNTY OF SONOMA — DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH & SAFETY
625 5th Street, Santa Rosa, CA 95404
Phone (707) 565-6565 Fax (707) 565-6525 www.sonoma-county.org

JUN 02 2014
ENVIRONMENTAL HEALTH DIVISION

**For Office Use Only**
Amount paid 2603
Receipt number 817B
Payment date 6.6.14 Rev. code 1345
Site ID# FA0003178
Permit # SR0012022

APPLICATION FOR DRILLING PERMIT
for Regional Board Lead/Environmental Assessment / LOP Lead

1416

Well type: ☐Monitoring well ☐Recovery extraction well ■Boring ☐Injection well ☐Destruct ☐Environmental assessment
☐Soil gas survey ■Direct push ☐Air sparging/venting ☐Remediation well ☐Other

Well depth _____ Boring depth 3-12 feet bgs

# On-site well/boring 31 ID # TBD (See Work Plan) # Off-site well/boring _____ ID # _____

Submit legal right-of-entry/off-site well address/encroachment permit

On-site Address 2592 Lakeville Highway AP# _____

Facility Name Vacant Land (Former Royal Tallow and Soap Company)

On-site Owner Baywood, LLC Phone (707) 578-5344

Street 414 Aviation Boulevard City Santa Rosa State CA Zip 95403

Responsible Party Baywood, LLC Phone (707) 578-5344

Street 414 Aviation Boulevard City Santa Rosa State CA Zip 95403

Consultant AEI Consultants Diego Gonzalez 925 746-6040 Phone (925) 746-6000

Street 2500 Camino Diablo City Walnut Creek State CA Zip 94597

License #/Type _____

Drilling Contractor Environmental Control Associates, Inc. (ECA) Phone (831)

Street 3011 Twin Palms Drive City Aptos State CA Zip _____

C-57 License # 695970

Type of work: ■Initial investigation _____ # Wells ☐Subsequent investigation _____ # Wells ☐Destruct _____ # Wells

Groundwater investigation due to: ☐Underground tank ☐Surface impoundment ■Environmental assessment
☐Surface disposal practice—specify involved industry _____
☐Other _____

Perforated intervals _____ Chemical constituents _____

Disposal method for soil cuttings 55-gallon Drums Disposal method for development water _____

Drilling method Direct Push Method of drill equip. rinsate containment Sealed 5-gallon buckets

If destroying a well, abandonment method Backfill with neat cement grout

Submit plot plan of wells in relation to all sewer or septic lines.

***Is well to be constructed within:*** 100 feet of a septic tank or leachfield? ☐Yes ◉No
50 feet of any sanitary sewer line? ☐Yes ◉No
25 feet of any private sanitary sewer line? ☐Yes ◉No

ENTERED EP

084195*#
001348D
ENVDRILL 2603.00
084102D
DONATION 4.00
TTLAMT 2607.00
CHECKS 2607.00
CHANGE 0.00
817B #2 9:52

In addition, all monitoring wells must include ***identification system*** affixed to interior surface:

1) Well identification 2) Well type 3) Well depth 4) Well casing diameter 5) Perforated intervals 06/06/14

Well identification number and well type shall be ***affixed*** to the ***exterior surface*** security structure.

**For Office Use Only**

Address 2592 La Luna Rd

Site ID# FA0003175

Permit # S12001202c

I hereby agree to comply with all laws and regulations of the County of Sonoma and State of California pertaining to water well construction. I will telephone (707) 565-6565, 48 hours in advance, to notify the Environmental Health Specialist when completing or destroying a well. I will furnish the Director of Health Services and the owner a legible copy of the State Water Well Driller's Report within 15 days; and a copy of the Summary Report, including sample results, should be received by this Department within 90 days in order to obtain final approval on this well permit. I acknowledge that the application will become a permit ***only*** after site approval and payment of fee. I understand that this permit is not transferable and expires one year from date of issuance.

Tom Taylor Date 5-29-14

Signature of Well Driller—***no proxies***

Insurance Carrier State Fund Expiration Date 5-8-2015

Once all wells/borings are installed, submit a Well Driller's Log and/or Summary Report to complete permit process.

Indicate on attached plot plan the exact location of well(s) with respect to the following items: property lines, water bodies or water courses drainage pattern, roads, existing wells, sewer main and laterals and private sewage disposal systems or other sources of contamination or pollution. INCLUDE DIMENSIONS. The validity of this permit depends upon the accuracy of the information provided by the applicant.

Conditions of permit:

Borings shall abandoned by tremie Grouting

FOR OFFICE USE ONLY – ENVIRONMENTAL HEALTH & SAFETY

Permit approved by Mikyle Coats ENTERED EP Date 6/9/14

Constr. approved by _____ Observed? ☐Yes ☐No Well # _____ Date ____/____/____

RWQCB / LOP approval _____ Date ____/____/____



Distribution: ☐File ☐Driller ☐Consultant ☐Owner/Resp. Party

AEI Consultants
Environmental & Engineering Services

March 24, 2014

# PHASE I
# ENVIRONMENTAL SITE ASSESSMENT

**Property Identification:**
2592 Lakeville Highway
Petaluma, Sonoma County, California 94954

AEI Project No. 327703
Client Reference No. 44-1850-2014

**Prepared for:**
DeNova Homes
1500 Willow Pass Court
Concord, California 94520

**Prepared by:**
AEI Consultants
2500 Camino Diablo
Walnut Creek, California 94597
(925) 746-6000

DRAFT

San Francisco HQ
Atlanta
Chicago
Dallas
Denver
Irvine
Los Angeles
Miami
New York
Phoenix
Portland
San Jose

DRAFT

# PROJECT SUMMARY

**2592 Lakeville Highway**
**Petaluma, Sonoma County, California**

| Report Section | | No Further Action | REC | CREC | HREC | Environmental Issues | Non-ASTM Considerations | Recommended Action |
|---|---|---|---|---|---|---|---|---|
| **2.1** | Current use of subject property | | **X** | | | | | Further Investigation of Fill Material on Site |
| **2.2** | Adjoining property information | **X** | | | | | | |
| **3.1** | Historical Summary | | **X** | | | | | Further Investigation of Former Waste Water Ponds |
| **4.0** | Regulatory Agency Records Review | | | **X** | | | | Further Investigation of Soil On-Site |
| **5.0** | Regulatory Database Records Review | **X** | | | | | | |
| **5.2** | Vapor Encroachment | | **X** | | | | | Further Investigation to Determine if a VEC Exists |
| **6.3** | Previous Reports | | | **X** | | | | Further Investigation of Soil On-Site |
| **7.0** | Site Inspection and Reconnaissance | | | | | | **X** | Determine if Wetland Delineation Report is Required |
| **7.2.1** | Asbestos-Containing Materials | **X** | | | | | | |
| **7.2.2** | Lead-Based Paint | **X** | | | | | | |
| **7.2.3** | Radon | **X** | | | | | | |
| **7.2.4** | Lead in Drinking Water | **X** | | | | | | |
| **7.2.5** | Mold | **X** | | | | | | |

DRAFT



AEI Consultants

# EXECUTIVE SUMMARY

AEI Consultants (AEI) was retained by DeNova Homes to conduct a Phase I Environmental Site Assessment (ESA), in conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) for the property located at 2592 Lakeville Highway in the City of Petaluma, Sonoma County, California. Any exceptions to, or deletions from, this practice are described in Section 1.3 of this report.

**PROPERTY DESCRIPTION**

The subject property, which consists of vacant land, is located to the south of Lakeville Highway and southeast of Casa Grande Road, in a mixed commercial and residential area of Petaluma, California. The property totals approximately 13 acres and is not improved with any permanent structures. The subject property is currently occupied part time by a caretaker living in a trailer home parked on-site. The property is improved with a concrete driveway leading to the property from Casa Grande Road and is surrounded with a barbed wire fence. In addition, the property has a large mound of miscellaneous construction debris (which originated off-site) located on the central portion of the property. There is also a smaller pile of Class II Aggregate (concrete and asphalt) also located on the central portion of the property.

According to historical sources, the current property has been vacant land since the former Royal Tallow and Soap Company buildings were demolished in 2008. The subject property was occupied by the Royal Tallow and Soap Company from at least 1955 to 1986 when operations ceased. A small structure and a dirt road were identified on the subject property in historic topographic maps from at least 1914 to 1940, although the occupancy of the property at this time was not identified during the historical research for this report and constitutes a significant data gap. Please refer to Section 1.5 for further discussion.

The subject property was identified in the regulatory databases reviewed as a Comprehensive Environmental Response Compensation and Liability Information System No Further Remedial Action Planned (CERC-NFRAP) site, a RGA Leaking Underground Storage Tank (LUST) site (three times), a Facility and Manifest Data (HAZNET) site (three times), Historic Cortese site, a LUST site (twice), an Envirostor (with the Department of Toxic Substance Control [DTSC]) site, a California Facility Inventory Database UST (CA FID UST) site, a Historic UST (HIST UST) site, and a Statewide Environmental Evaluation and Planning System UST (SWEEPS UST) site, which is further discussed in Section 5.1.

The immediately surrounding properties consist of the following:

| Direction from Site | Address-Tenant/Use |
|---|---|
| **Northwest** | Casa Grande Road, followed by Skoff Trucking (1 Casa Grande Road) |
| **North** | Park Central Apartments (1400 Technology Lane) |
| **Northeast** | Vacant Commercial/Industrial Building (1450 Technology Lane) |
| **South** | Vacant marsh land with a public access trail running through it, followed by the Petaluma River (no address available) |
| **Southwest** | Rocky Memorial Dog Park (former Casa Grande Landfill) 2204 Casa Grande Road |
| **West** | Casa Grande Road, followed by Michal Paul Co. Construction Company (1200 Casa Grande Road) |



DRAFT

The adjacent site to the northwest, 1 Casa Grande Road, was identified in the regulatory database as a Hist Cortese, LUST, Aboveground Storage Tank (AST), SWEEPS UST, Enforcement (ENF), CA FID UST, and UST site. Please refer to Section 5.1.

The adjacent site to the southwest, the former Casa Grande Landfill, was identified in the regulatory database as a Solid Waste Information System (SWF/LF), Envirostor, and Financial Assurance site. Please refer to Section 5.1.

Based upon groundwater monitoring data conducted on the subject property (Royal Tallow and Soap Company Underground Storage Tank Site Characterization Report, August 17, 1990), the direction of groundwater flow beneath the subject property is inferred to be to the south and southwest. Based on the same information, groundwater is presumed to be present at an estimated depth of three to five feet below ground surface (bgs).

**FINDINGS**

Recognized Environmental Conditions (RECs) are defined by the ASTM Standard Practice E1527-13 as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. AEI's assessment has revealed the following RECs associated with the subject property or nearby properties:

- Based on the review of topographic maps, a railroad line ran along the northern boundary of the subject property from at least 1914 until at least 1980. In addition, a map on file with the Sonoma County Environmental Health Division (SCEHD) from 2000 notes that the northern portion of the property was formerly the Northwestern Pacific Railroad Right of Way (please refer to Appendix D). According to Mr. Patrick Imbimbo of Baywood, this area was developed with a railroad spur which was removed by Baywood sometime around 2008. It is possible that shipments were delivered to the subject property via this spur. In addition, railroad spurs represent potential environmental concerns due to the historical practice of application of oils that may have contained polychlorinated biphenyls (PCBs), herbicides, and arsenic for pest and weed control, as well as the potential presence of creosote on the rail ties, and the historical common practice of using coal cinders for track fill material. AEI understands that the subject property is slated for residential redevelopment. Consequently, AEI recommends the soil sampling to assess whether the subject property has been significantly impacted in connection with the historical railroad spur on the north portion of the property.

- Based on an interview with a former Royal Tallow and Soap Company Facility, Mr. Pete Terribilini, the subject property used a septic system and waste water disposal ponds to dispose of waste water on-site. Mr. Terribilini explained that the tallow facility was washed down once a day, and the water from this process flowed into a clarifier. According to Mr. Terribilini, this room was called the "sewer room," and water from this cleaning process was filled with "tallow and grease" from the plant operations. The water sat in the clarifier for approximately one day, and then the scum was skimmed off the top and the water was allowed to flow into the waste water ponds on the southern portion of the property. Although the majority of the contaminants in this wastewater were likely organic in nature, it is possible that hazardous materials used as part of the rendering process or used on machinery could have been present in the waste water.

DRAFT

In addition, based on a map on file with the SCEHD, two septic tanks were located east adjacent to the main rendering plant, and the leach field extended to the southwest. Since the buildings have been demolished, it is unclear whether the septic system was solely used for restroom purposes, or if other water was discharged into the system. In addition, due to the long industrial nature of the property use and the lack of regulatory oversight it is possible that hazardous materials could have entered the septic system and other waste water ponds. Based on this information, the wastewater discharge from the former facility through the wastewater ponds and the septic system represent an environmental concern. AEI recommends further investigation in the area of the septic leach field, former septic tanks, wastewater clarifier, and wastewater disposal ponds to determine if a release to the subsurface has occurred.

- During remediation of the soils on the subject property in the area of the former USTs (please see Controlled Recognized Environmental Condition Section below) soil borings were advanced and samples were taken from the area of the former truck garage and maintenance building which indicated high levels of TPHg in soil in this area. However, it does not appear that the soils in this area were excavated, and it is likely that contamination remains in place. Based on this information, AEI recommends additional investigation into the soils in the area of the former garage and maintenance building.

- According to Mr. Imbimbo, fill material from off site has been stockpiled on the northern portion of the subject property. The stockpiled material appeared to be approximately ten to 12 feet high. Mr. Imbimbo explained that the soil was deemed as "clean" before it was deposited on the subject property, and there are plans to use the material as fill before redevelopment of the property. However, no information was provided to AEI as to the origin of the material and no soil testing data was available to verify that there are no contaminants in the material. There is the potential that contamination from off-site sources may be present in this material. AEI recommends sampling of the fill material prior to use on the subject property to determine if contamination from off-site is present.

- A large mound (approximately 20 feet high) of construction debris is located on the central portion of the subject property. According to Mr. Imbimbo, this debris has been stored on the subject property by the Soil Land Company from various off-site construction sites. According to Mr. Imbimbo, until approximately one year ago, Soil Land was crushing the material on site and turning it into Class II Aggregate to be reused off-site. Just south of this mound, there is another smaller mound of this Class II Aggregate left over from the crushing operations (composed of cement and concrete). There is a potential that asbestos and/or other potentially hazardous or regulated materials are present in this material. AEI recommends sampling of this material and proper off-site disposal. Based on the levels of residual contamination which remained at the subject property upon regulatory closure in 2004, including 438 ppm of TPHg, a vapor encroachment condition likely exists at the subject property. AEI recommends additional investigation to determine if a VEC exists at the subject property.

Controlled Recognized Environmental Conditions (CRECs) are defined by the ASTM Standard Practice E1527-13 as a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. AEI's assessment has revealed the following CRECs associated with the subject property or nearby properties:



DRAFT

- Based on information available in the Case Closure Summary and Remedial Action Completion Certificate (also on file on the GeoTracker website), one 1,000-gallon UST and one 2,000-gallon UST, both containing regular unleaded gasoline, were removed from the subject property on June 30, 1990. 2,400 cubic yards of soil were treated on-site and used for back-fill. 2,900 parts per million (ppm) of total petroleum hydrocarbons as gas (TPHg), 19.17 ppm benzene, 151 ppm toluene, 303 ppm xylenes, and 61.7 ppm ethylbenzene were found in soil. In addition, 125 ppm TPHg, 21.8 ppm benzene, 16 ppm toluene, 9.52 ppm xylene, 2.2 ppm ethylbenzene, and 0.0067 ppm 1,2-Dichloroethane (1,2-DCA) were found in groundwater. Upon site closure, all contaminants in groundwater were below laboratory reporting limits except 0.0016 ppm of 1,2-DCA. However, significant soil contamination remained on-site upon closure, including 438 ppm of TPHg, 10.4 ppm xylene, and 8.25 ppm ethylbenzene. In addition, soil and groundwater were not tested for TPH diesel (TPHd), oil and grease, or heavy metals, and soil was not tested for the presence of 1,2-DCA.

  As a stipulation of site closure, the SCEHD stated that future site development should address the residual soil contamination, including proper handling and disposal. In addition, the SCEHD would require that a Site Safety Plan be developed and implemented before any future redevelopment. Based on this information, the release from the former USTs represents a controlled recognized environmental condition. It is AEI's understanding that the subject property is slated for residential redevelopment. Thus, AEI recommends investigation to assess current conditions associated with this release. In addition, AEI also recommends contacting the SCEHD and completing the necessary Site Safety Plan and any other required documentation.

Historical Recognized Environmental Condition (HREC) is defined by the ASTM Standard Practice E1527-13 as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. AEI's assessment has revealed the following HRECs associated with the subject property or nearby properties:

- No on-site HRECs were identified during the course of this assessment.

Environmental Issues include environmental concerns identified by AEI that warrant discussion, but do not qualify as recognized environmental conditions, as defined by the ASTM Standard Practice E1527-13. These can include, but are not limited to risks which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of the subject property. AEI's assessment has revealed the following environmental issues associated with the subject property or nearby properties:

- No on-site environmental issues were identified during the course of this assessment.

Non-ASTM Considerations may include the presence of environmental conditions such as asbestos containing materials, lead-based paint, radon, mold, lead in drinking water, etc. which can affect the liabilities and financial obligations of the client, the health & safety of site occupants, and the value and marketability of the subject property. AEI's assessment has revealed the following Non-ASTM considerations associated with the subject property or nearby properties:

- Mr. Imbimbo explained to AEI that the western portion of the subject property is part of the National Wetland Inventory. This was confirmed in the regulatory database vicinity map,

which shows that the southern portion of the property is also considered to be a wetland. No hazardous materials or petroleum products were observed on the standing water or these wetland areas. Therefore, these areas are not expected to represent a significant environmental concern. However, AEI understands that the subject property is slotted for redevelopment. AEI recommends contacting the local planning and/or building departments to determine whether a Wetlands Delineation report is required and if mitigation is required in order to develop in these areas.

**CONCLUSIONS, OPINIONS AND RECOMMENDATIONS**

We have performed a Phase I Environmental Site Assessment for the property located at 2592 Lakeville Highway in the City of Petaluma, Sonoma County, California, in conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312). Any exceptions to, or deletions from, this practice are described in Section 1.3 of this report. This assessment has revealed no evidence of RECs or CRECs in connection with the property except for those previously identified in the *Findings* section. AEI recommends additional investigation into the environmental conditions identified associated with the former use of the subject property by the Royal Tallow and Soap Company.

DRAFT

# TABLE OF CONTENTS


**1.0 INTRODUCTION ..... 1**

1.1 Scope of Work ..... 1
1.2 Significant Assumptions ..... 1
1.3 Limitations ..... 2
1.4 Limiting Conditions/Deviations ..... 3
1.5 Data Gaps and Data Failure ..... 3
1.6 Reliance ..... 4

**2.0 SITE AND VICINITY DESCRIPTION ..... 5**

2.1 Site Location and Description ..... 5
2.2 Site and Vicinity Characteristics ..... 5
2.3 Physical Setting ..... 5

**3.0 HISTORICAL REVIEW OF SITE AND VICINITY ..... 7**

3.1 Historical Summary ..... 7
3.2 Aerial Photograph Review ..... 7
3.3 Sanborn Fire Insurance Maps ..... 8
3.4 City Directories ..... 9
3.5 Historical Topographic Maps ..... 9
3.6 Chain of Title ..... 10

**4.0 REGULATORY AGENCY RECORDS REVIEW ..... 11**

4.1 Regulatory Agencies ..... 11

**5.0 REGULATORY DATABASE RECORDS REVIEW ..... 17**

5.1 Records Summary ..... 17
5.2 Vapor Encroachment ..... 21

**6.0 INTERVIEWS AND USER PROVIDED INFORMATION ..... 22**

6.1 Interviews ..... 22
6.2 User Provided Information ..... 24
6.3 Previous Reports and Other Provided Documentation ..... 24

**7.0 SITE INSPECTION AND RECONNAISSANCE ..... 27**

7.1 Subject Property Reconnaissance Findings ..... 27
7.2 Non-ASTM Services ..... 29
7.3 Adjacent Property Reconnaissance Findings ..... 30

**8.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONALS ..... 31**

**9.0 REFERENCES ..... 32**


## FIGURES


**1** Site Location Map
**2** Site Map
**3** Historical Site Map


## APPENDICES


**A** Property Photographs
**B** Regulatory Database
**C** Historical Sources


DRAFT

**D** REGULATORY AGENCY RECORDS
**E** ASTM USER QUESTIONNAIRE
**F** PREVIOUS REPORTS
**G** OTHER SUPPORTING DOCUMENTATION
**H** QUALIFICATIONS

DRAFT

# 1.0 INTRODUCTION

This report documents the methods and findings of the Phase I Environmental Site Assessment (ESA) performed in conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) for the property located at 2592 Lakeville Highway in the City of Petaluma, Sonoma County, California (Figure 1: Site Location Map, Figure 2: Site Map, and Appendix A: Property Photographs).

## 1.1 SCOPE OF WORK

The purpose of the Phase I Environmental Site Assessment is to assist the client in identifying potential environmental liabilities associated with the presence of any hazardous substances or petroleum products, their use, storage, and disposal at and in the vicinity of the subject property, as well as regulatory non-compliance that may have occurred at the subject property. Property assessment activities focused on: 1) a review of federal, state, tribal and local databases that identify and describe underground fuel tank sites, leaking underground fuel tank sites, hazardous waste generation sites, and hazardous waste storage and disposal facility sites within the ASTM approximate minimum search distance; 2) a property and surrounding site reconnaissance, and interviews with the past and present owners and current occupants and operators to identify potential environmental contamination; and 3) a review of historical sources to help ascertain previous land use at the site and in the surrounding area.

The goal of AEI Consultants in conducting the Phase I Environmental Site Assessment was to identify the presence or likely presence of any hazardous substances or petroleum products on the property that may indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum product into the soil, groundwater, or surface water of the property.

## 1.2 SIGNIFICANT ASSUMPTIONS

The following assumptions are made by AEI Consultants in this report. AEI Consultants relied on information derived from secondary sources including governmental agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, and personal interviews. AEI Consultants has reviewed and evaluated the thoroughness and reliability of the information derived from secondary sources including government agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, or personal interviews. It appears that all information obtained from outside sources and reviewed for this assessment is thorough and reliable. However, AEI cannot guarantee the thoroughness or reliability of this information.

Groundwater flow and depth to groundwater, unless otherwise specified by on-site well data, or well data from adjacent sites are assumed based on contours depicted on the United States Geological Survey topographic maps. AEI Consultants assumes the property has been correctly and accurately identified by the client, designated representative of the client, property contact, property owner, and property owner's representatives.

DRAFT

## 1.3 LIMITATIONS

Property conditions, as well as local, state, tribal and federal regulations can change significantly over time. Therefore, the recommendations and conclusions presented as a result of this study apply strictly to the environmental regulations and property conditions existing at the time the study was performed. Available information has been analyzed using currently accepted assessment techniques and it is believed that the inferences made are reasonably representative of the property. AEI Consultants makes no warranty, expressed or implied, except that the services have been performed in accordance with generally accepted environmental property assessment practices applicable at the time and location of the study.

Considerations identified by ASTM as beyond the scope of a Phase I ESA that may affect business environmental risk at a given property include the following: asbestos-containing materials, radon, lead-based paint, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, mold, vapor intrusion, and high voltage lines. These environmental issues or conditions may warrant assessment based on the type of the property transaction; however, they are considered non-scope issues under ASTM Standard Practice E1527-13.

If requested by the client, these non-scope issues are discussed in Section 7.2. Otherwise, the purpose of this assessment is solely to satisfy one of the requirements for qualification of the innocent landowner defense, contiguous property owner or bona fide prospective purchaser under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). ASTM Standard Practice E1527-13 and the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) constitute the "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in:

1) 42 U.S.C § 9601(35)(B), referenced in the ASTM Standard Practice E1527-13.

2) Sections 101(35)(B) (ii) and (iii) of CERCLA and referenced in the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312).

3) 42 U.S.C. 9601(40) and 42 U.S.C. 9607(q).

The Phase I Environmental Site Assessment is not, and should not be construed as, a warranty or guarantee about the presence or absence of environmental contaminants that may affect the property. Neither is the assessment intended to assure clear title to the property in question. The sole purpose of assessment into property title records is to ascertain a historical basis of prior land use. All findings, conclusions, and recommendations stated in this report are based upon facts, circumstances, and industry-accepted procedures for such services as they existed at the time this report was prepared (i.e., federal, state, and local laws, rules, regulations, market conditions, economic conditions, political climate, and other applicable matters). All findings, conclusions, and recommendations stated in this report are based on the data and information provided, and observations and conditions that existed on the date and time of the property visit.

Responses received from local, state, or federal agencies or other secondary sources of information after the issuance of this report may change certain facts, findings, conclusions, or circumstances to the report. A change in any fact, circumstance, or industry-accepted

procedure upon which this report was based may adversely affect the findings, conclusions, and recommendations expressed in this report.

### 1.4 LIMITING CONDITIONS / DEVIATIONS

The performance of this Phase I Environmental Site Assessment was limited by the following conditions:

- On March 11, 2014, the Unites States Environmental Protection Agency (US EPA) was contacted for information on the subject property. However, as of this writing, no response has been received from the US EPA. Upon receiving pertinent information in connection with the subject property, AEI will immediately issue an addendum to this report if items of environmental concern are identified. However, based on the quality of information obtained from other sources, this limitation is not expected to significantly alter the findings of this assessment.

- On March 11, 2014, the Department of Toxic Substance Control (DTSC) and City of Petaluma Department of Parks and Recreation (CPDPR) were contacted for information pertaining to the adjacent site to the west, Rocky Memorial Dog Park. Upon receiving pertinent information in connection with the subject property, AEI will immediately issue an addendum to this report if items of environmental concern are identified.

- Due to the size of the subject property, AEI performed a site inspection of the property utilizing a field technique of traversing the site in an attempt to provide an overlapping field of view. Due to the size of the property and the vegetation present on site, isolated areas of the site may have not been accessible for direct observation during AEI's inspection.

- During on-site reconnaissance, AEI was not granted access into the trailer located on the northern portion of the property. According to Mr. Patrick Imbimbo of Baywood, the trailer is only used by the subject property caretaker for residential activities. Based on this information, this limitation is not expected to significantly alter the findings of this assessment.

### 1.5 DATA GAPS AND DATA FAILURE

According to ASTM E1527-13, data gaps occur when the Environmental Professional is unable to obtain information required, despite good faith efforts to gather such information.

Data failure is one type of data gap. According to ASTM E1527-13 "data failure occurs when all of the standard historical sources that are reasonably ascertainable and likely to be useful have been reviewed and yet the objectives have not been met". Pursuant to ASTM Standards, historical sources are required to document property use back to the property's first developed use or back to 1940, whichever is earlier.

The following data gaps were identified during the course of this assessment:

DRAFT

| | | | | | |
|---|---|---|---|---|---|
| Data Gap: | The subject property is depicted as developed with a small structure and a dirt road in historical topographic maps from 1914 to 1940. In the 1955 map, the subject property is developed with the royal Tallow and Soap Company facility. Tenancy of the subject property is unknown from 1914 to 1940. The lack of historical sources dating back to first developed use and information regarding historical tenancy between 1914 to 1940 represent historical data gaps. If the User of this report desires a greater degree of certainty regarding the use of the subject property during this time period, additional city directories or a chain of title report may provide evidence of how the property was used. | | | | |
| Does this data gap affect the EP's ability to identify RECs? | | Yes | | No | X |
| Rationale | Groundwater monitoring and soil sampling was done of the subject property in relation to the leaking underground storage tanks from the Royal Tallow facility, and no evidence was found that contamination from a different facility is present on the subject property. | | | | |
| Information/ sources consulted | Historic Topographic Maps, Sanborn Maps, Aerial Photographs, City Directories, Previous Reports, Agency Records | | | | |

## 1.6 RELIANCE

All reports, both verbal and written, are for the benefit of De Nova Homes. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors or assigns. Reliance is provided in accordance with AEI's Proposal and Standard Terms & Conditions executed by DeNova Homes on February 18, 2014. The limitation of liability defined in the Terms and Conditions is the aggregate limit of AEI's liability to the client and all relying parties.

DRAFT

# 2.0 SITE AND VICINITY DESCRIPTION

## 2.1 SITE LOCATION AND DESCRIPTION

The subject property, which consists of vacant land, is located to the south of Lakeville Highway and southeast of Casa Grande Road, in a mixed commercial and residential area of Petaluma, California. The property totals approximately 13 acres and is not improved with any permanent structures. The subject property is currently occupied by a residential tenant living in a motor home parked on-site. The property is improved with a concrete driveway leading to the property from Casa Grande Road and is surrounded with a barbed wire fence.

The subject property was identified in the databases reviewed as a Comprehensive Environmental Response Compensation and Liability Information System No Further Remedial Action Planned (CERC-NFRAP) site, a RGA Leaking Underground Storage Tank (LUST) site (three times), a Facility and Manifest Data (HAZNET) site (three times), Historic Cortese site, a LUST site (twice), an Envirostor (with the Department of Toxic Substance Control [DTSC]) site, a California Facility Inventory Database UST (CA FID UST) site, a Historic UST (HIST UST) site, and a Statewide Environmental Evaluation and Planning System UST (SWEEPS UST) site, and is further discussed in Section 5.1.

The Assessor's Parcel Number (APN) for the subject property is 005-060-041 and 005-060-042. However, according to Mr. Derek Pampe of DeNova Homes, the southern portion of parcel 005-060-042 is considered a legal waterway and is slated to be handed over to the State of California within the next three years. This portion of the property was not included in this assessment. According to Mr. Patrick Imbimbo of Baywood, limited electricity is provided to the subject property by Pacific Gas and Electric (PG&E), and potable water is provided by the City of Petaluma. According to Mr. Imbimbo, the property is not connected to the municipal sewer.

Refer to Figure 1: Site Location Map, Figure 2: Site Map, and Appendix A: Property Photographs for site location.

## 2.2 SITE AND VICINITY CHARACTERISTICS

The immediately surrounding properties consist of the following:

| Direction from Site | Address-Tenant/Use |
|---|---|
| **Northwest** | Casa Grande Road, followed by Skoff Trucking (1 Casa Grande Road) |
| **North** | Park Central Apartments (1400 Technology Lane) |
| **Northeast** | Vacant Commercial/Industrial Building (1450 Technology Lane) |
| **South** | Vacant marsh land with a public access trail running through it, followed by the Petaluma River (no address available) |
| **Southwest** | Rocky Memorial Dog Park (former Casa Grande Landfill) 2204 Casa Grande Road |
| **West** | Casa Grande Road, followed by Michal Paul Co. Construction Company (1200 Casa Grande Road) |

The adjacent site to the northwest, 1 Casa Grande Road, was identified in the regulatory database as a Hist Cortese, LUST, Aboveground Storage Tank (AST), SWEEPS UST, Enforcement (ENF), CA FID UST, and UST site. Please refer to Section 5.1.

DRAFT

The adjacent site to the southwest, the former Casa Grande Landfill, was identified in the regulatory database as a Solid Waste Information System (SWF/LF), Envirostor, and Financial Assurance site. Please refer to Section 5.1.

## 2.3 PHYSICAL SETTING

| | |
|---|---|
| **Geology:** According to information obtained from the United States Geological Survey (USGS), the area surrounding the subject property is underlain by alluvial deposits of the Holocene-era.<br><br>Based on a review of the United States Department of Agriculture (USDA) Soil Survey for the area of the subject property, the soils in the vicinity of the subject property are classified as the Clear Lake Clay Series. Soils from this series are characterized as a clay. | |
| **USGS Topographic Map:** | Petaluma River Quadrangle |
| **Nearest surface water to subject property:** | Stream Leading to the Petaluma River/Adjacent to the West and Southwest of the Subject Property |
| **Gradient Direction/Source:** | Southwest/Groundwater Investigations for the Subject Property |
| **Estimated Depth to Groundwater/Source:** | 3 to 5 feet bgs/ *Royal Tallow and Soap Company Underground Storage Tank Site Characterization Report Petaluma, California*, prepared by Environment and Ecology, Inc. (August 17, 1990) |

DRAFT

# 3.0 HISTORICAL REVIEW OF SITE AND VICINITY

## 3.1 HISTORICAL SUMMARY

Reasonably ascertainable standard historical sources as outlined in ASTM Standard E1527-13 were used to determine previous uses and occupancies of the subject property that are likely to have led to RECs in connection with the subject property. A chronological summary of historical data found, including but not limited to aerial photographs, historic city directories, Sanborn fire insurance maps and agency records is as follows:

| Date Range | Subject Property Description/Use | Source(s) |
|---|---|---|
| 1955 to 1989 | Royal Tallow and Soap Company | Aerial Photographs, City Directories, Topographic Maps, and Agency Records |
| 1989 to 2008 | Vacant Tallow Facility | Aerial Photographs, City Directories, and Agency Records |
| 2008 to Present | Vacant Land | Aerial Photographs and Agency Records |

According to historical sources, the current property has been vacant land since the former Royal Tallow and Soap Company buildings were demolished in 2008. The subject property was occupied by the Royal Tallow and Soap Company from at least 1955 to 1986 when operations ceased. A small structure and a dirt road were identified on the subject property in historic topographic maps from at least 1914 to 1940, although the occupancy of the property at this time was not identified during the historical research for this report and constitutes a significant data gap. Please refer to Section 1.5 for further discussion.

Based on a review of historical sources, the following historical/additional addresses were associated with the subject property: 0 Casa Grande Road, 2044 Casa Grande Road, and 2044 Lakeville Highway. These addresses were also researched as part of this assessment.

Please refer to Section 4.1.1 for further discussion of the environmental concerns associated with the former use of the subject property by the Royal Tallow and Soap Company.

If available, copies of historical sources are provided in the report appendices.

## 3.2 AERIAL PHOTOGRAPH REVIEW

AEI Consultants reviewed aerial photographs of the subject property and surrounding area. Aerial photographs were reviewed for the following years:

| Date(s) | Subject Property Description | Surrounding Area Descriptions |
|---|---|---|
| 1953 | Developed with the Royal Tallow and Soap Company buildings. Most buildings are concentrated on the northern part of the subject property. Collection ponds appear to be located on the southeastern portion of the property. | **Northwest:** A road, followed by what appears to be graded land.<br>**North:** Agricultural land<br>**Northeast:** Agricultural land<br>**South:** Vacant land<br>**Southwest:** Possibly developed with the landfill, no structures are visible<br>**West:** Graded land |

DRAFT

| | | |
|---|---|---|
| 1965 | Developed with the Royal Tallow and Soap Company Facility. The structures are clustered on the north western portion of the property with a large structure towards the southeastern portion of the property. Two large detention ponds are located on the southern portion of the property. One possible detention pond is on the western side of the subject property. | **Northwest:** A road, followed by the existing trucking company structures<br>**North:** No significant changes<br>**Northeast:** No significant changes<br>**South:** Agricultural land<br>**Southwest:** Developed as a landfill (partial coverage)<br>**West:** Graded land (partial coverage) |
| 1982 | No significant changes. However, due to the quality of the aerial photograph, many details are not discernible. | **Northwest:** No significant changes<br>**North:** No significant changes<br>**Northeast:** No significant changes<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** A road, followed by the existing structure |
| 1993 | Developed with the Royal Tallow and Soap Company structures. Buildings are clustered on the northeastern portion of the property. The large building on the southeastern portion of the property is gone, as are the detention ponds. | **Northwest:** No significant changes<br>**North:** Vacant land<br>**Northeast:** Vacant land<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** A road, followed by the existing structure |
| 1998 | No significant changes | **Northwest:** No significant changes<br>**North:** No significant changes<br>**Northeast:** No significant changes<br>**South:** No significant changes<br>**Southwest:** Developed with the existing dog park<br>**West:** No significant changes |
| 2012 | All structures are gone from the property. Large piles of debris are clustered on the central portion of the property. A small pond is located on the southern portion of the property. | **Northwest:** No significant changes<br>**North:** Developed with the existing apartment buildings<br>**Northeast:** Developed with the existing commercial/industrial building<br>**South:** No significant changes<br>**Southwest:** No significant changes<br>**West:** No significant changes |

Based on the review of aerial photographs, the Royal Tallow and Soap Company operated on the subject property since at least 1953. Please refer to Section 4.1.1 for further discussion of the environmental concerns associated with this facility.

### 3.3 SANBORN FIRE INSURANCE MAPS

Sanborn Fire Insurance maps were developed in the late 1800s and early 1900s for use as an assessment tool for fire insurance rates in urbanized areas. A search was made of Seattle Public Library's collection of Sanborn Fire Insurance maps.

Sanborn map coverage was not available for the subject property.

DRAFT

## 3.4 CITY DIRECTORIES

A search of AEI's collection of historic Haine's Criss-Cross city directories was conducted for the subject property at. Directories were available and reviewed for the years 1972, 1976, 1981, 1986, 1991, 1996, 2001, and 2006. The following table summarizes the results of the city directory search.

*City Directory Search Results for 2592 Lakeville Highway*

| Date(s) | Occupant Listed |
|---|---|
| 1972, 1976, 1981, 1986 | Royal Tallow & Soap, Terrinilini [*sic.*] Pete. |
| 1991, 1996, 2001 | Terrinilini [*sic.*] Pete. |
| 2006 | Address not listed. |

Based on the review of historic city directories, the subject property was occupied by the Royal Tallow and Soap facility from at least 1972 to 1986. Please refer to Section 4.1.1 for further discussion of the environmental concerns associated with this facility.

## 3.5 HISTORICAL TOPOGRAPHIC MAPS

A search of HistoricAerials.com's historical topographic maps was conducted for the subject property. Topographic maps were reviewed for the following years:

| Date(s) | Subject Property Description | Surrounding Area Descriptions |
|---|---|---|
| 1914<br>1924<br>1940 | The southern portion of the property appears to be a submerged marsh of the Petaluma River. A dirt/unimproved road leads to a structure on the northeastern portion of the subject property. A railroad track runs along the northern portion of the property. The area around the subject property is labeled as "Newtown" | **Northwest:** Dirt road, followed by vacant land<br>**North:** Railroad tracks, followed by vacant land<br>**Northeast:** Railroad tracks, followed by vacant land<br>**South:** Submerged marshes followed by the Petaluma River<br>**Southwest:** Submerged marshes followed by the Petaluma River<br>**West:** Railroad tracks and a road, followed by vacant land |
| 1955<br>1962 | Developed with four large structures and one smaller structure on the northern portion of the property with a light duty road leading to them. A land grant, mining claim, donation land claim, or tract line runs through the property (it is not clear which of these this is). | **Northwest:** Light duty road, followed by two structures<br>**North:** Railroad tracks, followed by vacant land<br>**Northeast:** Railroad tracks, followed by vacant land<br>**South:** Vacant land, followed by the Petaluma River<br>**Southwest:** Developed with one structure (landfill not identified)<br>**West:** Railroad tracks and a road, followed by vacant land |
| 1969 | Developed with three additional buildings on the northern portion of the property. Two ponds are also depicted on the southern portion of the property. | **Northwest:** Light duty road, followed by three structures<br>**North:** Railroad tracks, followed by vacant land<br>**Northeast:** Railroad tracks, followed by vacant land<br>**South:** Vacant land, followed by the Petaluma River<br>**Southwest:** Developed with one structure (landfill not identified)<br>**West:** Railroad tracks and a road, followed by vacant land |

DRAFT

| | | |
|---|---|---|
| 1975 | No significant changes, except one more pond is depicted. | No significant changes |
| 1980 | No significant changes, except the railroad tracks end at the light duty road and don't travel adjacent to the subject property any longer. | No significant changes |

Due to proprietary consideration, copies of these maps are not provided in the appendices.

Based on the review of topographic maps, a railroad line ran along the northern boundary of the subject property from at least 1914 until at least 1980. In addition, a map on file with the GeoTracker website for the subject property notes that the northern portion of the property was formerly the Northwestern Pacific Railroad Right of Way (please refer to Appendix D). According to Mr. Patrick Imbimbo of Baywood, this area was developed with a railroad spur which was removed by Baywood sometime around 2008. It is possible that shipments were delivered to the subject property via this spur. In addition, railroad spurs represent potential environmental concerns due to the historical application of oils containing polychlorinated biphenyls (PCBs), herbicides, and arsenic for pest and weed control, as well as the potential presence of creosote on the rail ties, and the historical common practice of using coal cinders for track fill material. However, it is likely that any potential herbicide concentrations have degraded over time, as the railroad spur is no longer on-site and had not been used since at least 1986. Although any potential PCB or arsenic concentrations resulting from the railroad spur would likely be confined to the near subsurface sediments, AEI understands that the subject property is slated for residential redevelopment. Consequently, AEI recommends the performance of on-site sampling to determine if the subject property has been significantly impacted in connection with the historical railroad spur on the north portion of the property.

### 3.6 CHAIN OF TITLE

In accordance with our approved scope of services, a Chain of Title search was not performed as part of this assessment.

DRAFT

# 4.0 REGULATORY AGENCY RECORDS REVIEW

## 4.1 REGULATORY AGENCIES

Local and state agencies, such as environmental health departments, fire prevention bureaus, and building and planning departments are contacted to identify any current or previous reports of hazardous materials use, storage, and/or unauthorized releases that may have impacted the subject property. In addition, information pertaining to Activity and Use Limitations (AULs), defined as legal or physical restrictions, or limitations on the use of, or access to, a site or facility, is requested.

### 4.1.1 HEALTH DEPARTMENT

On March 10, 2014, AEI visited the Sonoma County Environmental Health Division (SCEHD) for information on the subject property and nearby sites of concern. Files at this agency may contain information regarding hazardous materials storage, as well as information regarding unauthorized releases of petroleum hydrocarbons or other contaminants that may affect the soil or groundwater in the area.

| Date | Business | Document type | Document Notes/Violations |
|---|---|---|---|
| 01/09/1986 | Royal Tallow and Soap Company | Application for Permit to Operate USTs | Not approved based on a number of documents and UST leak detection documentation missing. |
| 02/22/1989 | Royal Tallow and Soap Company | Correspondence | States that the Royal Tallow and Soap Company operated on-site until 1986. |
| 03/30/1989 | Royal Tallow and Soap Company | UST Permit Application | 2,000-gallon UST was installed in 1973 or 1979 (both dates listed) and has never stored other chemicals. The 1,000-gallon tank is listed as over 31 years old |
| 06/30/1989 | Royal Tallow and Soap Company | UST Field Inspection Report | Inspection related to UST removal – notes that holes were visible in both tanks. Backfill was contaminated and free product observed in water in pit. Three domestic wells noted on the east side of the property, however none are used. |
| 07/14/1989 | Royal Tallow and Soap Company | Initial Laboratory Analysis Results | A maximum of 820 ppm of total petroleum hydrocarbons as gasoline (TPHg) was found, as well as a maximum of 110 ppm of BTEX in soil. |
| 10/30/2000 | Royal Tallow and Soap Company | Response to Workplan | States that the truck scale on the subject property extended greater than five feet before removal. By removing this scale, soil hazards do not need to be documented between the 4.5 and 10 feet interval. |

DRAFT

| Date | Business | Document type | Document Notes/Violations |
|---|---|---|---|
| 06/11/2001 | Former Royal Tallow and Soap Company | Soil Excavation and Exploratory Soil Borings | SCEHD did not have the entire report on file, but did have a map of the borings and excavation area. Noted that high levels of TPHg were found in the borings underneath the former truck storage and maintenance building, however soil in this area were not excavated, and data was mission from one of the borings. |
| 06/15/2004 | Former Royal Tallow and Soap Company | Monitoring Well Decommissioning | Five monitoring wells were decommissioned in May of 2004. |

In addition to the above documents reviewed, AEI also reviewed a map of the former Royal Tallow and Soap Company facility on file with the SCEHD. The map shows the location of the former USTs, as well as the railroad spur located on the very northern portion of the property. Please refer to Section 3.5 for further discussion of the environmental concerns associated with the former railroad spur. In addition, the map notes the location of a condensing vat and wastewater sump, with a pipe leading to waste disposal lagoons. Based on this information and an interview with the former plant superintendant for the Royal Tallow and Soap Company, these ponds stored wastewater from the cleaning of the facility. Please refer to Section 6.1.4 for further discussion of the environmental concerns associated with these waste ponds.

This map also shows the location of the former septic system used on the subject property. Please refer to Section 6.1.3 for further discussion of the environmental concerns associated with the former septic system.

Based on information available in the Case Closure Summary and Remedial Action Completion Certificate (also on file on the GeoTracker website), one 1,000-gallon UST and one 2,000-gallon UST, both containing regular unleaded gasoline, were removed from the subject property on June 30, 1990. 2,400 cubic yards of soil were treated on-site and used for back-fill. 2,900 parts per million (ppm) of total petroleum hydrocarbons as gas (TPHg), 19.17 ppm benzene, 151 ppm toluene, 303 ppm xylenes, and 61.7 ppm ethylbenzene were found in soil. In addition, 125 ppm TPHg, 21.8 ppm benzene, 16 ppm toluene, 9.52 ppm xylene, 2.2 ppm ethylbenzene, and 0.0067 ppm 1,2-Dichloroethane (1,2-DCA) were found in groundwater. Upon site closure, all contaminants in groundwater were below laboratory reporting limits except 0.0016 ppm of 1,2-DCA. However, significant soil contamination remained on-site upon closure, including 438 ppm of TPHg, 10.4 ppm xylene, and 8.25 ppm ethylbenzene. In addition, soil and groundwater were not tested for TPH diesel (TPHd), oil and grease, or heavy metals, and soil was not tested for the presence of 1,2-DCA.

As a stipulation of site closure, the SCEHD stated that future site development should address the residual soil contamination, including the proper handling and disposal. In addition, the SCEHD would require that a Site Safety Plan be developed and implemented before any future redevelopment. Based on this information, the release from the former USTs represents a controlled recognized environmental condition. It is AEI's understanding that the subject property is slated for residential redevelopment. Thus, AEI recommends additional investigation into the residual soil contamination on-site for the protection of the construction workers and

future occupants of the subject property. In addition, AEI also recommends contacting the SCEHD and completing the necessary Site Safety Plan and any other required documentation.

In addition, during remediation of the soils on the subject property in the area of the former USTs, soil borings were taken from the area of the former truck garage and maintenance building which indicated high levels of TPHg in soil in this area as well. However, it does not appear that the soils in this area were excavated, and it is likely that contamination remains in place. Based on this information, AEI recommends additional investigation into the soils in the area of the former garage and maintenance building.

### 4.1.2 FIRE DEPARTMENT

On March 10, 2014, AEI visited the Petaluma Fire Department (PFD) for information on the subject property to identify any evidence of previous or current hazardous material usage.

| Date | Business | Document type | Document Notes/Violations |
|---|---|---|---|
| 10/10/1975 | N/A | Site Design and Review | Review for a proposed de-boning facility to be located adjacent to the subject property. States that holding ponds on the southeast portion of the property supplied water for the subject property operations and fire protection. |
| 06/31/1989 | Royal Tallow and Soap Company | UST Maintenance Application | Application for the removal of two USTs, one 1,000-gallon and one 2,000-gallon |
| 10/15/1990 | Former Royal Tallow and Soap Company | Site Investigation | Requires a work plan to be submitted for additional remediation at the site including groundwater monitoring and the disposal of contaminated soil before the rainy season. |
| 06/12/1991 | N/A | Lakeville Highway Road Widening | States the petroleum hydrocarbon contamination exists at the subject property, but it is not near enough to the highway to affect the roadway widening project |

Based on the 1975 report for the adjacent facility, the ponds that were visible in aerial photographs were used for holding water for use by the Royal Tallow and Soap Company facility. However, interviews with the former plan superintendant Mr. Pete Terribilini and past investigations on the subject property indicate that these ponds were used for waste water storage. Please refer to Section 6.1.4 for further discussion.

Please refer to Section 4.1.1 for further discussion of the former USTs on the subject property.

### 4.1.3 BUILDING DEPARTMENT

On February 24, 2014, AEI contacted the Petaluma Building Department (PBD) for information on the subject property in order to identify historical tenants and property use. Please refer to the following table for a listing of permits reviewed:

DRAFT

*Building Permits Reviewed for 0 Casa Grande Road, 2044 Casa Grande Road, 2044 Lakeville Highway, and 2592 Lakeville Highway*

| Year(s) | Owner/Applicant | Description of Permit/Building Use |
|---|---|---|
| 2003 | Darling Delaware Company Inc. | Notice and Order per the Abatement of Dangerous Buildings. Sates that there is a single family residence on the property and the abandoned tallow plant and barns. Determined that the buildings need to be demolished – the buildings must be vacated in 60 days. |
| 2003 | 2044 Casa Grande Road | Complaint from a citizen that a structure on the property line is disintegrating and falling onto the fence, there are hazardous materials on-site that need to be removed and cleaned up, the main building is not secure and is an attractive nuisance, children are accessing the property and buildings. |
| 2003 | Darling Delaware Company Inc. | Letter that states that in 2001, a permit was applied for to demolish a truck garage and remove contaminated soil from underneath it. The inspection was never completed and the city is concerned that the area is an eyesore to the newly constructed apartment buildings. |
| 2008 | Daniel O Davis Inc. | Asbestos removal demolition plan with the Bay Area Air Quality Management District |
| 2008 | Lands of Baywood, LLC | Permit to demolish and remove commercial facility building, to clean dirt, and to clear the property of miscellaneous debris |
| 2008 | 0 Casa Grande AKA 2044 Lakeville Highway (Royal Tallow) | Stockpiling permit |
| 2009 | Lands of Baywood, LLC | Letter asking if the demolition work has been completed because no building inspection was arranged. |

Based on the review of PBD documents, the Royal Tallow and Soap Company buildings remained on the subject property until 2008 when they were demolished. Please refer to Section 4.1.1 for further discussion of the environmental concerns associated with the former Royal Tallow and Soap Company Facility.

### 4.1.4 PLANNING DEPARTMENT

On March 13, 2014, AEI contacted the Petaluma Planning Department (PPD) for information on the subject property in order to identify AULs associated with the subject property.

No information indicating the existence of AULs was on file for the subject property with the PPD. According to Ms. Ellen Hill with the PPD, the subject property is zoned for high density residential use.

### 4.1.5 COUNTY ASSESSOR OFFICE

On February 21, 2014, AEI visited the website maintained by the Sonoma County Assessor's Office for information on the subject property in order to determine the earliest recorded date of development and use.



DRAFT

According to the Sonoma County Assessor's Office, the subject property APNs are 005-060-041 and 0050-060-042 and the property was formerly under the APN 0050-060-130. No information about the first date of development was available from the Sonoma County Assessor's Office.

### 4.1.6 DEPARTMENT OF OIL AND GAS

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) maps concerning the subject property and nearby properties was reviewed. DOGGR maps contain information regarding oil and gas development.

According to the DOGGR Online Mapping System, there are no oil or gas wells within 500 feet of the subject property. No environmental concerns were noted during the DOGGR map review.

### 4.1.7 OTHER AGENCIES SEARCHED

On **March 10, 2014**, AEI visited the **GeoTracker** website maintained by the **Regional Water Quality Control Board (RWQCB)** for information regarding unauthorized releases of hazardous materials to the groundwater. Cases typically handled by the RWQCB include releases from USTs.

AEI reviewed the Case Closure Summary and Remedial Action Completion Certificate and the Geo Map on file on the **GeoTracker** website. Please refer to Section 4.1.1 for further discussion of this closed LUST case and the environmental concerns associated with the former USTs on the subject property.

On **February 24, 2014**, AEI contacted **The Bay Area Air Quality Management District (BAAQMD)** for information regarding any records of Permits to Operate (PTO), Notices of Violation (NOV), or Notices to Comply (NTC) issued to occupants of the subject property and associated with air emissions equipment primarily related to stationary sources of air pollution, such as dry cleaning machines, boiler, and/or underground storage tanks (USTs) .

According to records on file with the **BAAQMD**, the Royal Tallow and Soap Company facility ceased operations on October 31, 1986. In addition, their first application with the BAAQMD was November 11, 1978. No other information was available from the BAAQMD. Please refer to Section 4.1.1 for further discussion of the environmental concerns associated with the former Royal Tallow and Soap Company Facility.

On **February 21, 2014**, AEI visited the **Hazardous Waste Tracking System (HWTS)** online database maintained by the **California Department of Toxic Substances Control (DTSC)** for information regarding documented hazardous wastes generated at the subject property.

The subject property was identified four times in the **HWTS** online database. These records indicate that from 2000 to 2001, over 17 tons of hazardous wastes were generated at the subject property by Darling International. These wastes were likely associated with the clean-up and remediation of the former Royal Tallow and Soap Company facility. Please refer to Section 4.1.1 for further discussion of the environmental concerns associate with the former occupancy of the subject property by the Royal Tallow and Soap Company.

DRAFT

On **February 21, 2014,** AEI visited the **EnviroStor** website maintained by the **California Department of Toxic Substances Control (DTSC)** for information indication any release of hazardous materials on the subject property.

No information indicating any release of hazardous materials on the subject property was found on the **EnviroStor** website.

On **February 21, 2014,** AEI contacted the **DTSC** for information indication any release of hazardous materials on the subject property.

AEI reviewed the one record on file with the **DTSC**, however the records only indicated Royal Tallow and Soap Company closed the facility in 1986.

On **March 7, 2014,** AEI contacted the **San Francisco Bay Area Regional Water Quality Control Board (SF RWQCB)** for information regarding ASTs, USTs, hazardous materials storage, industrial waste discharges, and/or releases at the subject property.

No records were on file with the **SF RWQCB** for the subject property.

On **March 11, 2014,** AEI contacted the **United States Environmental Protection Agency (US EPA)** for information regarding ASTs, USTs, hazardous materials storage, industrial waste discharges, and/or releases at the subject property. However, as of this writing, no response has been received from the **US EPA**. Upon receiving pertinent information in connection with the subject property, AEI will immediately issue an addendum to this report if items of environmental concern are identified. However, based on the quality of information obtained from other sources, this limitation is not expected to significantly alter the findings of this assessment.

DRAFT

## 5.0 REGULATORY DATABASE RECORDS REVIEW

AEI contracted Environmental Data Resources (EDR) to conduct a search of federal, state, tribal, and local databases containing known and suspected sites of environmental contamination. The number of listed sites identified within the approximate minimum search distance (AMSD) from the Federal and State environmental records database listings specified in ASTM Standard E 1527-13 are summarized in the following table. A copy of the regulatory database report is included in Appendix B of this report.

The subject property was identified in the databases reviewed as a CERC-NFRAP, RGA LUST (three times), HAZNET (three times), Historic Cortese, LUST (twice), Envirostor, CA FID UST, HIST UST, and a SWEEPS UST site. Please see Section 5.1 for additional discussion.

In determining if a site is a potential environmental concern to the subject property in the records summary table below, AEI has applied the following criteria to classify the site(s) as low concern: 1) the site(s) only hold an operating permit (which does not imply a release), 2) the site(s) have been granted "No Further Action" by the appropriate regulatory agency, and/or 3) based upon AEI's review, the distance and/or topographic position relative to the subject property reduce the level of risk associated with the site(s).

### 5.1 RECORDS SUMMARY

| Database | Search Distance (Miles) | Subject Property Listed | Total Number of Listings | Recognized Environmental Condition or Environmental Issue (Yes/No) |
|---|---|---|---|---|
| NPL | 1 | No | 1 | No, please see discussion below. |
| DELISTED NPL | 0.5 | No | 0 | |
| CERCLIS | 0.5 | No | 2 | No, please see discussion below. |
| CERCLIS NFRAP | 0.5 | **Yes** | 1 | Please see a discussion of the subject property below. |
| RCRA CORRACTS | 1 | No | 0 | |
| RCRA-TSD | 0.5 | No | 0 | |
| RCRA LQG, SQG, VGN, NLR | TP/ADJ | No | 1 | No, please see discussion below. |
| US ENG CONTROLS | TP | No | 0 | |
| US INST CONTROLS | TP | No | 0 | |
| ERNS | TP | No | 0 | |

DRAFT

| Database | Search Distance (Miles) | Subject Property Listed | Total Number of Listings | Recognized Environmental Condition or Environmental Issue (Yes/No) |
|---|---|---|---|---|
| STATE/TRIBAL HWS | 1 | **Yes** | 8 | Please see a discussion of the subject property below. None of the nearby sites are expected to represent a significant environmental concern. |
| STATE/TRIBAL SWLF | 0.5 | No | 2 | Please see a discussion of the adjacent site below. |
| STATE/TRIBAL REGISTERED STORAGE TANKS | TP/ADJ | No | 2 | No, please see discussion below. |
| STATE/TRIBAL LUST | 0.5 | **Yes** | 18 | Please see a discussion of the subject property below. None of the nearby sites are expected to represent a significant environmental concern. |
| STATE/TRIBAL ENG-INST CONTROLS | TP | No | 0 | |
| STATE/TRIBAL VCP | 0.5 | No | 0 | |
| STATE/TRIBAL BROWNFIELD | 0.5 | No | 0 | |
| ORPHAN | N/A | No | 20 | None of the identified orphan sites are located in the immediate vicinity (500-feet) of the subject property, and therefore, these sites are not expected to represent a significant environmental concern. |
| NON-ASTM DATABASES | TP/ADJ | **Yes** | 14 | Please see a discussion of the subject property and two adjacent sites below. |

Site Name: Royal Tallow and Soap Company (also Darling Delaware Royal Tallow and Darling International Inc.)
Database(s): CERC-NFRAP, RGA LUST (three times), HAZNET (three times), Historic Cortese, LUST (twice), Envirostor, CA FID UST, HIST UST, SWEEPS UST
Address: 2592 Lakeville Highway
Distance: Subject Property
Direction: N/A

Comments:
The subject property was occupied by the Royal Tallow and Soap Company facility from at least 1955 to 1986. Please refer to Section 4.1.1 for further discussion of the environmental concerns associated with this facility.

DRAFT

| |
|---|
| Site Name: Casa Grande Landfill<br>Database(s): SWF/LF, Envirostor, Financial Assurance<br>Address: West End of Casa Grande Road (2204 Casa Grande Road)<br>Distance: Adjacent (directly abutting the subject property)<br>Direction: West (hydrologically cross-gradient) |
| Comments:<br>This site was formerly used as a landfill from an unknown date until its closure in 1993. According to information in the regulatory database, up to 16 cubic yards per day of construction/demolition materials and green materials were disposed of at this site. During off-site reconnaissance, AEI observed signs warning that glass was present in the surface stream dividing the subject property from this site, and also observed shards of glass in the surface soils at this site. This site is currently used at the Rocky Memorial Dog Park which is owned and operated by the City of Petaluma.<br><br>On March 11, 2013, AEI requested records for this facility from the DTSC and the City of Petaluma Parks and Recreation Department. As of the writing of this report, no response has yet been received from either of these agencies. Upon receiving pertinent information in connection with the subject property, AEI will immediately issue an addendum to this report if items of environmental concern are identified. However, based on the regulatory status of the site and reported nature of accepted wastes, this site is not expected to represent a significant environmental concern. |

| |
|---|
| Site Name: Skoff Trucking<br>Database(s): Hist Cortese, LUST, AST, SWEEPS UST, ENF, CA FID UST, UST<br>Address: 1 Casa Grande Road<br>Distance: Adjacent (approximately 55 feet)<br>Direction: Northwest (hydrologically cross-gradient) |
| Comments:<br>This site is currently occupied by Skoff Trucking and is used as a truck maintenance and storage facility. AEI reviewed records on file with the GeoTracker website for this site. In 1986, one 1,000-gallon waste oil tank was removed from the site and in 1990 one 500-gallon UST was removed as well. Five monitoring wells were installed on-site from 1990-1991. In 1994, two 1,000-gallon gasoline USTs were removed from the site. In 1998, three 12,000-gallon USTs were removed from the site as well. Both total petroleum hydrocarbons of gas and diesel (TPHg and TPHd) were found in soil after the 1998 UST removal. In 1999, two more gasoline USTs were discovered at the site and removed.<br><br>In 2000, a water supply well south of the site was found to be contaminated with TPHg and toluene. This well was destroyed, and soil borings were advanced on the site and two additional monitoring wells installed. Quarterly monitoring of these wells has occurred since 1999. Additional soil excavation at the southern portion of the site was also performed in 2006. This included the removal and disposal of approximately 990 tons of impacted soil.<br><br>In addition, in January of 2014, a soil vapor investigation was conducted on the site. No petroleum hydrocarbons constituents were found above laboratory reporting limits in the soil vapor tested. The report concluded that any residual hydrocarbon contamination represents a low risk for vapor intrusion.<br><br>In the most recent groundwater monitoring report from November 7, 2013, the monitoring well closest to the subject property on Casa Grande Road (MW 14 – approximately 35 feet northwest of the subject property), less than 50 micrograms per liter (µg/L) of TPHg and TPHd, and less than 0.5 µg/L of benzene, toluene, ethylbenzene, and total xylenes (BTEX) was found. Based on the Notice of Pending Action letter from February 19, 2014 on file on the GeoTracker website, this site is going to be closed and received no further action status from the SCEHD. Based on this information, the direction of groundwater flow, and the low levels of contamination found near the subject property, this site is not expected to present a significant environmental concern. |

DRAFT

| |
|---|
| Site Name: Petaluma Poultry Process<br>Database(s): LUST (twice), NPDES, Hist Cortese, Hist UST, ENF, WDS<br>Address: 2700 Lakeville Highway<br>Distance: Approximately 0.15 mile<br>Direction: Northeast (hydrologically upgradient) |
| Comments:<br>AEI reviewed records on file for this site with the SCEHD. Based on these records, there were formerly on 10,000-gallon diesel UST, one 10,000-gallon gasoline UST, and two 550-gallon gasoline USTs on the southern portion of this site. On June 27, 1988, while these tanks were being removed, a leak was discovered. According to the UST Unauthorized Release Report, excavation of contaminated soil was planned. The closure document was not available for review with the SCEHD, however based on information in the regulatory database, the site was granted closure on March 6, 1996 and only soil was impacted at the site.<br><br>Based on the relative distance from the subject property, the media affected, and the regulatory status, this site is not expected to present a significant environmental concern. |

| |
|---|
| Site Name: Beacon #3703 (Former)<br>Database(s): Hist Cortese, LUST (twice)<br>Address: 2601 Lakeville Highway<br>Distance: Approximately 0.20 mile<br>Direction: North (hydrologically upgradient) |
| Comments:<br>AEI reviewed records on file for this site on the GeoTracker website. A gas station has operated at this site since the 1970s. In 1987, three 10,000-gallon gasoline USTs and one 12,000-gallon diesel UST were removed from the site. In 2000, piping of the second generation of tanks was removed and some contamination was found. 60 cubic yards of soil was removed. From 2004 to 2008, ozone sparging was conducted on-site, and high vacuum dual phase extraction was also conducted off and on from 1999 to 2010.<br><br>In 2012, the second generation of tanks was removed, and soil contamination was found. However, no leaks had ever been documented from these tanks, so the contamination was attributed to the original tanks removed in 1987. All of this additional contamination was excavated. Quarterly groundwater monitoring was conducted from 1999 to 2012. In the most recent groundwater monitoring report from March 14, 2012, the monitoring well closest to the subject property (MW-6 approximately 0.19 mile north of the subject property), was less than 50 µg/L of TPHg and TPHD, and less than 0.5 µg/L of Benzene and MTBE. The site was granted closure on November 15, 2013. Based on the regulatory status of the site, the relative distance from the subject property, and the low levels of contamination found in the monitoring well closest to the subject property, this site is not expected to present a significant environmental concern. |

| |
|---|
| Site Name: Petaluma Precedent<br>Database(s): CERCLIS<br>Address: 781 Baywood Drive<br>Distance: Approximately 0.26 mile<br>Direction: West (hydrologically cross-gradient) |
| Comments:<br>Based on information available in the database, this site is not on the NPL and is a removal only site (no investigation is necessary). The clean-up of the site was completed on July 16, 2011. No mention of the contaminants of concern were available in the database or on the US EPA's website. However, based on the relative distance from the subject property, the direction of groundwater flow, the lack of |

DRAFT

| |
|---|
| additional listings, and the fact that the clean-up has been completed, this site is not expected to present a significant environmental concern. |

| |
|---|
| Site Name: Sola Optical<br>Database(s): NPL, CERCLIS, RCRA-SQG, US Eng Control, US INST Control, ROD, HAZNET, PRP<br>Address: 3600 Lakeville Highway<br>Distance: Approximately 0.56 mile<br>Direction: Northeast (hydrologically upgradient) |
| Comments:<br>AEI reviewed record for this site on the US EPA's website. Based on this information, this site has been used to manufacture optical lenses since 1978. In 1982, acetone was identified in an on-site well. In addition, Sola found volatile organic compound (VOC) contamination in soil adjacent to six underground solvent storage tanks. The USTs were removed in 1985 and subsequent investigations found that groundwater was contaminated with trichloroethane (TCA) and methylene chloride. A city well nearby was found to also be contaminated with low levels of TCA. Since 1988, groundwater extraction was conducted on-site.<br><br>In 2001, the facility shut down and the property was sold. In 2007, an EPA review was conducted which included the use of institutional controls to protect human health at the site. These include land use restrictions and a ban on wells at the site. In 2013, the EPA determined that all clan-up goals had been met at the site and the site was subsequently removed from the NPL.<br><br>Based on this information, the regulatory status of the site and the relative distance from the subject property, this site is not expected to present a significant environmental concern at this time. |

## 5.2 VAPOR ENCROACHMENT

A Tier 1 Vapor Encroachment Screen (VES) pursuant to ASTM E2600-10 was performed as part of this assessment to determine whether a potential *vapor encroachment condition* (VEC) exists at the subject property. The VES included the review of reasonably ascertainable information for the subject and nearby properties. During the course of this assessment, the following sites were identified as a potential source of petroleum hydrocarbons.

| Site Name/Address | Distance from Subject Property | Hydrologic Direction Relative to Subject Property | VEC Exists | VEC Likely Exists | VEC Cannot be Ruled Out |
|---|---|---|---|---|---|
| Subject Property (Former Royal Tallow and Soap Company) | N/A | | | X | |

Based on the levels of residual contamination which remained at the subject property upon regulatory closure in 2004, including 438 ppm of TPHg, a VEC likely exists at the subject property. AEI recommends additional investigation to determine if a VEC exists at the subject property.

DRAFT

# 6.0 INTERVIEWS AND USER PROVIDED INFORMATION

## 6.1 INTERVIEWS

Pursuant to ASTM E1527-13, the following interviews were performed during this investigation in order to obtain information indicating RECs in connection with the subject property.

### 6.1.1 INTERVIEW WITH OWNER

The representative of the subject property owner, Mr. Derek Pampe of De Nova Homes, was contacted in person on March 3, 2014. Mr. Pampe has been associated with the subject property for one year. Mr. Pampe was asked if he was aware of any of the following:

| | | | | |
|---|---|---|---|---|
| Any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property. | **X** | Yes | | No |
| Any pending, threatened or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property. | **X** | Yes | | No |
| Any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products. | **X** | Yes | | No |
| Any incidents of flooding, leaks, or other water intrusion, and/or complaints related to indoor air quality. | | Yes | **X** | No |
| Mr. Pampe explained to AEI that the subject property is listed as a closed LUST site from a leaking gasoline UST which was removed from the subject property. Mr. Pampe also explained that the subject property was involved in a lawsuit over the clean-up of the site before it was purchased by Baywood from Darling International (owner of the Royal Tallow and Soap Company). Please refer to Sections 4.1.1 and 6.3 for further discussion. | | | | |

### 6.1.2 INTERVIEW WITH KEY SITE MANAGER

The key site manager Mr. Patrick Imbimbo of Baywood, was contacted during on-site reconnaissance on March 17, 2014. Mr. Imbimbo has been associated with the subject property since approximately 2004. Mr. Imbimbo provided general information regarding historic and current operations at the subject property. According to Mr. Imbimbo, the Royal Tallow and Soap Company buildings were demolished completely in 2008. Since that time, the company Soil Land has been using the subject property to store construction debris from off-site. Until about one year ago, Mr. Imbimbo explained that Soil Land was crushing the debris on-site to turn it into Class II Aggregate, which was also being stored on-site before being hauled to off-site projects. Please refer to Section 7.1 for further discussion.

In addition, Mr. Imbimbo explained that fill material has also been brought on-site since 2008. The material has mostly been stockpiled on the northern portion of the property, but is slotted to be dispersed across the entire site as a part of redevelopment. According to Mr. Imbimbo, the fill material was tested and proven to be "clean" before it was brought on-site. However, no record of this was available to AEI during the course of this investigation. Please refer to Section 7.1 for further discussion of the environmental concerns associated with this fill material.

Mr. Imbimbo was asked if he was aware of any of the following:

| | | | | |
|---|---|---|---|---|
| Any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property. | **X** | Yes | | No |
| Any pending, threatened or past administrative proceedings relevant to | **X** | Yes | | No |

DRAFT

| | | | | |
|---|---|---|---|---|
| hazardous substances or petroleum products in, on, or from the property. | | | | |
| Any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products. | **X** | Yes | | No |
| Any incidents of flooding, leaks, or other water intrusion, and/or complaints related to indoor air quality. | | Yes | **X** | No |
| Mr. Imbimbo, like Mr. Pampe, explained the legal and environmental history of the subject property to AEI. Please refer above and to Section 4.1.1 and 6.3 for further discussion. | | | | |

### 6.1.3 PAST OWNERS, OPERATORS AND OCCUPANTS

In an attempt to interview past owners, operators and occupants regarding historical on-site operations, AEI requested the contact information for these entities from the key site manager, Mr. Patrick Imbimbo. Mr. Imbimbo provided contact information for the subject property caretaker, Mr. Pete Terribilini. AEI spoke with Mr. Terribilini via telephone on March 18, 2014. Mr. Terribilini currently lives on the subject property one to two days a week in the trailer home on-site.

According Mr. Terribilini, he has worked at the subject property since 1966. He used to live in the residence which was formerly located on the northern portion of the property, and raised his family there. Mr. Terribilini was the plant superintendant for Royal Tallow and Soap Company, where he said he did "a little of everything." AEI asked Mr. Terribilini about the ponds noted in the aerial photographs and historic topographic maps. He stated that the ponds were used to hold water from the plant. Mr. Terribilini explained that the tallow facility was washed down once a day, and the water from this process flowed into a clarifier. According to Mr. Terribilini, this room was called the "sewer room". Water from this cleaning process was filled with "tallow and grease" from the plant operations. The water sat in the clarifier for approximately one day, and then the scum was skimmed off the top and the water was allowed to flow into the waste water ponds. Although the majority of the contaminants in this wastewater was organic in nature, it is possible that petroleum hydrocarbons or solvents used in the rendering process or used on machinery could have been present.

In addition, AEI asked Mr. Terribilini if he was aware of the use of chlorinated solvents on the property. Mr. Terribilini said that the use of these materials would have been by the maintenance staff, and he could not recall what specific materials were used on-site.

Mr. Terribilini also explained to AEI that the entire Royal Tallow and Soap Company facility was on a septic system and not connected to the sewer. A map on file with the SCEHD indicates that two septic tanks were located east adjacent to the main rendering plant, and the septic leach field extended to the southwest. Since the buildings have been demolished, it is unclear whether the septic system was solely used for restroom purposes, or if other water was discharged into the system. In addition, due to the long industrial nature of the property use and the lack of regulatory oversight it is possible that hazardous materials could have entered the septic system. Based on this information, the wastewater discharge from the former facility through the wastewater ponds and the septic system represents a significant environmental concern. AEI recommends further investigation in the area of the septic leach field, former septic tanks, wastewater clarifier, and wastewater disposal ponds to determine is a release to the subsurface has occurred.

DRAFT

### 6.1.4 INTERVIEW WITH OTHERS

Information obtained during interviews with local government officials is incorporated into the appropriate segments of this section.

## 6.2 USER PROVIDED INFORMATION

User provided information is intended to help identify the possibility of RECs in connection with the subject property. According to ASTM E1527-13 and EPA's AAI Rule, certain items should be researched by the prospective landowner or grantee, and the results of such inquiries may be provided to the environmental professional. The responsibility for qualifying for Landowner Liability Protections (LLPs) by conducting the inquiries ultimately rests with the User, and providing the information to the environmental professional would be prudent if such information is available.

### 6.2.1 ENVIRONMENTAL LIENS

AEI was not informed by the User, De Nova Homes, of any environmental cleanup liens encumbering the subject property that are filed or recorded under federal, tribal, state or local law.

### 6.2.2 ACTIVITY AND LAND USE LIMITATIONS

AEI was not informed by the User of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the subject property and/or have been filed or recorded in a registry under federal, tribal, state or local law.

### 6.2.3 SPECIALIZED KNOWLEDGE

AEI was not informed by the User of any specialized knowledge or experience related to the subject property or nearby properties.

### 6.2.4 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

The User did not indicate to AEI any information to suggest that the valuation of the subject property is significantly less than the valuation for comparable properties due to environmental factors.

### 6.2.5 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

The User did inform AEI of any commonly known or reasonably ascertainable information about the subject property which aided AEI in identifying conditions indicative of a release or threatened release.

### 6.2.6 KNOWLEDGE OF PRESENCE OR LIKELY PRESENCE OF CONTAMINATION

The User did inform AEI of any obvious indicators that pointed to the presence or likely presence of contamination at the subject property.

## 6.3 PREVIOUS REPORTS AND OTHER PROVIDED DOCUMENTATION

Documentation was provided to AEI by De Nova Homes during this assessment. AEI only reviewed pertinent documentation provided. A summary of this information follows:

*Royal Tallow and Soap Company Underground Storage Tank Site Characterization Report Petaluma, California*, prepared by Environment and Ecology, Inc. (August 17, 1990)



DRAFT

The report states that one or both of the two Royal Tallow USTs leaked before their removal in 1989. One of the USTs was 500-gallon capacity, and the other was 1,000 to 2,000-gallon capacity. As a result of the discovery of the release, 21 soil samples were taken and five monitoring wells were installed on-site. TPH and BTEX were found in the soil samples, and TPH and benzene were found in groundwater. This led to further investigation on the subject property which are discussed below and in Section 4.1.1.

In addition, this report indicated that a soil gas survey was conducted on-site as well. However the results from this survey are not provided, and it does not appear that investigation into potential vapor contamination was conducted on the subject property. Please refer to Section 5.2 for further discussion.

A copy of this report is provided in Appendix F.

*Expert Report of Dwight R. Hoening*, part of Darling International, Inc. v. Baywood Partners, Inc. (March 2, 2007)

This expert opinion chronicles the history of site remediation, clean-up, investigations, and regulatory actions at the subject property. Based on this summary, in 1986, the Royal Tallow facility ceased operation. In 1989 (case closure documents states that it was in 1990) two USTs were removed from the subject property, and a subsequent investigation (please see above) indicated that both groundwater and soil were contaminated with TPHg.

The report goes on to explain that further reports from 1993 and 1995 explored the possibilities of using bioremediation at the site and using an extraction and treat system to clean contaminated groundwater. However, the report states that none of these remediation systems were actually implemented on the subject property.

The report then goes on to say that no actual remediation besides groundwater monitoring was conducted on-site until 2002 when 2,390 cubic yards of contaminated soil were excavated, treated, and then reused on the subject property. The soil was cleaned-up to not exceed 0.39 mg/kg of TPHg and benzene.

Next, the report highlights that at the time of writing, asbestos and other remaining contained hazardous materials remained on-site. It is AEI's understanding that all of these materials were removed and disposed as part of building demolition in 2008.

Please refer to Sections 4.1.1 and 6.3 for further discussion of the environmental concerns associated with the current status of the subject property. In addition, please refer to section 7.1 for further discussion of the current status of the subject property observed during on-site reconnaissance.

A copy of this report is provided in Appendix F.

*Baywood Partners Inc.'s Trial Exhibits – Expert Opinion of Jeffrey Zelikson*, part of Darling International, Inc. v. Baywood Partners, Inc. (Case 3:05-cu-03758-EMC, Filed April 5, 2007)

This expert opinion was solicited to determine if Darling International, Inc fulfilled it remediation of the subject property. This states that in 1986, Darling International was required by the Regional Board to perform sampling of the soil beneath the former waste water ponds

(previously discussed in Section 6.1.3). However, from discussion in this document, it appears that Darling International revised their closure plan and the ponds were granted closure by the Regional Board without sampling being performed. Please refer to Section 6.1.3 for further discussion of the environmental concerns associated with the former waste water ponds on the subject property.

This expert opinion also summarizes the two USTs which leaked on the subject property. Please refer to Section 4.1.1 for further discussion of these USTs.

A copy of this report is provided in Appendix F.

DRAFT

# 7.0 SITE INSPECTION AND RECONNAISSANCE

On March 17, 2014, a site reconnaissance of the subject property and adjacent properties was conducted by Ms. Elizabeth Scudero of AEI in order to obtain information indicating the likelihood of RECs at the subject property and adjacent properties as specified in ASTM Standard Practice E1527-13 §8.4.2, 8.4.3 and 8.4.4. During the on-site reconnaissance, AEI was accompanied by Mr. Patrick Imbimbo of Baywood. Due to the size of the subject property, AEI performed a site inspection of the property utilizing a field technique of traversing the site in an attempt to provide an overlapping field of view. Due to the size of the property and the vegetation present on site, isolated areas of the site may have not been accessible for direct observation during AEI's inspection. In addition, during on-site reconnaissance, AEI was not granted access into the trailer home located on the northern portion of the property. According to Mr. Patrick Imbimbo of Baywood, the trailer is only used by the subject property caretaker for residential activities. Based on this information, this limitation is not expected to significantly alter the findings of this assessment.

## 7.1 SUBJECT PROPERTY RECONNAISSANCE FINDINGS

| Yes | No | Observation |
|---|---|---|
| | X | Hazardous Substances and/or Petroleum Products in Connection with Property Use |
| | X | Aboveground & Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs / USTs) |
| | X | Hazardous Substance and Petroleum Product Containers and Unidentified Containers not in Connection with Property Use |
| X | | Unidentified Substance Containers |
| | X | Electrical or Mechanical Equipment Likely to Contain Fluids |
| | X | Interior Stains or Corrosion |
| | X | Strong, Pungent or Noxious Odors |
| | X | Pools of Liquid |
| | X | Drains, Sumps and Clarifiers |
| X | | Pits, Ponds and Lagoons |
| | X | Stained Soil or Pavement |
| | X | Stressed Vegetation |
| X | | Solid Waste Disposal or Evidence of Fill Materials |
| | X | Waste Water Discharges |
| X | | Wells |
| | X | Septic Systems |
| X | | Other |

The subject property is currently occupied part time by a caretaker living in a trailer home parked on-site.

The above identified observed items are further discussed below.

### UNIDENTIFIED SUBSTANCE CONTAINERS

One approximately 100-gallon container was observed on the southern portion of the subject property. The container appeared to be empty and no odor was identified around the



DRAFT

container, however brown sludge could be seen collected at the bottom of the container. According to Mr. Imbimbo, the container was left behind by a sheep herder, but he was not aware of its contents. Based on the fact that the container appeared to be empty and no staining was identified, the prescience of the container is not expected to present a significant environmental concern. However, as a best management practice, the container should be removed from the subject property and properly disposed of off-site.

**PITS, PONDS AND LAGOONS**

Various low-grade areas were identified on the subject property with standing water. According to Mr. Imbimbo, these areas are seasonally inundated with water from the drainage creek adjacent to the east of the subject property. Based on the nature of these areas for storm water collection, they are not expected to present a significant environmental concern.

In addition, Mr. Imbimbo explained that the western portion of the subject property is part of the National Wetland Inventory. This was confirmed in the regulatory database vicinity map, which shows that the southern portion of the property is also considered to be a wetland. No hazardous materials or petroleum products were observed the standing water or these wetland areas. Therefore, these areas are not expected to represent a significant environmental concern. However, AEI understands that the subject property is slated for redevelopment. AEI recommends contacting the local planning and/or building departments to determine whether a Wetlands Delineation report is required and if mitigation is required in order to develop in these areas.

**SOLID WASTE DISPOSAL OR EVIDENCE OF FILL MATERIALS**

According to Mr. Imbimbo, fill material from off site has been stockpiled on the northern portion of the subject property. The stockpiled material appeared to be approximately ten to 12 feet high. Mr. Imbimbo explained that the soil was deemed as "clean" before it was deposited on the subject property, and there are plans to use the material as fill before redevelopment of the property. However, no information was provided to AEI as to the origin of the material and no soil testing data was available to verify that there are no contaminants in the material. There is the potential that contamination from off-site may be present in this material. AEI recommends sampling of the fill material prior to use on the subject property to determine if contamination from off-site sources is present.

**WELLS**

One small groundwater monitoring well was observed on the western portion of the subject property. According to Mr. Imbimbo, the well was installed by Baywood approximately one year ago to monitor the groundwater levels on the subject property. Mr. Imbimbo indicated that there were possibly other similar wells on the subject property, but no others were identified by AEI during on-site reconnaissance. No hazardous materials or petroleum products were observed in the area of the well. Based on this information, the presence of the well is not expected to present a significant environmental concern. However, AEI recommends the proper decommissioning of the well prior to redevelopment activities.

**OTHER**

A large mound (approximately 20 feet high) of construction debris is located on the central portion of the subject property. According to Mr. Imbimbo, this debris has been stored on the subject property by the Soil Land Company from various off-site construction sites. According to Mr. Imbimbo, until approximately one year ago, Soil Land was crushing the material on site

and turning it into Class II Aggregate to be reused off-site. Just south of this mound, there is another smaller mound of this Class II Aggregate left over from the crushing operations (composed of cement and concrete). There is a potential that asbestos and/or other potentially hazardous or regulated materials are present in this material. AEI recommends sampling of this material and proper off-site disposal.

## 7.2 NON-ASTM SERVICES

### 7.2.1 ASBESTOS-CONTAINING BUILDING MATERIALS

The subject property is currently vacant land and lacks permanent structures. However, please refer above for discussion of construction debris on the subject property.

### 7.2.2 LEAD-BASED PAINT

The subject property is currently vacant land and lacks permanent structures. Consequently, no building components containing suspect lead-based paint were identified during the site inspection.

### 7.2.3 RADON

Radon is a naturally-occurring, odorless, invisible gas. Natural radon levels vary and are closely related to geologic formations. Radon may enter buildings through basement sumps or other openings.

Radon sampling was not requested as part of this investigation. According to the California Department of Health Services Radon Database, 23 tests were conducted for radon levels in the subject property zip code (94954) in 2010. All of these tests indicated that radon levels were below the action level of 4.0 pCi/L set forth by the US EPA. Therefore, radon is not expected to represent a significant environmental concern.

### 7.2.4 DRINKING WATER SOURCES AND LEAD IN DRINKING WATER

The City of Petaluma supplies potable water to the subject property. The most recent water quality report states that lead levels in the areas water supply were 1.6 and therefore are well within standards established by the US EPA.

### 7.2.5 MOLD / INDOOR AIR QUALITY ISSUES

The subject property is currently vacant land and lacks permanent structures. Consequently, mold was not addressed as part of this assessment.

DRAFT

## 7.3 ADJACENT PROPERTY RECONNAISSANCE FINDINGS

| Yes | No | Observation |
|---|---|---|
| X | | Hazardous Substances and/or Petroleum Products in Connection with Property Use |
| | X | Aboveground & Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs / USTs) |
| | X | Hazardous Substance and Petroleum Product Containers and Unidentified Containers not in Connection with Property Use |
| | X | Unidentified Substance Containers |
| | X | Electrical or Mechanical Equipment Likely to Contain Fluids |
| | X | Strong, Pungent or Noxious Odors |
| | X | Pools of Liquid |
| | X | Drains, Sumps and Clarifiers |
| X | | Pits, Ponds and Lagoons |
| | X | Stained Soil or Pavement |
| | X | Stressed Vegetation |
| X | | Solid Waste Disposal or Evidence of Fill Materials |
| | X | Waste Water Discharges |
| | X | Wells |
| | X | Septic Systems |
| | X | Other |

The above identified observed items are further discussed below.

### HAZARDOUS SUBSTANCES AND/OR PETROLEUM PRODUCTS IN CONNECTION WITH PROPERTY USE

The adjacent site to the northwest, Skoff Trucking, conducts auto repair on site. Based on the nature of use, AEI presumes that various quantities of hazardous materials are stored onsite. This site was previously discussed in Section 5.1 of this report.

### PITS, PONDS AND LAGOONS

A pond is located adjacent to the south of the subject property. According to Mr. Imbimbo, the pond was created when the City of Petaluma built the walking trail south of the subject property, which damned the area. Based on the nature of the pond it is not expected to represent a significant environmental concern.

A drainage stream runs along the western boundary of the subject property. According to Mr. Imbimbo, the water in the stream flows underground from Highway 120, surfaces just west of the subject property, and then flows to the Petaluma River. Based on the nature of the stream for storm water runoff, it is not expected to represent a significant environmental concern.

### SOLID WASTE DISPOSAL OR EVIDENCE OF FILL MATERIALS

The adjacent site to the west was formerly the Casa Grande Landfill operated by the City of Petaluma. During off-site reconnaissance, AEI observed signs indicating that glass and debris is still present on the adjacent site and in the creek discussed above. This site was previously discussed in Section 5.1 of this report.

DRAFT

# 8.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

By signing this report, the senior author declares that, to the best of his or her professional knowledge and belief, he or she meets the definition of *Environmental Professional* as defined in §312.10 of 40 CFR Part 312.

The senior author has the specific qualifications based on education, training, and experience to assess a property of the nature, history and setting of the subject property. The senior author has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40CFR Part 312.

Prepared By:

**DRAFT**

Elizabeth Scudero
Project manager

Reviewed By:

**DRAFT**

Steve Kovach
Senior Author

DRAFT

# 9.0 REFERENCES

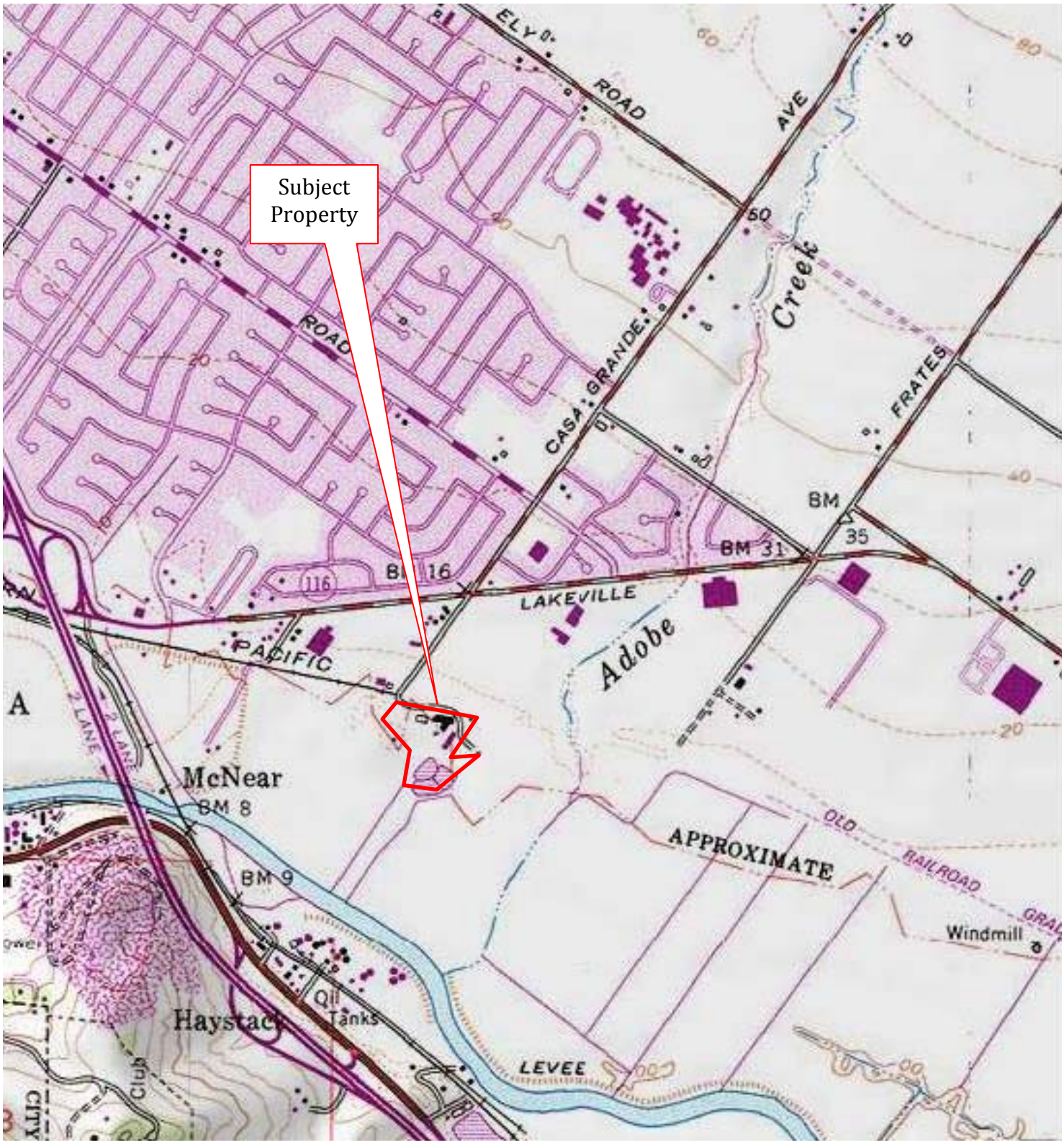
| Item | Date(s) | Source |
|---|---|---|
| Topographic Map, Petaluma River, California Quadrangle | 1980 | United States Geological Survey (USGS) |
| Soils Information | 1993 | United States Department of Agriculture (USDA) Web Soil Survey |
| Depth of Groundwater Information | August 17, 1990 | Royal Tallow and Soap Company UST Site Characterization report prepared by Ecology and Environment |
| Historical Aerial Photographs | 1953, 1965, 1982, 1993, 1998, 2012 | USGS, Cartwright Aerial Surveys, Fairchild Aerial Surveys, Agricultural Stabilization and Conservation Service (ASCS)/ USDA, Pacific Aerial Surveys |
| Sanborn Maps | February 24, 2014 | Seattle Public Library's Online Collection |
| City Directories | 1972, 1976, 1981, 1986, 1991, 1996, 2001, and 2006 | AEI's Private Collection of Haines and Co. Criss-Cross Directories |
| Historical Topographic Maps | 1914, 1924, 1940, 1955, 1962, 1969, 1975, 1980 | HistoricAerials.com |
| Health Department | March 10, 2014 | Sonoma County Environmental Health Division |
| Fire Department | March 10, 2014 | Petaluma Fire Department |
| Building Department | February 24, 2014 | Petaluma Building Department |
| Planning Department | March 13, 2014 | Petaluma Planning Department |
| Assessor's Information and Parcel Map | February 24, 2014 | Sonoma County Assessor's Office |
| Oil and Gas Wells | February 24, 2014 | Department of Oil, Gas and Geothermal Resources (DOGGR Website) |
| Other Agencies | February 24 and March 11, 2014 | State Water Resources Control Board (SWRCB), Department of Toxic Substances Control (DTSC), Bay Area Air Quality Management District (BAAQMD), United States Environmental Protection Agency (US EPA), Sonoma County Office of the Agricultural Commissioner, City of Petaluma Parks and recreation Department |
| Regulatory Database | February 25, 2014 | Environmental Data Resources, Inc. (EDR) |
| Interviews | March 3, 17, and 18, 2014 | Mr. Derek Pampe of de Nova Homes, Mr. Patrick Imbimbo of Baywood, and Mr. Pete Terribilini, former Royal Tallow and Soap Company Plant Superintendant |
| Previous Reports | August 17, 1990, March 2, 2007, and April 5, 2007 | *Royal Tallow and Soap Company Underground Storage Tank Site Characterization Report Petaluma, California*, prepared by Environment and Ecology, Inc. (August 17, 1990); *Expert Report of Dwight R. Hoening*, part of Darling International, Inc. v. Baywood Partners, Inc. (March 2, 2007); *Baywood Partners Inc.'s Trial Exhibits – Expert Opinion of Jeffrey Zelikson*, part of Darling International, Inc. v. Baywood |

DRAFT

| | | |
|---|---|---|
| | | Partners, Inc. (Case 3:05-cu-03758-EMC, Filed April 5, 2007) |
| Radon Zone Information | 2010 | California Department of Health Services Radon Database for California |
| Drinking Water Quality Report | 2012 | City of Petaluma Website |

DRAFT

# FIGURES




# SITE LOCATION MAP

2592 Lakeville Highway, Petaluma, California, 94954

N

Approximate Property Boundary

Source: USGS Topographic Map, *Petaluma River California* (1980)

**FIGURE 1**

Project Number: 327703

AEI Consultants




# SITE MAP

2592 Lakeville Highway, Petaluma, California 94954

N

Legend

Unidentified Substance Container

Approximate Property Boundary

Fill Material

Monitoring Well

Inferred Groundwater Flow Direction

Database

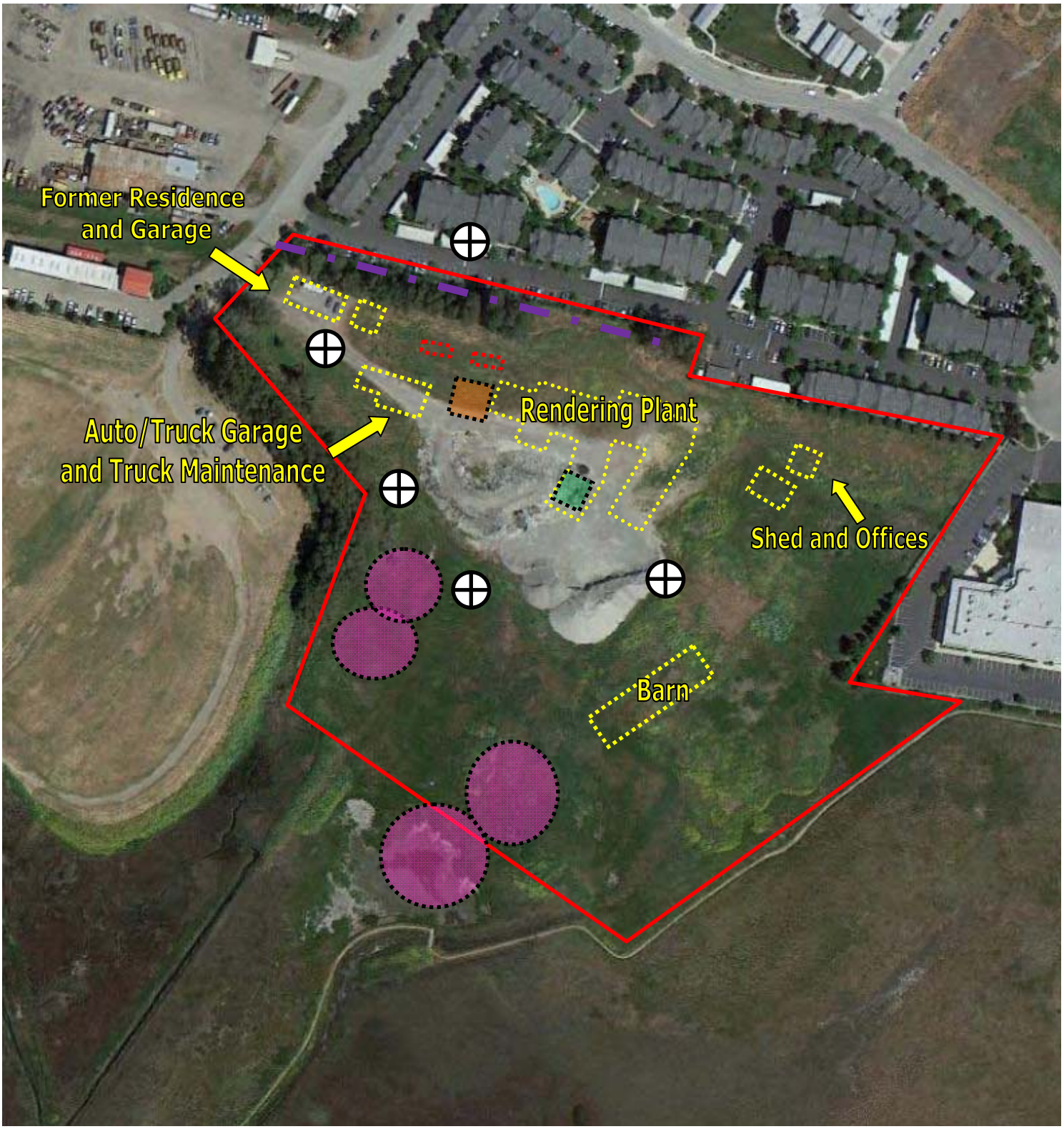
**FIGURE 2**

Class II Aggregate Mound

Construction Debris Mound

Project Number: 327703

AEI Consultants




# HISTORICAL SITE MAP

2592 Lakeville Highway, Petaluma, California 94954

N

Legend *All Locations Are Approximate

Approximate Property Boundary — Former Monitoring Wells ⊕ Former Septic

Former USTS Former Waste Ponds Former Sump

Former Buildings Former Railroad Spur

**FIGURE 3**

Project Number: 327703

AEI Consultants

# APPENDIX A

# PROPERTY PHOTOGRAPHS



1. View of the entrance to the subject property from Casa Grande Road, facing southeast.



2. View of the subject property from the adjacent site to the west, facing northeast.



3. View of the gravel road leading to the construction debris mount on the central portion of the subject property, facing southeast.



4. Detail pf construction debris mound on the central portion of the subject property.



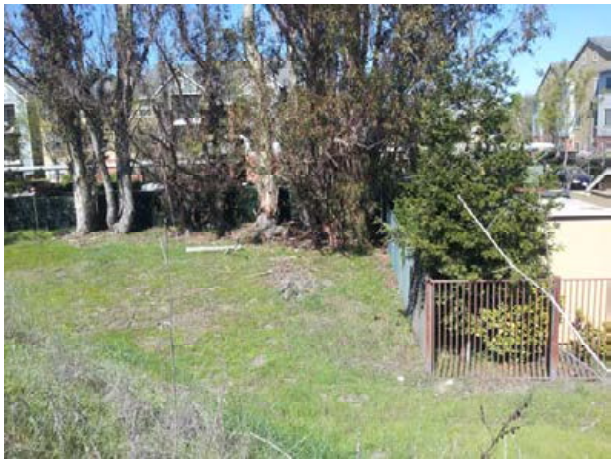
5. View of dumpster on the central portion of the subject property near the construction debris mound.



6. View of the subject propert, facing east with the fill material stockpile on the left and the debris mound on the right.



7. Additional view of debris pile and the central portion of the subject property, facing southwest.



8. View from the top of the fill material stockpile looking down on the former location of the railroad spur and railroad right of way on the northern portion of the subject property, facing north.



9. View of the northeastern portion of the subject property (and adjacent sites to the north and east), facing east.



10. View of the southeastern portion of the subject property, facing southeast.



11. View of the central portion of the subject property, facing northeast.



12. View of the southwestern portion of the subject property, facing west.



13. View of unidentified substance container on the southern portion of the subject property.



14. View of the base of the unidentified substance container.



15. View of the western side of the subject property, facing north.



16. View of monitoring well on the western portion of the subject property.



17. View of the monitoring well and the central portion of the subject property, facing east.



18. View of the draining creek from the western side of the subject property.



19. View of the southern portion of the subject property from the top of the construction debris pile.



20. View of the southeastern portion of the subject property from the top of the construction debris pile.



21. View of the northeastern corner of the subject property from the top of the construction debris pile.



22. View of the entrance to the subject property from the central portion of the subject property, facing northwest.



23. View of trailer home on the northwestern corner of the subject property.



24. View of draining area adjacent to the west of the subject property.



25. View of the adjacent site to the east from the subject property, facing east.



26. View of the entrances to the adjacent sites to the west on Casa Grande Road.



27. View of the adjacent site to the north west from Casa Grande Road.




28. View of warning sign along the creek adjacent to the subject property.

# APPENDIX C

# HISTORICAL SOURCES



# AERIAL PHOTOGRAPH

2592 Lakeville Highway, Petaluma, California

N

Approximate Property Boundary

Year: 1953

Project Number: 327703

AEI Consultants



# AERIAL PHOTOGRAPH

2592 Lakeville Highway, Petaluma, California

N

Approximate Property Boundary

Year: 1965

Project Number: 327703

AEI Consultants



# AERIAL PHOTOGRAPH

2592 Lakeville Highway, Petaluma, California

N

Approximate Property Boundary

Year: 1982

Project Number: 327703

AEI Consultants



# AERIAL PHOTOGRAPH

2592 Lakeville Highway, Petaluma, California

N

Approximate Property Boundary

Year: 1993

Project Number: 327703

AEI Consultants



# AERIAL PHOTOGRAPH

2592 Lakeville Highway, Petaluma, California

N

Approximate Property Boundary

Year: 1998

Project Number: 327703

AEI Consultants



# AERIAL PHOTOGRAPH

2592 Lakeville Highway, Petaluma, California

N

Approximate Property Boundary

Year: 2012

Project Number: 327703

AEI Consultants

# APPENDIX D

# REGULATORY AGENCY RECORDS

# COUNTY ASSESSOR'S PARCEL MAP

TAX RATE AREA 5-06
3-011
3-061

PARCEL MAP NO. 92
REC. 03-25-76 IN BK. 232, MAPS, PGS. 27

PARCEL MAP NO. 271
REC. 10-28-92 IN BK. 501, MAPS, PGS. 12-14

PARCEL MAP NO. 386
REC. 03-23-11 IN BK. 744, MAPS, PGS. 44-46

PARCEL MAP NO. 81
REC. 09-03-75 IN BK. 225, MAPS, PGS. 46

PETALUMA MARINA PARCEL MAP NO.247
REC. 02-27-96 IN BK. 454, MAPS, PGS. 9-10

NOTE: This map was prepared for Assessment purposes only and does not indicate either parcel legality or a valid building site. No liability is assumed for the accuracy of the data delineated. The acreages are based on the information supplied to the Assessor (i.e. recorded survey maps, recorded deeds, prior assessment maps, etc.)

NOTE: Assessor's parcels do not necessarily constitute legal lots. To verify legal parcel status, check with the appropriate city or county community development or planning division.

REVISED
09-23-05=R/S-LW
01-18-07=89-LW
01-13-11=R/S-KB
06-03-11=91 BL

SCALE: 1"=400'

Assessor's Map Bk. 005, Pg. 06
Sonoma County, Calif. (ACAD)

HYBRIS 1/18/07 LW

ROBERT L. HOLTZER, M.D.
PUBLIC HEALTH OFFICER

# SONOMA COUNTY
# PUBLIC HEALTH DEPARTMENT

3313 CHANATE ROAD
SANTA ROSA, CALIFORNIA 95404
PHONE: 527-2605

1-9-86

To: Royal Tallow & Soap Co.
P.O. Box 738
Petaluma, CA 94953

Re: Application for Permit to Operate underground storage tank(s) at 2592 Lakeville Hwy.

Your application has been received. A preliminary review indicates the application is incomplete, and the following item(s) are needed in order to continue the review process:

X 1. An accurate and complete plot plan (see reverse side).

X 2. A written response plan (see reverse side).

X 3. Specific information on the leak detection and monitoring system used for the tank(s), in accordance with State regulation (see attachment).

X 4. A written, routine monitoring procedure (see reverse side).

X 5. A completed form #UT3 for each tank (enclosed), numbered in accordance with location shown on the plot plan.

___ 6. Correct fee should be in the amount of _____.
Check or money order payable to "Sonoma County Public Health."

X 7. Other:
Complete and return enclosed form UT #2

If you need a complete copy of the State regulations on underground storage tanks, contact Betty Moreno, State Water Resources Control Board, (916) 324-1262.

Further information can be obtained by calling J. Lee or M. Sullivan at (707) 527- 2711, Tues. through Fri., between 7:00 a.m. and 9:00 a.m.

DLE/11

0277X

ROBERT L. HOLTZER, M.D.
PUBLIC HEALTH OFFICER

# SONOMA COUNTY
# PUBLIC HEALTH DEPARTMENT

3313 CHANATE ROAD
SANTA ROSA, CALIFORNIA 95404
PHONE: 527-2605

February 1, 1987

Gray, Jake
P.O. Box 738
Petaluma, CA 94953

Re: Annual Reporting Form for Underground Storage Tanks at
2592 Lakeville, Petaluma, CA

Dear Tank Owner:

Enclosed is an Annual Reporting Form that is required to be completed and submitted for your underground storage tanks on an annual basis pursuant to Section 29-29(a) of the Sonoma County Code. After answering the sections on the form, submit with payment of your annual permit to operate fee in accordance with the enclosed invoice.

If you have any questions, please call me at (707) 527-2784, Monday through Thursday, between 7 a.m. and 5:30 p.m.

Very truly yours,

Jeff Lewin

JEFF LEWIN, R.S.
Supervising Sanitarian

JL/ll

Enclosures: Annual Reporting Form
Annual Operating Permit Invoice

Annual Permit/Operator

**SONOMA COUNTY**
**HAZARDOUS MATERIALS MANAGEMENT PROGRAM**

2435 Professional Drive, Suite A
Santa Rosa, CA 95403 • (707) 527-1164

February 1, 1989

Royal Tallow & Soap
2592 Lakeville
Petaluma, CA 94952

Re: Annual Reporting Form for Underground Storage Tanks at
2592 Lakeville, Petaluma

Dear Tank Owner:

Enclosed is an Annual Reporting Form that is required to be completed and submitted for your underground storage tanks on an annual basis pursuant to Section 29-29(a) of the Sonoma County Code. After answering the sections on the form, submit with payment of your annual permit to operate fee in accordance with the enclosed invoice.

If you have any questions, please call me at (707) 527-2784, Monday through Friday, between 8 a.m. and 5:00 p.m.

Very truly yours,

Jeff Lewin

JEFF LEWIN, R.E.H.S.
Supervising Hazardous Materials Specialist

JL/ll

Enclosures: Annual Reporting Form
Annual Operating Permit Invoice
Quarterly Reconciliation Forms

Annual Permit/00001359

Prop 65
BOS 6/30/89
3:40pm
M Sullivan
Public Health
Hazmat

**UNDERGROUND STORAGE TANK**
**FIELD INSPECTION REPORT**

ID# _____

DATE 6-30-89

FACILITY NAME Royal Tallow TIME _____

FACILITY ADDRESS 2592 Lakeville Rd., Petaluma

**FIELD ACTIVITY**

- ☐ Routine
- ☐ Follow-Up
- ☐ Complaint
- ☐ Const./Equip. Inspection
- ☐ Survey/Field Study
- ☐ Emergency/Incident Investigation
- ☐ Consultation
- ☐ Sample/Test/Monitor
- ☐ Site Investigation/Clean-Up
- ☐ Other _____

**UNDERGROUND TANK CONSTRUCTION/MODIFICATION**

- ☐ Existing Tank Repair/Reline
- ☐ New Tank Construction
- ☐ Monitoring Well Construction/Abandonment
- ☐ Abandonment/Closure: ☐ All Tanks ☐ Specific Tank(s) _____
- ☐ Tank Integrity Test
- ☐ Piping Repair
- ☐ Inventory Control

**PERMIT ISSUE** ☐ Yes ☐ No

- ☐ 1-Year Annual Monitoring
- ☐ 2-Year Temporary Closure
- ☐ 3-Year Interim Monitoring
- ☐ 5-Year Annual Operating
- ☐ Permanent Closure

(Scott)

**COMMENTS:** Pace - Petroleum Engineering - Pet. FD (Jonnie)
Dillard Trucking, Inc., Byron, Ca. - Hauling U.T.'s.
Licensed Hauler #003206
Obvious holes in both tanks. 2000gal U.T. had one hole - 1000gal U.T. had multiple holes. Water present in 2000gal pit ≅ floating product, tar wrap loose and easy to remove, backfill contaminated. 1000gal U.T. not used for 30+ years. 2000gal U.T. has been used until last year (1988). Backfill obviously contaminated (odor & grey color) Both pits
3 domestic wells on east end of property. None being used at this time (salt intrusion). Shallow depths (≈30') Jonnie (Pet. F.D.) → verified LEL < 10% - Water supply from public system
Lab analysis: TPH (G), BTXE, Pb.

0788X
Rev. 05/86

2 samples from both pits
native soil

M J S.
Sanitarian

Water first observed appears to be from excavation only. No water seen at depth of sample.

Lithology: silty clay
Pictures taken -

COUNTY OF SONOMA
PUBLIC HEALTH DEPARTMENT
HAZARDOUS MATERIALS SECTION
2435 PROFESSIONAL DR., SUITE A
SANTA ROSA, CA 95403
(707) 527-1164

UNDERGROUND STORAGE TANK

APPLICATION FOR PERMIT TO:

- ☐ PRESSURE LOSS DETECTOR TEST
- ☐ TANK PIPING INTEGRITY TEST
- ☐ RENEWAL/EXTENSION
- ☐ REPAIR/MODIFY (includes leak detection & product lines)
- ☒ CLOSURE - Specify which tanks: (1) 500 GALLON GASOLINE AND (1) 2,000 GALLON GAS.
- ☐ CLEARANCE
- ☐ NEW/REPLACEMENT

ID# 1359

For Office Use Only

Date Paid: 3/30/89
Receipt #: 1368131
Amount: $252.00
Revenue Code: 1363 SW

Application is hereby made to the Sonoma County Health Officer for a permit to construct, repair, alter an underground storage tank, or perform a tank/piping integrity test in compliance with the Code of Sonoma County or for clearance for other construction/testing. This permit application must be signed on all three signature lines by the same person (i.e., contractor or owner/builder). A letter of authorization from owner must accompany this application if agent is signing on owner's behalf.

FACILITY NAME: ROYAL TALLOW & SOAP Co PHONE: (707) 762-2732
ADDRESS: 2592 LAKEVILLE HIGHWAY CITY/ZIP: PETALUMA, CALIFORNIA 94952
ASSESSOR'S PARCEL #: 17-01-7 CROSS STREET: CASA GRANDE ROAD FIRE DIST: PETALUMA
OWNER'S NAME: ROYAL TALLOW & SOAP Co. PHONE: (415) 647-4890
ADDRESS: P.O. Box 880006 CITY/STATE/ZIP: SAN FRANCISCO, CALIFORNIA 94188
OPERATOR'S NAME: MR. ED JENKINS, GENERAL MANAGER PHONE: (415) 647-4890
ADDRESS: 429 AMADOR STREET CITY/STATE/ZIP: SAN FRANCISCO, CALIFORNIA 94124
CONTRACTOR'S NAME: PETROLEUM ENGINEERING, INC. PHONE: (707) 545-0360
ADDRESS: 11 W. NINTH STREET CITY/STATE/ZIP: SANTA ROSA, CALIFORNIA 95401

RECEIVED
MAR 30 1989

## TERMS OF PERMIT

APPLICANT AGREES THAT:

1) Health Dept. Sanitarian will be notified a minimum of 48 hours prior to commencing work.
2) Health Dept. Sanitarian inspection will be obtained prior to covering the work (where applicable).
3) Any deviation from approved plan/permit without prior approval of the Health Officer will be cause for stopping work until the changes are fully justified and approved.
4) This permit is subject to revocation if found to be in nonconformance with Sonoma County Code or standards of the Public Health Dept.
5) I, the undersigned owner/operator/applicant of the subject facility hereby authorize Donald C. Mawhinney to release any and all analytical results, geotechnical data and site assessment information to the Sonoma County Public Health Dept. as soon as it is available and is provided to me or my representative.
6) Additional items: _____

It is understood that the issuance of a permit in no way indicates that a guarantee of perfect and indefinite operation is made by the County of Sonoma Public Health Dept. I hereby acknowledge that I have read this application and state that the above is correct and agree to comply with all County ordinances and State laws regulating underground storage tanks and storage tank integrity testing. This permit shall expire by limitation if work authorized is not commenced within 365 days.

Donald C. Mawhinney
SIGNATURE OF APPLICANT
PETROLEUM ENGINEERING, INC.

The undersigned applicant certifies the following:

CONTRACTORS LICENSE LAW CERTIFICATE (Complete either A or B)

- ☒ A. The applicant is licensed under the provisions of the Contractors License Law under License Number 224358 which License is in full force and effect.
- ☐ B. The applicant is exempt from the provisions of the Contractors License Law for the following reasons:
  - 1) Owner/Builder ☐
  - 2) Other (explain) ☐

WORKMEN'S COMPENSATION CERTIFICATE (Complete either A or B)

- ☒ A. A currently effective certificate of Workmen's Compensation Insurance coverage is on file with the Sonoma County Public Health Dept. Compensation Insurance Policy # PC-988913 is currently in force.
- ☐ B. I certify that in the performance of the work for which this permit is issued I shall not employ any person in any manner so as to become subject to the workmen's compensation laws of California.

X Donald C. Mawhinney 3-30-89
APPLICANT DATE

X Donald C. Mawhinney 3-30-89
APPLICANT DATE

PLAN APPROVED BY: [signature] DATE: 6-30-89 CONSTRUCTION APPROVED BY: _____ DATE: _____

(revised 08/88) NOT TRANSFERABLE WHEN APPROVED, THIS IS YOUR PERMIT (page 1 of 1) UT1

PETROLEUM ENGINEERING, INC

GENERAL CONTRACTORS
11 WEST NINTH STREET

PHONE (707) 545-0360
SANTA ROSA

LICENSE NO. 224358
CALIFORNIA 95401

# SITE SAFETY PLAN

## I INTRODUCTION

This Health and Safety Plan has been prepared to outline the minimum standards to be applied to the site. This Health and Safety Plan will be followed by PETROLEUM ENGINEERING, INC. and their SUBCONTRACTORS during their involvement in this project.

The jobsite name and address is: ROYAL TALLOW & SOAP CO. 2592 LAKEVILLE HIGHWAY PETALUMA, CALIFORNIA 94952

The site contains: ONE (1) 500 GALLON AND ONE (1) 2,000 GALLON UNDERGROUND GASOLINE TANKS

This Health and Safety Plan outlines a personnel and work site safety program to minimize the risk of endangering surrounding personnel and/or property.

RECEIVED
MAR 30 1987
HAZARDOUS MATERIALS

## II HEALTH AND SAFETY CONSIDERATIONS

### A. Key Personnel

#### Health and Safety Officer

The designated Health and Safety Officer for this project is: JOB FOREMAN TO BE NAMED. This person will be responsible for planning, implementing and auditing the health and safety program for this project.

### B. Hazardous Substance Description

No known contamination exists at this site. However, observation of the excavated material should be made to detect any unusual oders or obvious indication that contamination may be present.

HOSPITAL
PETALUMA
HIGHWAY
EAST
BLVD.
McDOWELL
BLVD.
LAKEVILLE STREET
LAKEVILLE HIGHWAY
WASHINGTON AVENUE
WESTERN AVE.
PETALUMA BLVD.
CASA GRANDE
ELY
CAULFIELD LANE
SANTA ROSA
NORTH PETALUMA
RIVER
SITE
SONOMA-MARIN FAIRGROUNDS
Petaluma Valley Hospital
McDowell Professional Dr.
Lynch Creek Way
Rainier Ave
Park Place
Maria Drive
Dynamic St.
Transport Way
MHP
Commerce Cascade
Olympic Ct.
Monroe Ct.
Tahoe Dr.
Chehalis Dr.
Wishkahn
Madison
Rene Dr.
Joan Jeffrey Dr.
Lauren Ct.
Jeffrey Drive
Eastside Cir.
Creekside Drive
Greenbriar Cir.
McDowell Park
McGregor Drive
Alta Park Ln.
Colwood Drive
Weavervill Drive
Sierra Sarkesian Dr.
Tamar Ln.
Glenica Dr.
Albert Way
Albert Wy.
Sutter St.
Garfield Drive
Harrison Dr.
Willow Dr.
Lincoln Lane
Palomino Ct.
Cloverdale Dr.
Appaloosa Dr.
Bordeaux Ct.
Branch Ct.
Weatherby Ct.
Weatherby Dr.
Fieldfield Ct.
St. Augustine Wy.
Astoria Cir.
Meadowview Dr.
Village East Dr.
Village Drive
Wren Ct.
Osprey Ct.
Pelican Ct.
Heron Pl.
Wren Dr.
Blue Heron Dr.
Spoonbill Ave.
Parent Way
Baywood Ct.
Baywood Drive
O'Neel Dr.
San Makino Dr.
Leslie Juliet Dr.
Whitney Dr.
Casa Grande High School
Rancho Way
Louise Ct.
Granada Ct.
Tampico Ct.
Capistrano Dr.
Marylyn Cir.
Caulfield Ln.
Albin Ct.
Peggy Ln.
Crinella Dr.
Acapulco Dr.
Grouse Ln.
Echo Ln.
Quail Dr.
Debra Dr.
Elizabeth Dr.
Trellis Ln.
Bungalow Ln.
Anna Way
Clelia Ct.
Filippini Wy.
Henry Wy.
Country Wood Ct.
Miller Ct.
Del Sol Ct.
Del Rancho Wy.
Calle Ranchero
Adobe Creek Dr.
Casa Verde Ct.
Casa De Arroyo Dr.
Rancho Bonito Cir.
Sartori Dr.
Bond Ct.
San Juan Stokas Dr.
Santa Barbara Dr.
Santa Inez Wy.
Santa Clara St.
San Rafael Dr.
San Francisco St.
Miwok Park
Miwok Valley School
Littlewoods Road
Perry Ln.
MHP
Lombardi Ct.
Maple Ct.
Wood Ln.
Spruce'd Ct.
Pine Wood Ct.
Cedar Wood Ct.
Gum Ct.
Alder Wood Ct.
Cotton Wood Ct.
Aspen Ct.
Ash Ct.
Baywood Ct.
Pecan Way
Palmetto Way
Catalpa Way
Ponderosa Av
Pacific Ave.
Overwood Dr.
Glen Dr.
St. Francis Dr.
Berrydale Dr.
Lombardi Ave.
Atlantic Ave.
Regina Ct.
Rampone Ct.
Regina Terr.
Carlino Ct.
Marian Ln.
Ramona Ct.
Adrienne Ct.
Reynolds Ln.
Murray Ln.
Williams Ln.
Kresky Way
Kresky Ct.
Kenilworth Jr. Hi. Sch.
Pedestrian Overcrossing
Petaluma Blvd. Shuttle Center
Lindberg Street
Dean Ct.
Montclair Dr.
McKenzie Dr.
Cortez Dr.
Coronado Dr.
Stuart Dr.
McNeil Dr.
Alta Dr.
Garfield Ln.
Garfield Ct.
Garfield Dr.
Gilmix Ct.
Kaiser Ct.
Eastwood Ct.
Eastwood Dr.
Knight Ave.
Teal Ct.
Sultana Ct.
Kirkland Ct.
Petaluma Airport
Washington Dr.
Gossage Wy.
Gossage Ave.
Jessie Lane
Oak Ln.
Acorn Cir.
Acorn Dr.
Cinnabar Ave
Beck Rd.
Shasta Ave.
Bernice Ave.
Betty Ln.
Lucy Lawrence Dr.
Pidgeon Ct.
Joss Ct.
Cordelia Ct.
Arlington Dr.
Holly Ln.
Faye Ct.
Burlington Dr.
Huntington Dr.
Carleton Ct.
Arden Ct.
Franklin St.
Wilmington Dr.
Margo Ln.
Martin St.
Ellis St.
McKinley Sch.
Doris Wy.
Alma St.
San Carlos Ave.
Rio Vista Ave.
Woodson Ct.
Natalie Ct.
Wood St.
Worth St.
Elinor Ave.
Rocca Dr.
Payran E.D.D.
Payran St.
Cherry St.
Cherry Valley Sch.
St. Vincent High School
Liberty St.
Hawthorn Ct.
Anton Ct.
Cypress Hills Cemetery
B'hai Israel Calvary Cem.
Sycamore Ln.
Magnolia Ave.
Kazen Ct.
Kathleen Ct.
Eddie Ct.
James Ct.
Bonita Dr.
Paula Ln.
Berger Ln.
Blossom Ct.
Birch Ct.
Schuman Ln.
Cindy Ln.
Vanessa Ln.
Dickson Hill Ln.
Laurel St.
Elm Ln.
Earls Ct.
Elm Cir.
Live Oak Ave.
Cedar Ct.
Jasmine Ln.
Joelle Hts.
Holly Hghts
Ruth Ct.
Gilardi Dr.
Oak Hill Park
Wallace Ct.
Park Ave.
Howard St.
Pleasant St.
Prospect St.
Vincente Sch
Union St.
Martha St.
Mary St.
Oak St.
Keller St.
Liberty St.
Kentucky St.
Kelly St.
Kent St.
Central St.
Walnut St.
Galland St.
Keokuk St.
Cedar St.
West St.
Lakeville St.
Copeland St.
Gray St.
Hodgson St.
Levee St.
Bayliss St.
Weller St.
Jack Cavanaugh, Sr. Park
Mooring & Landing Facility
Center Park
Animal Control Center
Sewage Disposal Plant
Corp. Yard
McNear Island
Northwestern Pacific R.R.
Petaluma Jr. Hi. Sch.
Valley Vista Sch.
Brainerd Dr.
Baker St.
Tunzi Ln.
Upham St.
High St.
Stanley Ln.
Post St.
Harris St.
Oak Terr.
McWebster St.
Sonoma Ave.
Bantam Way
Louden St.
Panda Pl.
Petaluma Blvd. North
Petaluma Blvd. South
City Hall
Police Court
Post St.
Hall St.
Library
4th St.
P.O.
1st St.
2nd St.
Walnut Park
5th St.
6th St.
7th St.
8th St.
9th St.
10th St.
11th St.
12th St.
Wickersham Park
Spring St.
Douglas St.
Fair St.
Sheldon St.
Broadway St.
English St.
Bassett St.
Dana St.
Kelvin St.
Woodlawn Ave.
Petaluma High Sch.
Webster St.
Hinman Ave.
Grossland Ave.
Webster
Laurel
Pearce
Nob Hill
Belle View
Orchard Blvd.
Oak Ln.
Manor Wy.
La Cresta Dr.
Haven Dr.
Scenic Wy.
Summit Wy.
Hillcrest Hosp.
W. El Rose
El Rose Ave.
Crestview Ct.
Sunny Slope
Sunny Hill Dr.
Asn Ln.
Morning Sun
Independence Wy.
Brookside Ct.
Highland Rd.
Adams Ln.
Sunny Slope Ct.
Sunnyside Ct.
Sunset Hill Dr.
Vista View Ln.
Jones Ln.
Sunny Hill Road
Maier Ln.
McNear Sch.
McNear Park
Olive St.
Raymond Hts.
Branching Ln.
Mt. George Terr.
Baker Ct.
Cochrane Ave.
Grandview Ave.
View Ct.
Mission Dr.
Fairview Ter.
Meadowglen Ter.
Halsey Ave.
Jean Ct.
Sherrit Ct.
Grant Ct.
Kelly Ln.
Grant Ave.
Grant Park
Grant Sch.
Arlene Ct.
Troy Ct.
Glendon Ct.
Co-Linda Ct.
Jensen Ct.
Middlefield Dr.
Steven Ct.
McNear Ave.
Winding Ridge Dr.
Radio Station Access Rd.
Country Club Dr.
Club House
Petaluma Golf & Country Club
Phillips Ave.
Canyon Dr.
Rancho Linda
Mountain View Dr.
Petroleum Lane
Picnic Area
Parking
Boat Launch
Schollenberger River Park
South Pacific
Casa Grande Rd.
Lakeville Hwy.
Cadet Lane
South McDowell Cir.
Creek Cir.
Adobe Creek Dr.
Del Rancho Wy.
Calle Ranchero
Del Sol Ct.
Del Oro Park
Adobe Creek Park
Sonoma Blvd.
Sonoma Ct.
Nidos Ct

Permit # 1

SONOMA COUNTY UNDERGROUND STORAGE TANK
PERMIT APPLICATION
SUPPLEMENTAL APPLICATION - TANK DESCRIPTION

FACILITY NAME: ROYAL TALLOW & SOAP CO. 2592 Lakeville, Petaluma

Complete one form for EACH tank currently in operation, being installed, or being modified.

SECTION I - TANK/CONTAINER DESCRIPTION

Tank Number (from plot plan)_____

Container Type: /X/ (01) Tank / / (09) Other_____

Container Serial No._____ Container U.L. No._____

Container Manufacturer_____

Manufacturer Address_____

Manufacturer Phone_____

Year Container Installed 1973

Container Capacity 2,000 GL Dimensions of Container_____

Current Container Contents:

/ / (01) Unleaded /X/ (02) Regular / / (03) Premium / / (04) Diesel

/ / (05) Waste Oil / / (09) Other (list)_____

Product CAS Number (if known)_____

Has container been used previously to store different chemicals? / / Yes /X/ No
(If yes, please fill out Section IV.)

Note: If new tank installation, manufacturer's data documenting product and tank compatibility must be provided. Please attach to this application.

USED TANKS CANNOT BE PLACED IN OPERATION WITHOUT PRIOR APPROVAL FROM ENVIRONMENTAL HEALTH SERVICES.

SECTION II - CONTAINER CONSTRUCTION (check all appropriate boxes)

Primary Container

Thickness of Primary Containment:

_____ / / gauge / / inches / / centimeters / / unknown

Vaulting: / / (01) Vaulted / / (02) Non-Vaulted / / ( u) Unknown

Walling: / / (01) Double / / (02) Single / / (03) Lined / / (09) Other

Walling Material: / / (01) Carbon Steel / / (02) Stainless Steel

/ / (03) Fiberglass / / (04) Polyvinyl Chloride / / (05) Concrete

/ / (06) Aluminum / / (07) Steel-Clad / / (08) Bronze

/ / (09) Composite / / (10) Non-Metallic / / (11) Earthen Walls

/ / ( u) Unknown / / (99) Other:_____

7

If no: Name of company hauling tank: ~~ENVIRONMENTAL SERVICES, INC.~~ Dillard Trucking, Byron, Ca.

and their DHS Hazardous Waste Hauler's License No.: ~~38 00278~~ 003206

Tank/piping destination for disposal or destruction (facility name and address):
~~ENVIRONMENTAL SERVICES, INC. - 185 CHINA BASIN -~~
~~SAN FRANCISCO, CALIFORNIA 94107~~ ERICKSON, Richmond, Ca.

Is/are the tank(s) to be used for scrap metal? [X] Yes [ ] No

If yes, facility name and address: ~~GENERAL METALS CORPORATION,~~
ERICKSON, RICHMOND, CALIFORNIA

Is/are the removed tank(s) proposed for reuse as aboveground storage tank(s)?

[ ] Yes [X] No

If yes: Name of owner: _____

Location of reuse: _____

Nature of reuse: _____

Chemical to be stored: _____

Local fire jurisdiction approval is required prior to reusing tank for aboveground storage.

RECEIVED
MAR 30 1989
HAZARDOUS MATERIALS

Section II - Tank Closure-In-Place

Provide a plot plan of existing facility showing property boundaries, location of tank(s) to be closed-in-place, underground utilities, wells, equipment, and any remaining tanks.

Name of company cleaning tank: _____

Name of company hauling rinsate: _____

and their DHS Hazardous Waste Hauler's License No.: _____

What inert material (e.g., sand/cement slurry) will be used to fill the cleaned in-place tank and piping? _____

Section III - Tank Temporary Closure

Provide a plot plan of existing facility showing property boundaries, location of tank(s) to be temporarily closed, underground utilities, wells, equipment, and any remaining tanks.

Name of company removing product contents: _____

and their DHS Hazardous Waste Hauler's License No.: _____

Daniel C. Marchant
Applicant's Signature

3-30-89
Date

PETROLEUM ENGINEERING, INC.
11 West Ninth Street
SANTA ROSA, CALIFORNIA 95401
(707) 545-0360 License No. 224358

Permit # _____

FOR OFFICE USE ONLY
# tanks closed _____
# tanks remaining _____

SONOMA COUNTY UNDERGROUND STORAGE TANK CLOSURE
SUPPLEMENTAL PERMIT APPLICATION

FACILITY NAME: ROYAL TALLOW & SOAP COMPANY

FACILITY ADDRESS: 2592 LAKEVILLE HIGHWAY, PETALUMA, CA

CONTRACTOR'S NAME: PETROLEUM ENGINEERING, INC. Phone No.: (707) 545-0360

Indicate which type of tank closure you are applying for:

[X] Permanent closure

[X] Removal [ ] Closure-in-place

[ ] Temporary closure

Number of tanks being closed: 2

For each tank being closed, list the following:

| Tank size (gallons) | Age of tank (years) | Tank contents (chemical name) |
|---|---|---|
| 1000 ~~500~~ | UNKNOWN + 31 ~~years~~ | (GASOLINE) |
| 2,000 | ~~15~~ 1979 | (GASOLINE) |
| | | |
| | | |

Date last operated tank(s) _____

EPA hazardous waste generator number for your facility: CAC000162333

Soil sampling for product contamination must be done for any type of tank closure. List the analytical laboratory to be used for analysis:

Name of laboratory: PACE LABORATORIES, INC Phone: (415) 883-6100

NOTE: Submit copy of analytical test results to the Sonoma County Public Health Department.

If the tank is to be removed, complete Section I below.
If the tank is to be closed-in-place, complete Section II below.
If the tank is to be temporarily closed, complete Section III below.

NOTE: All tank(s) product contents must be removed prior to closure of the tank(s).

Section I - Tank Removal

Provide a plot plan of existing facility showing property boundaries, location of tanks to be removed, underground utilities, wells, equipment and any remaining tanks.

Will the tank(s) be cleaned on site? [ ] Yes [X] No

If yes: Name of company cleaning tank: N/A

Name of company hauling rinsate: [illegible]

and their DHS Hazardous Waste Hauler's License No.: [illegible]

Tank/piping destination (facility name and address): [illegible]

RECEIVED
MAR 30 1989

Lining Type: / / (01) Rubber / / (02) Alkyd / / (03) Epoxy

/ / (04) Phenolic / / (05) Glass / / (06) Clay / / (07) Unlined

/ / (09) Other / / ( u) Unknown

Wrapping Type: / / (01) Polyethylene / / (02) Vinyl / / (03) Cathodic Protection

/X/ (04) Tar or Asphalt / / (06) None / / (09) Other / / ( u) Unknown

Cathodic Protection: / / (01) Electric Anode / / (02) Sacrificial

Secondary Container (If container is double-walled and walling material is the same as the primary container, skip this section.)

Volume of Secondary Containment_____

Thickness of Secondary Containment_____

Walling Material: / / (01) Carbon Steel / / (02) Stainless Steel

/ / (03) Fiberglass / / (04) Polyvinyl Chloride / / (05) Concrete

/ / (06) Aluminum / / (07) Steel-Clad / / (08) Bronze

/ / (09) Composite / / (10) Non-Metallic / / (11) Earthen Walls

/ / ( u) Unknown / / (99) Other:_____

Piping Type (check all appropriate boxes):

/ / Above-Ground

/ / (01) Double-Walled Pipe / / (02) Concrete-Lined Trench / / (03) Gravity

/ / (04) Pressure / / (05) Suction / / (07) None / / ( u) Unknown

/ / (09) Other_____

/ / Below-Ground

/ / (01) Double-Walled Pipe / / (02) Concrete-Lined Trench / / (03) Gravity

/ / (04) Pressure / / (05) Suction / / (07) None / / ( u) Unknown

/ / (09) Other_____

SECTION III - MONITORING AND LEAK DETECTION SYSTEMS

Tank Leak Detection (check all appropriate boxes):

/ / (01) Visual / / (02) Stock Inventory / / (03) Tile Drain

/ / (04) Vapor Sniff Wells / / (05) Sensor Instrument

/ / (06) Groundwater Monitoring Wells / / (07) Pressure Test

/ / (08) Internal Inspection / / (10) None / / ( u) Unknown

/ / (09) Other (specify)_____

Pipe Leak Detection:

/ / Pressure Loss Detector / / Other (specify)_____

Manufacturer_____ Phone_____

Address_____

AS
a/s
Mark
Filed

RECEIVED
JUL 18 1989
HAZARDOUS MATERIALS

# PETROLEUM ENGINEERING, INC

GENERAL CONTRACTORS
11 WEST NINTH STREET SANTA ROSA, CA 95401 PHONE (707) 545-0360 LICENSE NO. 224358

## LETTER OF TRANSMITTAL

County of Sonoma
Public Health Department
~~Hazardous Materials Section~~
~~2435 Professional Drive~~
~~Santa Rosa, CA. 95403~~
ATTN: Alex

DATE July 17,1989
PROJECT Royal Toallow Soap

Petaluma, CA.

WE ARE SENDING YOU THE FOLLOWING ITEMS:

☐ PRINTS ☐ SHOP DRAWINGS ☐ PLANS ☐ SPECIFICATION ☐ SAMPLES
☐ MAINT & OPR. INST ☐ COPY OF LETTER ☒ Siol SampleResults

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 7-17-89 | 4 | Pace Lab, Analysys |
| | | | |
| | | | |
| | | | |

THESE ARE TRANSMITTED AS CHECKED BELOW:

☐ FOR APPROVAL ☐ APPROVED AS SUBMITTED ☐ RESUBMIT _____ COPIES FOR APPROVAL
☐ FOR YOUR USE ☐ APPROVED AS NOTED ☐ SUBMIT _____ COPIES FOR DISTRIBUTION
☐ AS REQUESTED ☐ RETURNED FOR CORRECTIONS ☐ RETURN _____ CORRECTED PRINTS
☒ FOR REVIEW AND COMMENT ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Alex,

Please notify myself or Don Marchant of what steps you would like us to take to complete.

SIGNED: X

AS
a/s
Mark
Lab

File

RECEIVED
JUL 18 1989
HAZARDOUS MATERIALS

**PETROLEUM**
**ENGINEERING, INC**

GENERAL CONTRACTORS

11 WEST NINTH STREET SANTA ROSA, CA 95401 PHONE (707) 545-0360 LICENSE NO. 224358

# LETTER OF TRANSMITTAL

County of Sonoma
Public Health Department
Hazardous Materials Section
2435 Professional Drive
Santa Rosa, CA. 95403

ATTN: Alex

DATE July 17,1989

PROJECT Royal Toallow Soap

Petaluma, CA.

WE ARE SENDING YOU THE FOLLOWING ITEMS:

☐ PRINTS ☐ SHOP DRAWINGS ☐ PLANS ☐ SPECIFICATION ☐ SAMPLES

☐ MAINT & OPR INST ☐ COPY OF LETTER ☒ Siol SampleResults

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 7-17-89 | 4 | Pace Lab, Analysys |
| | | | |
| | | | |
| | | | |

THESE ARE TRANSMITTED AS CHECKED BELOW:

☐ FOR APPROVAL ☐ APPROVED AS SUBMITTED ☐ RESUBMIT _____ COPIES FOR APPROVAL

☐ FOR YOUR USE ☐ APPROVED AS NOTED ☐ SUBMIT _____ COPIES FOR DISTRIBUTION

☐ AS REQUESTED ☐ RETURNED FOR CORRECTIONS ☐ RETURN _____ CORRECTED PRINTS

☒ FOR REVIEW AND COMMENT ☐ _____

☐ FOR BIDS DUE _____ 19_____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Alex,

Please notify myself or Don Marchant of what steps you would like us to take to complete.

SIGNED: X _____

2592 Lakeville

pace laboratories, inc

# REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

JUL 15 1989

July 14, 1989

Mr. Don Marchant
Petroleum Engineering
11 W. 9th Street
Santa Rosa, CA 95401

Dear Mr. Marchant:

Enclosed is the report of laboratory analyses for samples received 06/30/89.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Stephen Nackord

Stephen F. Nackord
Director, Sampling and Analytical Services

Enclosures

pace laboratories, inc.

# REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas

Petroleum Engineering
11 W. 9th Street
Santa Rosa, CA 95401

July 14, 1989
PACE Project Number: 490630600

Attn: Mr. Don Marchant

Royal Tallow & Soap

Date Sample(s) Collected: 06/30/89
Date Sample(s) Received: 06/30/89

| PACE Sample Number: / Parameter | Units | MDL | 742750 630-1 | 742760 630-2 | 742770 630-3 |
|---|---|---|---|---|---|
| INORGANIC ANALYSIS | ppm | | | | |
| ORGANIC LEAD IN SOIL; CA DHS METHOD #338 | | | | | |
| Organic Lead, as Pb | mg/kg wet | 0.5 | ND | ND | ND |
| Date of Analysis | | | 07/08/89 | 07/08/89 | 07/08/89 |
| ORGANIC ANALYSIS | | | | | |
| PURGEABLE FUELS AND AROMATICS | | | | | |
| TOTAL FUEL HYDROCARBONS, (LIGHT): | | | - | - | - |
| Purgeable Fuels, as Gasoline (EPA 8015) | mg/kg wet | 1.0 | 170 | 86 | 820 |
| PURGEABLE AROMATICS (BTXE BY EPA 8020): | | | - | - | - |
| Benzene | mg/kg wet | 0.005 | 1.2 | 0.68 | 9.3 |
| Ethylbenzene | mg/kg wet | 0.005 | 2.8 | 1.40 | 18 |
| Toluene | mg/kg wet | 0.005 | 1.1 | 0.57 | 32 |
| Xylenes, Total | mg/kg wet | 0.005 | 18 | 8.5 | 110 |

ND Not detected at or above the MDL.
MDL Method Detection Limit

pace laboratories, inc

# REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas



July 14, 1989
PACE Project Number: 490630600

| PACE Sample Number: / Parameter | Units | MDL | 742780 630-4 |
|---|---|---|---|
| **INORGANIC ANALYSIS** | | | |
| ORGANIC LEAD IN SOIL; CA DHS METHOD #338 | | | |
| Organic Lead, as Pb | mg/kg wet | 0.5 | ND |
| Date of Analysis | | | 07/08/89 |
| **ORGANIC ANALYSIS** | | | |
| PURGEABLE FUELS AND AROMATICS | | | |
| TOTAL FUEL HYDROCARBONS, (LIGHT): | | | - |
| Purgeable Fuels, as Gasoline (EPA 8015) | mg/kg wet | 1.0 | 670 |
| PURGEABLE AROMATICS (BTXE BY EPA 8020): | | | - |
| Benzene | mg/kg wet | 0.005 | 2.9 |
| Ethylbenzene | mg/kg wet | 0.005 | 12 |
| Toluene | mg/kg wet | 0.005 | 19 |
| Xylenes, Total | mg/kg wet | 0.005 | 69 |

ND Not detected at or above the MDL.
MDL Method Detection Limit

The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my direct supervision.

Stephen F. Nackord
Director, Sampling and Analytical Services

Douglas E. Oram, Ph.D.
Organic Chemistry Manager

NO. 3299

pace laboratories, inc.

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client PED

Address

Phone

Report To: Don Marchant

Bill To: PED

P.O. # / ~~Billing Reference~~ 27636

Project Name / No. Royal Tallow x Ss.

Pace Client No. 10170

Pace Project Manager LP

Pace Project No. 490630.600

*Requested Due Date: Level 3

Sampled By (PRINT): T. Scott Gibson

Sampler Signature: T. Scott Gibson

Date Sampled: 6-30-97

| ITEM NO. | SAMPLE DESCRIPTION | TIME | MATRIX | PACE NO. | NO. OF CONTAINERS | PRESERVATIVES: UNPRESERVED | $H_2SO_4$ | $HNO_3$ | VOA | | | ANALYSES REQUEST: TPH-Light, BTX-E, Total Avg Lead | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 630-1 | | Soil | 74275 | 1 | | | | | | | x x x | Strong fuel odor |
| 2 | 630-2 | | " | 74276 | 1 | | | | | | | x x x | " |
| 3 | 630-3 | | " | 74277 | 1 | | | | | | | x x x | " |
| 4 | 630-4 | | " | 74278 | 1 | | | | | | | x x x | " |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |

| COOLER NOS. | BAILERS | SHIPMENT METHOD OUT/DATE | SHIPMENT METHOD RETURNED/DATE |
|---|---|---|---|
| | | | |

Additional Comments

| ITEM NUMBER | RELINQUISHED BY / AFFILIATION | ACCEPTED BY / AFFILIATION | DATE | TIME |
|---|---|---|---|---|
| 1-4 | T. Scott Gibson PACE | Courier | 6/30/97 | 4pm |

10/2

3

SEE REVERSE SIDE FOR INSTRUCTIONS

COUNTY OF SONOMA
PUBLIC HEALTH DEPARTMENT
3313 Chanate Road
Santa Rosa, California 95404

MEMO

Date: 24 Feb 89

Time: _____

TO: Edward Jenkins

FROM: Alex Schnieder 5273034

SUBJECT: Closure

Enclosed please find directions & paper work necessary for Closure. The fee is $180 for one tank + $72 for each tank. To avoid payment of operating fee & any penalties the Closure permit must be received before March 31, 1989

Alex

PHD-ADM-14a (12/84 Rev.)

ROYAL TALLOW & SOAP COMPANY

February 22, 1989

Mr. Jeff Lewin
County of Sonoma
Hazardous Material Program
2435 Professional Dr., Suite A
Santa Rosa, CA 95403

Dear Mr. Lewin,

Royal Tallow & Soap Company's processing plant in Petaluma was shut down as an operating plant in June of 1986. Our last delivery of fuel to our storage tank was on 04/29/86 and this fuel was used in our equipment until our tank was empty.

I would like to request a closure information package at this time in lieu of an operating permit.

Sincerely,

Edward H. Jenkins

Edward H. Jenkins
General Manager

EJ/blg

RECEIVED
FEB 23 1989
HAZARDOUS MATERIALS

429 Amador Street • P.O. Box 880006 • San Francisco, CA 94188 • (415) 647-4890 • FAX: (415) 647-9384

ORIGINAL INVOICE

# COUNTY OF SONOMA

INVOICE NO. P- 27612

PLEASE MAKE CHECK PAYABLE TO: SONOMA COUNTY PUBLIC HEALTH DEPT.
3313 CHANATE RD, SANTA ROSA, CA. 95404

MAIL TO:

TO:
ID# 00001359 G# 6403
Royal Tallow & Soap
2592 Lakeville
Petaluma, CA 94952

DATE: February 1, 1989

REVENUE CODE: 81363

| QUANTITY | DESCRIPTION OF MATERIALS AND/OR SERVICES | PRICE | AMOUNT |
|---|---|---|---|
| | FACILITY: Royal Tallow & Soap, 2592 Lakeville, Petaluma | | |
| | PAYMENT DUE DATE: 03/01/89 | | |
| | NUMBER OF TANKS: 1 | | |
| | Underground Storage Tank Annual Permit (1989-90)<br>(1 tank @ $144.00, 0 tank(s) @ $72.00) $ 144.00 | | |
| | TOTAL DUE: | | $ 144.00 |

As per Section 29-8(c) of County Ordinance 3415, a 10% penalty fee will be collected for all fees that are delinquent for 30 days. For each additional month or fraction in which the delinquency continues, an additional 10% penalty shall be collected.

PLEASE RETURN ONE COPY OF INVOICE WITH PAYMENT.

INVOICE

FEB 1989
RECEIVED

# REQUEST FOR INSPECTION

☐ Precision Test ☐ Monitoring Well

☑ Tank Closure ☐ Sampling Activities

☐ New Tank/Piping Installation ☐ Other

Date: 6/29 Time: 10:55

Name of Caller: Dan, Petroleum Engineer

Phone No.: 545-0360

Property Address: 2592 Halcyville/
Casa Grande, Petaluma

Property Owner: Royal Tallow + Soap

Date/Time of Inspection: 6/30/89 @
2:00

Remarks: Call to confirm

Call taken by: Suzy S.

STATE ID NUMBER 00000038631001

# APPLICATION FOR PERMIT TO OPERATE UNDERGROUND STORAGE TANK

( ) 01 NEW PERMIT ( ) 05 RENEWED PERMIT ( ) 07 TANK CLOSED ( ) 09 DELETE FROM FILE (NO FEE)
( ) 02 CONDITIONAL PERMIT ( ) 06 AMENDED PERMIT ( ) 08 MINOR CHANGE (NO SURCHARGE)

## I OWNER

| NAME(CORPORATION,INDIVIDUAL OR PUBLIC AGENCY) | | PUBLIC AGENCY ONLY ( ) 01 FED ( ) 02 STATE ( ) 03 LOCAL | |
|---|---|---|---|
| DARLING-DELAWARE CO., INC. | | | |
| STREET ADDRESS<br>4650 SO. RACINE AVENUE | CITY<br>CHICAGO | STATE<br>IL | ZIP<br>60609 |

## II FACILITY

| FACILITY NAME<br>ROYAL TALLOW & SOAP CO. | | DEALER/FOREMAN/SUPERVISOR<br>JAKE GRAY-MANAGER | |
|---|---|---|---|
| STREET ADDRESS<br>2592 LAKEVILLE HWY | | NEAREST CROSS STREET<br>CASA GRANDE | |
| CITY<br>PETALUMA | | COUNTY<br>SONOMA | ZIP<br>94952 |
| MAILING ADDRESS<br>P.O. BOX 738 | CITY<br>PETALUMA | STATE<br>CA | ZIP<br>94953 |
| PHONE W/AREA CODE<br>707-762-2731 | TYPE OF BUSINESS<br>( ) 01 GASOLINE STATION (X) 02 OTHER SOAP CO. | | |

| NUMBER OF CONTAINERS<br>1 | RURAL AREAS ONLY : | TOWNSHIP | RANGE | SECTION |
|---|---|---|---|---|

## III 24 HOUR EMERGENCY CONTACT PERSON

| DAYS: NAME(LAST NAME FIRST) AND PHONE W/AREA CODE | NIGHTS: NAME(LAST NAME FIRST) AND PHONE W/AREA CODE |
|---|---|
| GRAY, JAKE 707-762-2731 | GRAY, JAKE 707-763-2532 |

COMPLETE THE FOLLOWING ON A SEPARATE FORM FOR EACH CONTAINER

## IV DESCRIPTION

A. (X) 01 TANK ( ) 04 OTHER: CONTAINER NUMBER 1

B. MANUFACTURER (IF APPROPRIATE): YEAR MFG: 1973 C. YEAR INSTALLED 1973 ( ) UNKNOWN

D. CONTAINER CAPACITY: 2000 GALLONS ( ) UNKNOWN E. DOES THE CONTAINER STORE: ( ) 01 WASTE (X) 02 PRODUCT

F. DOES THE CONTAINER STORE MOTOR VEHICLE FUEL OR WASTE OIL ? (X) 01 YES ( ) 02 NO IF YES CHECK APPROPRIATE BOX(ES):
( ) 01 UNLEADED (X) 02 REGULAR ( ) 03 PREMIUM ( ) 04 DIESEL ( ) 05 WASTE OIL ( ) 06 OTHER

## V CONTAINER CONSTRUCTION

A. THICKNESS OF PRIMARY CONTAINMENT: 1/8 ( ) GAUGE (X) INCHES ( ) CM ( ) UNKNOWN

B. ( ) 01 VAULTED (LOCATED IN AN UNDERGROUND VAULT) (X) 02 NON-VAULTED ( ) 03 UNKNOWN

C. ( ) 01 DOUBLE WALLED ( ) 02 SINGLE WALLED ( ) 03 LINED

D. (X) 01 CARBON STEEL ( ) 02 STAINLESS STEEL ( ) 03 FIBERGLASS ( ) 04 POLYVINYL CHLORIDE ( ) 05 CONCRETE
( ) 06 ALUMINUM ( ) 07 STEEL CLAD ( ) 08 BRONZE ( ) 09 COMPOSITE ( ) 10 NON-METALLIC
( ) 12 UNKNOWN ( ) 13 OTHER:

STATE ID NUMBER 000000386310O1

## CONTAINER CONSTRUCTION

E. ( ) 01 RUBBER LINED ( ) 02 ALKYD LINING ( ) 03 EPOXY LINING ( ) 04 PHENOLIC LINING ( ) 05 GLASS LINING
( ) 07 UNLINED (X) 08 UNKNOWN ( ) 09 OTHER:

F. (X) 01 POLYETHLENE WRAP ( ) 02 VINYL WRAPPING ( ) 03 CATHODIC PROTECTION ( ) 04 UNKNOWN ( ) 05 NONE
( ) 06 TAR OR ASPHALT ( ) 09 OTHER:

## VI PIPING

A. ABOVEGROUND PIPING: ( ) 01 DOUBLE-WALLED PIPE ( ) 02 CONCRETE-LINED TRENCH ( ) 03 GRAVITY
(CHECK APPROPRIATE BOX(ES) ( ) 04 PRESSURE ( ) 05 SUCTION ( ) 06 UNKNOWN ( ) 07 NONE

B. UNDERGROUND PIPING: ( ) 01 DOUBLE-WALLED PIPE ( ) 02 CONCRETE-LINED TRENCH ( ) 03 GRAVITY
(CHECK APPROPRIATE BOX(ES) ( ) 04 PRESSURE ( ) 05 SUCTION ( ) 06 UNKNOWN ( ) 07 NONE

## VII LEAK DETECTION

( ) 01 VISUAL ( ) 02 STOCK INVENTORY ( ) 04 VAPOR SNIFF WELLS ( ) 05 SENSOR INSTRUMENT
( ) 06 GROUND WATER MONITORING WELLS ( ) 07 PRESSURE TEST (X) 09 NONE ( ) 10 OTHER:

## VIII CHEMICAL COMPOSITION OF MATERIALS STORED IN UNDERGROUND CONTAINERS

IF YOU CHECKED YES TO IV-F YOU ARE NOT REQUIRED TO COMPLETE THIS SECTION

| CURRENTLY STORED | PREVIOUSLY STORED | DELETE | CAS# (IF KNOWN) | CHEMICAL (DO NOT USE COMMERCIAL NAME) |
|---|---|---|---|---|
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |
| ( ) 01 | ( ) 02 | ( ) 03 | | |

* CHECK STATE BOARD CHEMICAL CODE LISTING FOR POSSIBLE SYNONYMS

IS CONTAINER LOCATED ON AN AGRICULTURAL FARM? ( ) 01 YES (X) 02 NO

THIS FORM HAS BEEN COMPLETED UNDER THE PENALTY OF PERJURY AND, TO THE BEST OF MY KNOWLEDGE, IS TRUE AND CORRECT.

| PERSON FILING (SIGNATURE) | PHONE W/AREA CODE |
|---|---|
| | |

## FOR LOCAL AGENCY USE ONLY

| ADMINISTRATING AGENCY | CITY CODE | COUNTY CODE |
|---|---|---|
| | | |

| CONTACT PERSON | PHONE W/AREA CODE |
|---|---|
| | |

| DATE OF LAST INSPECTION | IN COMPLIANCE ( ) 01 YES ( ) 02 NO | PERMIT APPROVAL DATE | TRANSACTION DATE | LOCAL PERMIT ID # |
|---|---|---|---|---|
| | | | | |

# HAZMAT - Request for Action

ID# 1359 Date 3-31-89

Facility Name Royal Tellow

Facility Address 2592 Lakeville

____ Change in Owner/Operator/Facility Info _____

_____

____ Change of Status (specify): _____

_____

____ Add/____ Delete Tank(s) Number of Tank(s) _____

Done

X Issue Permit (indicate type of permit) _____

X Invoice: ____ Prepare X Delete (# 27612) ____ Adjust (# _____)

Closure applied for before 4-1-89

Done

X Transfer fees from Trust to General Fund $141 + $36 when

____ Other Inv # 27813 is pd

Requested by _____

* * * *

# SONOMA COUNTY
# HAZARDOUS MATERIALS MANAGEMENT PROGRAM

2435 Professional Drive, Suite A
Santa Rosa, CA 95403 • (707) 527-1164

MEMO

DATE: April 11, 1989

TO: Babette O'Shell/Accounts Receivable

FROM: Susan Cooper/PH-Hazardous Materials Program Management

SUBJECT: Notification of changes to Hazardous Materials Accounts Receivable Balances.

| INVOICE # & DATE | ID# | GUAR. # | REVENUE CODE | INVOICE BALANCE | ADJUSTMENT |
|---|---|---|---|---|---|
| 27756 2/1/89 | 2445 | 6353 | 81363 | $475.20 | ($237.60) |

Myron Frieberg
651 Broadway, Sonoma, CA 95476
FACILITY ADDRESS: G.A.S. Station, 18017, Sonoma Hwy., Boyes Hot Springs

Reason for adjustment: Tank closure permit applied for 3 tanks 3/27/89.

| | | | | | |
|---|---|---|---|---|---|
| 27612 2/1/89 | 1359 | 6403 | 81363 | $158.40 | ($158.40) |

Royal Tallow & Soap
2592 Lakeville Hwy., Petaluma, CA 94952
FACILITY ADDRESS: same

Reason for adjustment: Tank closure permit applied for 3/20/89.

| | | | | | |
|---|---|---|---|---|---|
| 27672 2/1/89 | 1744 | 6468 | 81363 | $158.40 | ($158.40) |

City of Rohnert Park
6750 Commerce Blvd.,Rohnert Park, CA. 94928
FACILITY: Rohnert Park Sewage Treatment, 5661 Redwood, RP

Reason for adjustment: Tank closure permit applied for 4/3/89.

See attached documentation.

APPROVED BY: _____
Supervising Environmental Health Specialist
Hazardous Materials Management Program

MP/ADJUST

**MEMO**

DATE: April 11, 1989

TO: Babette O'Shell/Accounts Receivable

FROM: Susan Cooper/PH-Hazardous Materials Management Program

SUBJECT: Revenue adjustments for Hazardous Materials program from revenue code 21363 to 81363.

| ID# NAME & ADDRESS | NUMBER OF TANKS | REVENUE ADJUSTMENT |
|---|---|---|
| ID#2445<br>The G.A.S. Station<br>18017 Sonoma Hwy.,Boyes Hot Springs, Ca. 95416<br>Reason for transfer: Tank closure permit applied for 3/27/89. | 3 @ $23.00 | $ 69.00 |
| ID#1744<br>Rohnert Park Sewage Treat<br>5661 Redwod, Rohnert Park, Ca.<br>Reason for transfer: Tank closure permit applied for 4/3/89. | 1 @ $141.00 | $141.00 |
| ID# 1359<br>Royal Tallow & Soap<br>2592 Lakeville Hwy., Petaluma, Ca.<br>Reason for transfer: Tank closure applied for 3/30/89. | 1 @ $141.00 | $141.00 |
| ID# 1092<br>Rohnert Park Corp. Yd.<br>600 Enterprise Dr.,Rohnert Park, Ca.<br>Reason for transfer: Tank closure applied for 4/3/89. | 1 @ $141.00<br>2 @ $ 23.00 | $141.00<br>$ 46.00 |
| ID# 1108<br>Rohnert Park Pub. Safety<br>435 Southwest, Rohnert Park, Ca.<br>Reason for transfer: Tank closure applied for 4/3/89. | 1 @ $141.00 | $141.00 |
| ID# 1857<br>Bartly Pump Inc.<br>4000 So. Moorland Ave., Santa Rosa, Ca.<br>Reason for transfer: Tank closure applied for 3/30/89. | 1 @ $141.00<br>2 @ $ 23.00 | $141.00<br>$ 46.00 |
| ID# 1124<br>COM Inc.<br>4320 Santa Rosa Ave., Santa Rosa, Ca.<br>Reason for transfer: Tank closure permit applied for 4/7/89. | 1 @ $141.00<br>1 @ $ 23.00 | $141.00<br>$ 23.00 |
| ID# 2383<br>Rohnert Park N. Fire Station<br>5200 Country Club, Rohnert Park, Ca.<br>Reason for transfer: Tank closure permit applied for 4/3/89. | 1 @ $141.00<br>1 @ $ 23.00 | $141.00<br>$ 23.00 |
| ID# 1123<br>Eagle Distributing<br>4325 Santa Rosa Ave., Santa Rosa, Ca.<br>Reason for transfer: Tank closure permit applied for 4/10/89. | 1 @ $141.00<br>1 @ $ 23.00 | $141.00<br>$ 64.00 |

**TOTAL OF TRANSFER FROM ACCOUNT 21363 TO ACCOUNT 1363 $1,358.00**

1359

**Your Facility** Royal Tallow & Soap Co.
2592 Laterville
Petaluma

Annual permit (first tank) $94

dditional tanks (#1 additional tanks x $47) _____

amount transferred from acct. 21363 to 1363 4/11/89

lan check and field review (first tank) $141

ditional tanks (#1 additional tanks x $23) _____

c. State surcharge (#1 total tanks x $56) 56

7619#0000 291.00
0000 291.00
0000 291.00
12/23/85 15:43 02 1489

Total Number of Tanks 1 Total Fee Due $ 291.00

Please make all fees payable to Sonoma County Public Health Department. Enclose this worksheet with your check and the completed application.

DIV. OF E.H.
DEC 23 1985

# COUNTY OF SONOMA

INVOICE NO. P- 27612

PLEASE MAKE CHECK PAYABLE TO: SONOMA COUNTY PUBLIC HEALTH DEPT.

MAIL TO: 3313 CHANATE RD, SANTA ROSA, CA. 95404

TO:
ID# 00001359
Royal Tallow & Soap
2592 Lakeville
Petaluma, CA 94952

G# 6403

DATE: February 1, 1989

REVENUE CODE: 81363

| QUANTITY | DESCRIPTION OF MATERIALS AND/OR SERVICES | PRICE | AMOUNT |
|---|---|---|---|
| | FACILITY: Royal Tallow & Soap, 2592 Lakeville, Petaluma | | |
| | PAYMENT DUE DATE: 03/01/89 | | |
| | NUMBER OF TANKS: 1 | | |
| | Underground Storage Tank Annual Permit (1989-90)<br>(1 tank @ $144.00, 0 tank(s) @ $72.00) | $ 144.00 | |
| | TOTAL DUE: | | $ 144.00 |

As per Section 29-8(c) of County Ordinance 3415, a 10% penalty fee will be collected for all fees that are delinquent for 30 days. For each additional month or fraction in which the delinquency continues, an additinnal 10% penalty shall be collected.

PLEASE RETURN ONE COPY OF INVOICE WITH PAYMENT.

R. R. RIGHT OF W.

N. Y. P.

PUMP HO. CONC FL. (IRON)

(OUT 2')

THIS BUILDING HAS BEEN REMOVED

CHICKEN HO'S.

BARN

THIS BUILDING HAS BEEN REMOVED

STEEL TALLOW & GREASE STGE TKS

STGE. 8'

STGE

STGE (IRON) CONC FL

STEEL HOPPER 20'

BLR. HO N.G. (CONC)

CONDENSING WT (IRON) CONC FL

BARN

10'

RENDERING PLANT N.G. (CONC) STEEL BEAMS & RF CONC FL

(IRON 3RD) STEEL TK

STEEL TK ON RF.

OFF 1ST LOCKER RMS. 2ND.

HIDE STGE (CONC) CONC FL

CONC RAMP TO 2ND

THIS BUILDING HAS BEEN REMOVED

BARN

12'

SPUR TRACK

1000 GAL.

SCALE

OFFICE

2,000 GAL.

TRUCK MAINTENANCE SHOP

12'

TRUCK & AUTO STGE. CONC. FL.

To Petaluma River

STEEL STGE. TK.

A.

GASOLINE TANKS SITE

NORTH

PROPERTY LINE

Flood plain

(O.U 2')

D.

CASA GRANDE RD.

# DARLING-DELAWARE COMPANY, INC.

## ROYAL TALLOW & SOAP DIV'N.

2952 LAKEVILLE HWY.

## PETALUMA, CALIFORNIA

SCALE: 1" = 50'

CANADIAN-AMERICAN AGENCIES, INC.

2592 Lakeville

# SONOMA COUNTY
# HAZARDOUS MATERIALS MANAGEMENT PROGRAM

MEMO

2435 Professional Drive, Suite A
Santa Rosa, CA 95403 • (707) 527-1164

DATE: April 11, 1989

TO: Babette O'Shell/Accounts Receivable

FROM: Susan Cooper/PH-Hazardous Materials Program Management

SUBJECT: Notification of changes to Hazardous Materials Accounts Receivable Balances.

| INVOICE # & DATE | ID# | GUAR. # | REVENUE CODE | INVOICE BALANCE | ADJUSTMENT |
|---|---|---|---|---|---|
| 27756 | 2445 | 6353 | 81363 | $475.20 | ($237.60) |

2/1/89
Myron Frieberg
651 Broadway, Sonoma, CA 95476
FACILITY ADDRESS: G.A.S. Station, 18017, Sonoma Hwy., Boyes Hot Springs

Reason for adjustment: Tank closure permit applied for 3 tanks 3/27/89.

| | | | | | |
|---|---|---|---|---|---|
| 27612 | 1359 | 6403 | 81363 | $158.40 | ($158.40) |

2/1/89
Royal Tallow & Soap
2592 Lakeville Hwy., Petaluma, CA 94952
FACILITY ADDRESS: same

Reason for adjustment: Tank closure permit applied for 3/30/89.

| | | | | | |
|---|---|---|---|---|---|
| 27672 | 1744 | 6468 | 81363 | $158.40 | ($158.40) |

2/1/89
City of Rohnert Park
6750 Commerce Blvd.,Rohnert Park, CA. 94928
FACILITY: Rohnert Park Sewage Treatment, 5661 Redwood, RP

Reason for adjustment: Tank closure permit applied for 4/3/89.

See attached documentation.

APPROVED BY: Jeff Lewin
Supervising Environmental Health Specialist
Hazardous Materials Management Program

WP/ADJUST

# SONOMA COUNTY UNDERGROUND STORAGE TANK
# ANNUAL REPORTING FORM

Pursuant to Section 29-29(a) of the Sonoma County Code, any permittee operating an underground storage tank under this chapter shall file an annual report. Answer the following and submit with payment of your annual permit to operate fee. When completed, please detach the pink copy and retain for your records.

PERMIT #: 0001359

FACILITY OWNER: ROYAL TALLOW & SOAP COMPANY, DARLING-DELAWARE CO., INC.

FACILITY OPERATOR:

FACILITY ADDRESS: 2592 Lakeville Hwy. Petaluma, CA

UNDERGROUND TANK DESCRIPTION:

| Tank # | Chemical Contents | Capacity |
|---|---|---|
| | REGULAR GASOLINE | 2000 gals. |

MAR 1987
PAID

1) Any changes in the usage of the tank(s), such as:

| | | |
|---|---|---|
| a) | Addition or deletion of hazardous substances? | Yes / / No /x/ |
| b) | Replacement or repair of all or any part of any tank or piping? | Yes / / No /x/ |
| c) | Addition or deletion of underground storage tanks? | Yes / / No /x/ |

2) Was there unauthorized release of hazardous materials from the tank(s)? Yes / / No /x/

3) Have inventory reconciliation data sheets been submitted? Yes / / No /x/

4) Has tank testing been done and have results been submitted? Yes / / No /x/

5) Any change in emergency response employees and/or phone numbers? Yes /x/ No / /

If yes for any of the above, describe: NEW CONTACT-MR. ED JENKINS TEL 415)647-48[illegible]

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

3/4/87
DATE

Edward H Jenkins
PERMITTEE'S SIGNATURE

0962X (Rev. 11/86)

ROBERT L. HOLTZER, M.D.
PUBLIC HEALTH OFFICER

# SONOMA COUNTY
# PUBLIC HEALTH DEPARTMENT

3313 CHANATE ROAD
SANTA ROSA, CALIFORNIA 95404-1795

January 27, 1988

Gray, Jake
P.O. Box 738
Petaluma, CA 94953

Re: Annual Reporting Form for Underground Storage Tanks at
2592 Lakeville, Petaluma

Dear Tank Owner:

Enclosed is an Annual Reporting Form that is required to be completed and submitted for your underground storage tanks on an annual basis pursuant to Section 29-29(a) of the Sonoma County Code. After answering the sections on the form, submit with payment of your annual permit to operate fee in accordance with the enclosed invoice.

If you have any questions, please call me at (707) 527-2784, Monday through Thursday, between 7 a.m. and 5:30 p.m.

Very truly yours,

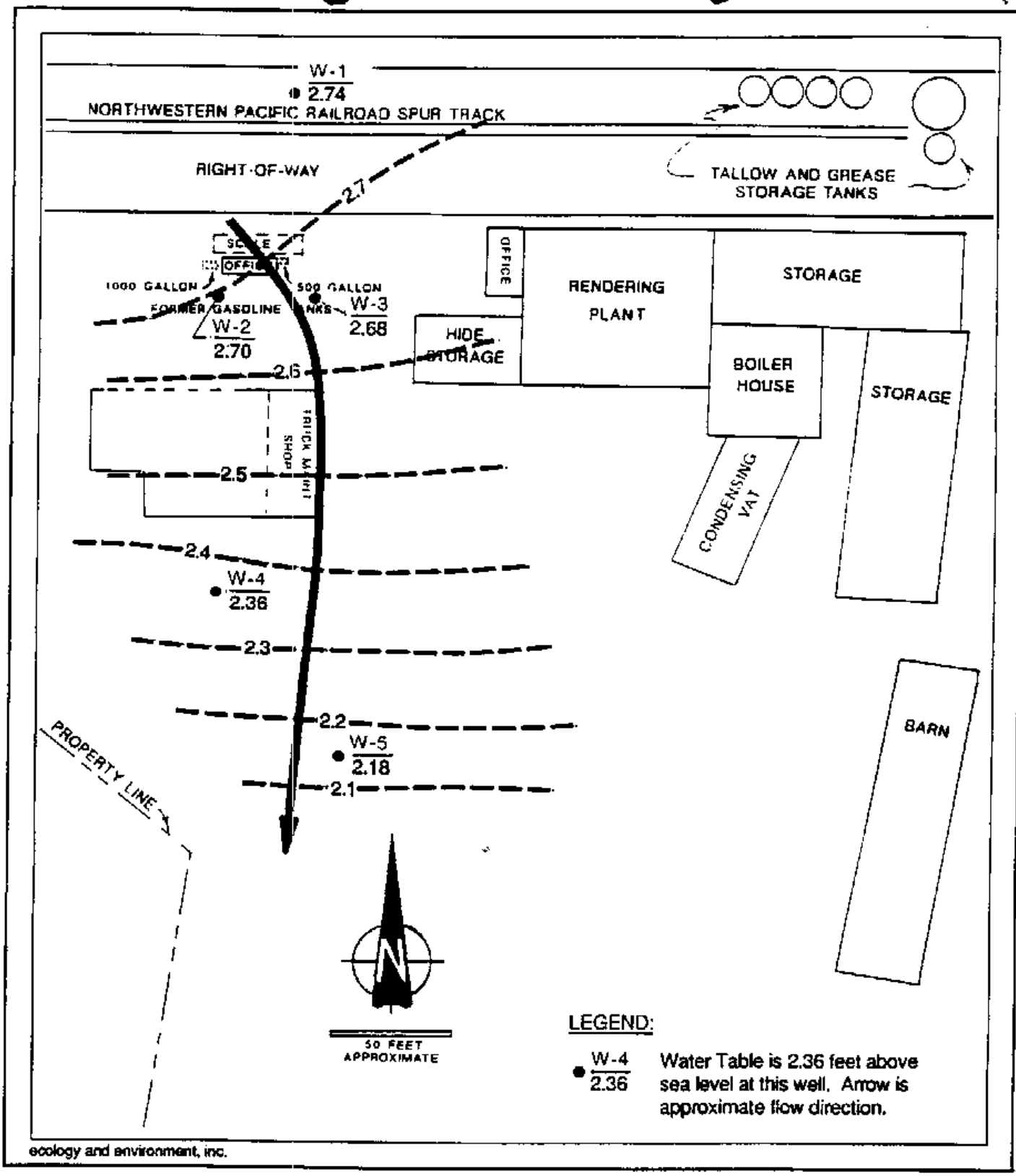
Jeff Lewin

JEFF LEWIN, R.S.
Supervising Sanitarian

JL/ll

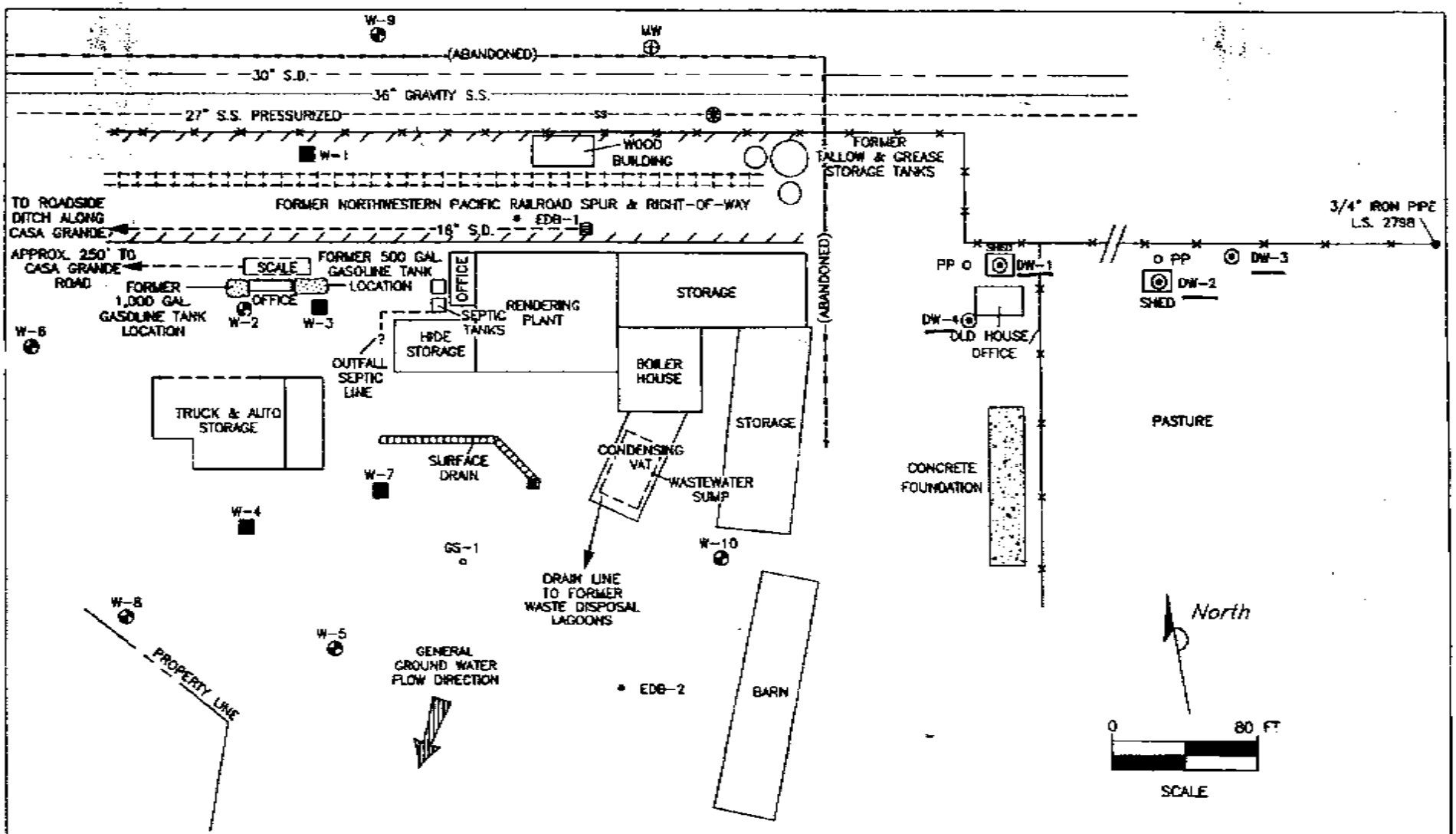
Enclosures: Annual Reporting Form
Annual Operating Permit Invoice

Annual Permit/00001359




# WATER TABLE ELEVATION
# SEPTEMBER 7, 1990
# Royal Tallow and Soap Co.

002
03/29/2000 11:08 FAX




LEGEND:

- LIMITS OF EXCAVATION
- W-2 MONITORING WELL LOCATION
- W-1 DESTROYED MONITORING WELL LOCATION
- DW-1 ABANDONED DOMESTIC/INDUSTRIAL WELL LOCATION
- MW ADJACENT PROPERTY MONITORING WELL LOCATION
- EDB-1 EXPLORATORY SOIL BORING LOCATION
- GS-1 HAND AUGER LOCATION

UTILITIES:

- NATURAL GAS LINE (BURIED)
- --SS-- SANITARY SEWER LINE (BURIED)
- --SD-- STORM DRAIN (BURIED)
- PP POWER POLE
- MANHOLE

# FIGURE 3
# SITE MAP

DARLING INTERNATIONAL INC.
2592 LAKEVILLE HIGHWAY
PETALUMA, CA.

| | |
|---|---|
| PROJECT NO. 0093-005 | DRAWN BY TLA 2/22/2000 |
| FILE NO. 93-005-1 | PREPARED BY MAB |
| REVISION NO. 0 | REVIEWED BY |

Delta Environmental Consultants, Inc.

COUNTY of SONOMA
DEPARTMENT OF HEALTH SERVICES
Mark A. Kostielney - Director

*Environmental Health Division*
Jonathan J. Krug - Director

October 30, 2000

Mr. Bill McMurtry
Darling International, Inc.
25 O'Connor Ridge Suite 300
Irving, TX 75038

**FILE COPY**

Re: 2592 Lakeville Highway, Petaluma - Leaking Underground Storage Tank Site
[SCDHS-EHD Site # 1359, SFBRWQCB Site #49-0142]

Dear Mr. McMurtry:

On October 26, 2000, the Sonoma County Department of Health Services - Environmental Health Division (SCDHS-EHD) received a work plan for the above mentioned site dated October 25, 2000, by MFG Inc. Thank you for this work plan.

This Department concurs with the scope of the proposed work with the following comments:

1. This work plan states that the truck scale extends to a depth of greater than 5 feet and that the truck scale will be demolished as part of the excavation. Demolishing the truck scale is an acceptable alternative to characterizing the soil contamination between the 4.5 to 10 foot interval. If the truck scale were left in place for the future owner to handle, then soil hazards to the depth of the truck scale would need to be evaluated.

2. Page 8 addresses soil stockpile sampling for on-site disposal, and does not address the depth at which samples will be collected. Sonoma County Guidelines call for soil stockpiles to be sampled from the bottom half of remediated stockpiles, for on-site disposal purposes. Please be sure that field personnel are equipped with any necessary extensions to soil sampling equipment to attain the required depth of soil samples.

3. Advance notice to this Department of 48 hours is required prior to conducting excavation work or sampling activities.

4. Any permits required by other agencies are a condition of concurrence with this work plan.

5. Pre-approval from the State Cleanup Fund is recommended for this work.

I can be reached at (707) 565-6575 if you or your associates would like to discuss this site.

Sincerely,

Jonathan Tracy

JONATHAN TRACY, R.E.H.S.
Leaking Underground Storage Tank
Local Oversight Program

cc: Mr. John Jang, SFBRWQCB
Mr. Michael Mosbacher, State CU Fund
Mr. Christopher White, MFG

JT/ [01359-10.300]

COUNTY of SONOMA
DEPARTMENT OF HEALTH SERVICES
Mark A. Kostielney - Director

*Environmental Health Division*
Jonathan J. Krug - Director

June 11, 2001

Mr. Bill McMurtry
Darling International, Inc.
25 O'Conner Ridge, Suite 300
Irving, TX 75038

Re: 2592 Lakeville Highway, Petaluma
Leaking Underground Storage Tank Site
SCDHS-EHD Site #00001359; SFBRWQCB Site #49-0142
Review of Analytical Test Results for Excavation of Contaminated Soil and Exploratory Step-Out Borings

Dear Mr. McMurtry:

On March 9, 2001, this Department received the referenced analytical test results from MFG, Inc. The analyses were performed subsequent to overexcavation of contaminated soil and performing shallow exploratory step-out borings to the south of the pit. We have reviewed the test results and note that two samples (SB-5 and S8-D4) had concentrations above the Risk-Based Screening Level (RBSL) of 400 parts per million (ppm) in soil. This level is based on the determination that the shallow groundwater at the site is not a current or potential source of drinking water. The RBSL levels have been adopted by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) and are presented in Volume 1, Table B, Summary Tier 1 Lookup Tables.

The two referenced samples are located in and adjacent to the southwest portion of the pit. As discussed with Mr. Chris White of MFG, Inc., we require that excavation be conducted in that area so as to remove residual soil contamination that is in excess of the RBSL of 400 ppm. We were at the site on June 8, 2001, and observed an area marked by white paint that indicated the portion of the site to be excavated, in accordance with our directive. We concur with the area as marked. The area to be excavated is located in the northeast portion of an existing garage and will require partial demolition of that area of the structure.

This Department requires notification at least 48 hours prior to performing field work at this site.

You are responsible for obtaining any necessary approvals or permits from all agencies having jurisdiction over any aspect of the proposed work. These agencies may include Fire Services, Building Department, Planning Department, Public Works, Regional Water Quality Control Board, Cal OSHA, etc.

State Water Resources Control Board Cleanup Fund **preapproval is recommended** for all sites when application to the fund has been made or is anticipated. The site must be in compliance with this Department's directives to be eligible for funding.

This Department appreciates the effort you are making to investigate and remediate this site. I am the new case worker for this site and request that questions or correspondence be addressed to my attention. Please contact me at (707) 565-6573 if you have any questions. My office hours are 7:30 a.m. to 4 p.m., Monday through Thursday.

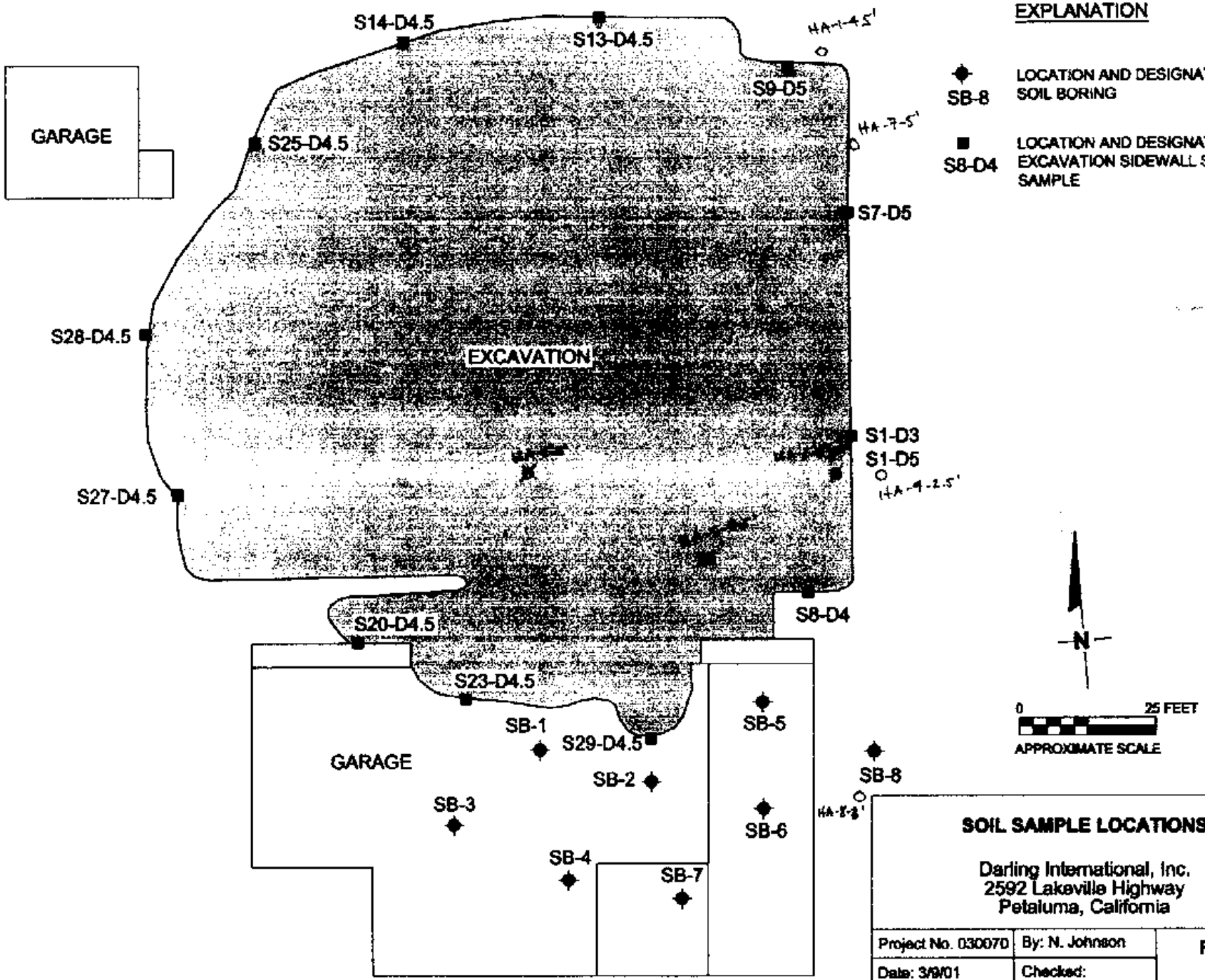
Sincerely,

Dale Radford, P.E.
Civil Engineer
Leaking Underground Storage Tank
Local Oversight Program

DR

c: Mr. John Jang, San Francisco Bay Regional Water Quality Control Board
SWRCB Cleanup Fund
Mr. Chris White, MFG, Inc.

J:\030070\TASK-01\REPORTS\SOIL REMEDIATION REPORT\FIGURES\SITEPLAN.DWG PLOT SCALE: 1:1




**SOIL SAMPLE LOCATIONS**

Darling International, Inc.
2592 Lakeville Highway
Petaluma, California

| | | |
|---|---|---|
| Project No. 030070 | By: N. Johnson | Figure 2 |
| Date: 3/9/01 | Checked: | |

MFG, Inc.
consulting scientists and engineers

## SUMMARY OF CHEMICAL ANALYSES OF CONFIRMATION SOIL SAMPLES FOR TPPH-GASOLINE AND BENZENE, AND SUMMARY STATISTICS

Darling International Inc.
Former Royal Tallow and Soap Company Facility
Petaluma, California

| SAMPLE LOCATION | DATE SAMPLED | TPPH as GASOLINE (mg/kg) | LN TPPH as GASOLINE (mg/kg) | BENZENE (mg/kg) | LN BENZENE (mg/kg) |
|---|---|---|---|---|---|
| | Reporting Limit: | 1.00 | | 0.005 | |
| HA-1 (4.5') | 23-May-00 | 0.500 | -0.693 | 0.0025 | -5.991 |
| HA-4 (2.5') | 27-Jun-00 | 0.500 | -0.693 | 0.0025 | -5.991 |
| HA-7 (5') | 27-Jun-00 | 0.500 | -0.693 | 0.0025 | -5.991 |
| HA-8 (3') | 27-Jun-00 | 300 | 5.704 | 0.23 | -1.470 |
| S1-D3 | 14-Nov-00 | 1.00 | 0.000 | 0.005 | -5.298 |
| S1-D5 | 14-Nov-00 | 278 | 5.628 | 0.125 | -2.079 |
| S7-D5 | 17-Nov-00 | 6.50 | 1.872 | 0.0664 | -2.712 |
| S6-D4 | 17-Nov-00 | 30.8 | 3.428 | 0.0568 | -2.868 |
| S5-D5 | 17-Nov-00 | 0.500 | -0.693 | 0.0025 | -5.991 |
| S13-D4.5 | 29-Nov-00 | 139 | 4.934 | 0.138 | -1.981 |
| S14-D4.5 | 29-Nov-00 | 31.7 | 3.630 | 0.103 | -2.273 |
| S20-D4.5 | 26-Dec-00 | 621 | 6.431 | 0.125 | -2.079 |
| S23-D4.5 | 05-Jan-01 | 2.75 | 1.012 | 0.170 | -1.772 |
| S25-D4.5 | 05-Jan-01 | 4.29 | 1.456 | 0.005 | -5.298 |
| S27-D4.5 | 05-Jan-01 | 52.1 | 3.953 | 0.337 | -1.088 |
| S28-D4.5 | 11-Jan-01 | 232 | 5.447 | 0.569 | -0.564 |
| SB-1 (4.25-4.75) | 22-Feb-01 | 172 | 5.147 | 0.125 | -2.079 |
| SB-2 (4.25-4.75) | 22-Feb-01 | 3.13 | 1.141 | 0.0630 | -2.765 |
| SB-3 (4.25-4.75) | 22-Feb-01 | 2.46 | 0.900 | 0.0295 | -3.523 |
| SB-4 (4.25-4.75) | 22-Feb-01 | 1.28 | 0.247 | 0.0904 | -2.404 |
| SB-6 (4.25-4.75) | 22-Feb-01 | 161 | 4.615 | 0.125 | -2.079 |
| SB-7 (4.25-4.75) | 22-Feb-01 | 1.56 | 0.445 | 0.0336 | -3.393 |
| SB-8 (4.25-4.75) | 22-Feb-01 | 438 | 6.082 | 0.125 | -2.079 |

NOTES:

| | |
|---|---|
| TPPH | Total purgeable petroleum hydrocarbons (modified EPA Method 8015M) |
| Benzene | Analyzed using EPA Method 8020. |
| mg/kg | Milligrams per kilogram. |
| 1.0 | Shading indicates analyte was not detected at or above the laboratory method reporting limit. A value of one-half the reporting limit was used for statistical calculations. |

| Summary Statistics for TPPH as Gasoline | |
|---|---|
| Mean | 105.50 |
| Standard Deviation | 186.09 |
| Sample Variance | 27584.88 |
| Kurtosis | 3.36 |
| Skewness | 1.90 |
| Range | 620.50 |
| Minimum | 0.5 |
| Maximum | 621 |
| Sum | 2426.57 |
| Count | 23 |

| Summary Statistics for Ln(TPPH) as Gasoline | |
|---|---|
| Mean | 2.578 |
| Standard Deviation | 2.549 |
| Sample Variance | 6.499 |
| Kurtosis | -1.632 |
| Skewness | 0.086 |
| Range | 7.124 |
| Minimum | -0.693 |
| Maximum | 6.431 |
| Sum | 59.299 |
| Count | 23 |

| Summary Statistics for Benzene | |
|---|---|
| Mean | 0.110 |
| Standard Deviation | 0.130 |
| Sample Variance | 0.0168 |
| Kurtosis | 6.696 |
| Skewness | 2.321 |
| Range | 0.567 |
| Minimum | 0.0025 |
| Maximum | 0.569 |
| Sum | 2.532 |
| Count | 23 |

| Summary Statistics for Ln(Benzene) | |
|---|---|
| Mean | -3.120 |
| Standard Deviation | 1.735 |
| Sample Variance | 3.010 |
| Kurtosis | -0.847 |
| Skewness | -0.716 |
| Range | 5.428 |
| Minimum | -5.991 |
| Maximum | -0.564 |
| Sum | -71.771 |
| Count | 23 |

## TABLE 2

## CHEMICAL ANALYSES OF SOIL SAMPLES FOR TPPH AS GASOLINE AND BENZENE AND CALCULATION OF CONFIDENCE INTERVAL OF SAMPLE MEAN

[uses t-distribution, which is applicable to small sample sizes]

Darling International, Inc. Former Royal Tallow and Soap Company Facility
Petaluma, California

| SAMPLE LOCATION | SAMPLE DATE | TPPH AS GASOLINE (mg/kg) | LN(TPPH AS GASOLINE) (mg/kg) | BENZENE (mg/kg) | LN(BENZENE) (mg/kg) |
|---|---|---|---|---|---|
| **Final Confirmation Samples:** | | | | | |
| HA-1 (4.5') | 23-May-00 | 0.500 | -0.693 | 0.0025 | -5.991 |
| HA-4 (2.5') | 27-Jun-00 | 0.500 | -0.693 | 0.0025 | -5.991 |
| HA-7 (5') | 27-Jun-00 | 0.500 | -0.693 | 0.0025 | -5.991 |
| HA-8 (3') | 27-Jun-00 | 390 | 5.704 | 0.23 | -1.470 |
| S1-D3 | 14-Nov-00 | 1.00 | 0.000 | 0.005 | -5.298 |
| S1-D5 | 14-Nov-00 | 278 | 5.628 | 0.125 | -2.079 |
| S7-D5 | 17-Nov-00 | 6.50 | 1.872 | 0.0664 | -2.712 |
| S8-D4 | 17-Nov-00 | 30.8 | 3.428 | 0.0568 | -2.868 |
| S9-D5 | 17-Nov-00 | 0.500 | -0.693 | 0.0025 | -5.991 |
| S13-D4.5 | 29-Nov-00 | 139 | 4.934 | 0.138 | -1.981 |
| S14-D4.5 | 29-Nov-00 | 37.7 | 3.630 | 0.103 | -2.273 |
| S20-D4.5 | 26-Dec-00 | 621 | 6.431 | 0.125 | -2.079 |
| S23-D4.5 | 05-Jan-01 | 2.75 | 1.012 | 0.170 | -1.772 |
| S25-D4.5 | 05-Jan-01 | 4.29 | 1.456 | 0.005 | -5.298 |
| S27-D4.5 | 05-Jan-01 | 52.1 | 3.953 | 0.337 | -1.088 |
| S28-D4.5 | 11-Jan-01 | 232 | 5.447 | 0.569 | -0.564 |
| SB-1 (4.25-4.75) | 22-Feb-01 | 172 | 5.147 | 0.125 | -2.079 |
| SB-2 (4.25-4.75) | 22-Feb-01 | 3.13 | 1.141 | 0.0630 | -2.765 |
| SB-3 (4.25-4.75) | 22-Feb-01 | 2.46 | 0.900 | 0.0295 | -3.523 |
| SB-4 (4.25-4.75) | 22-Feb-01 | 1.28 | 0.247 | 0.0904 | -2.404 |
| SB-6 (4.25-4.75) | 22-Feb-01 | 101 | 4.615 | 0.125 | -2.079 |
| SB-7 (4.25-4.75) | 22-Feb-01 | 1.56 | 0.445 | 0.0336 | -3.393 |
| SB-8 (4.25-4.75) | 22-Feb-01 | 438 | 6.082 | 0.125 | -2.979 |
| | | | | | |
| Sample Size (n): | | 23 | 23 | 23 | 23 |
| Degrees of Freedom (n-1): | | 22 | 22 | 22 | 22 |
| Sample Mean: | | 106 | 2.58 | 0.110 | -3.12 |
| Sample Standard Deviation: | | 166 | 2.55 | 0.130 | 1.73 |
| T (0.05) Statistic: | | 2.07 | 2.07 | 2.07 | 2.07 |
| Upper 95% Confidence Level: | | 72 | 1.10 | 0.056 | 0.750 |
| Upper 95% Confidence Mean: | | 177 | 3.68 | 0.166 | -2.37 |
| Regulatory Cleanup Level: | | 400 / 400 * | [ 6.0 / 6.0 ] | 0.18 / 0.39 * | [ -1.7 / -0.94 ] |

NOTES:

| | |
|---|---|
| TPPH | Total purgeable petroleum hydrocarbons. Analyzed using modified EPA Method 8015M and quantified against a gasoline standard. |
| Benzene | Analyzed using EPA Method 8020. |
| mg/kg | Milligrams per kilogram. |
| 1.0 | Shading indicates analyte was not detected at or above the laboratory method reporting limit. A value of one half the reporting limit was used for statistical calculations. |
| * | California Regional Water Quality Control Board Risk-Based Screening Levels for residential/industrial land use (September 2000). |

MFG, Inc.
A TETRA TECH COMPANY
180 Howard Street, Suite 200
San Francisco, CA 94105-1617
Tel: 415/495-7110
Fax: 415/495-7107

consulting
scientists and
engineers

DEPARTMENT OF
HEALTH SERVICES

JUN 18 2004

ENVIRONMENTAL
HEALTH DIVISION

June 15, 2004
Project No. 030070.4

Mr. Dale Radford
Sonoma County Department of Health Services
Environmental Health Division
3273 Airway Drive, Suite D
Santa Rosa, CA 95403-2097

**Subject:** **Monitoring Well Decommissioning (Destruction)**
**Former Royal Tallow and Soap Company Facility**
**2592 Lakeville Highway, Petaluma, California [SCDHS-EHD Site # 1359]**

Dear Mr. Radford:

MFG, Inc. is pleased to submit this letter report summarizing the groundwater monitoring well decommissioning (destruction) at the former Royal Tallow and Soap Company facility located at 2592 Lakeville Highway in Petaluma, California (the Site). The Site location is illustrated in Figure 1, and the former well locations are shown in Figure 2. Destruction of the groundwater monitoring wells was required by the Sonoma County Department of Health Services, Environmental Health Division (SCDHS-EHD) in its letter to Darling International Inc. (Darling) dated October 29, 2003.

The well destruction activities were performed in accordance with MFG's *Revised Monitoring Well Decommissioning (Destruction) Work Plan*, dated March 26, 2004, which was approved by the SCDHS-EHD in its letter to Darling, dated March 31, 2004. The scope of work consisted of the following activities: (1) surveying the horizontal location of each monitoring well in accordance with GeoTracker requirements; (2) submittal of the required well information to the state GeoTracker database system; and (3) destruction of the five monitoring wells associated with the Site.

## WELL SURVEYING AND GEOTRACKER SUBMITTALS

On April 28, 2004, Site monitoring wells W-5, W-6, W-8 and W-10 and off-site monitoring well W-9 were resurveyed for horizontal location (latitude and longitude) in accordance with GeoTracker requirements by Michael Ford, Inc. Land Surveying of Petaluma, California (Professional Land Surveyor License No. 7237). The location of well W-9 was identified in the field by the surveyor using survey data it obtained during development of the off-site property. This well, which was located approximately 100 feet north of the subject site on the adjacent property occupied by the Alexan Park Central Apartments, was buried in July 2001 during rough grading for construction of the present day apartment complex.

The required well information to include horizontal location data, historical elevation data, monitoring data from the January and March 2003 groundwater sampling events, and a site plan were submitted to the state GeoTracker database system under the Site's Global Identification Number T0609700905.

## WELL DESTRUCTION

Prior to beginning field work, a drilling permit for well destruction was obtained from the SCDHS-EHD for the five wells associated with the Site (W-5, W-6, W-8, W-9 and W-10). A copy of the permit is provided in Attachment A. Drilling and permitting services for well destruction were provided by Gregg Drilling & Testing, Inc. (Gregg) of Martinez, California (Well Drilling Contractor's C-57 License No. 48165).

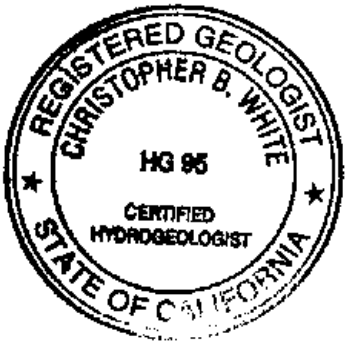
Decommissioning of on-site monitoring wells W-5, W-6, W-8, and W-10 and off-site monitoring well W-9 was completed by Gregg on May 4, 2004 under the observation of MFG personnel. The buried well, W-9, was encountered at a depth of approximately 3 feet below the asphalt pavement of the off-site parking lot. The fill material overlying the well was removed using vacuum excavation techniques after an 18-inch diameter core of the asphalt pavement had been removed. At each well location, the vault box or well monument was removed and the well casing and other well construction materials (concrete seal, bentonite seal and sand filter pack) were removed using a CME drilling rig and 10.25-inch diameter hollow-stem augers for wells W-5, W-6, W-8, and W-9 and 8.25-inch diameter hollow-stem augers for well W-10. The depths of the well construction materials ranged from approximately 10 to 21 feet below ground level (bgl), as detailed on copies of the California Department of Water Resources Well Completion Reports (Form 188) provided in Attachment B. Following removal of the well construction materials, each borehole was immediately filled from the bottom to top with cement-bentonite grout using a tremie pipe as the augers were incrementally removed from the borehole. Approximately 1 foot of dry concrete was placed at the bottom of the vacuum excavated hole above the borehole for well W-9 and the remainder of the hole was backfilled and compacted with fill material and resurfaced with approximately 6 inches of asphalt pavement by North Bay Construction.

Decommissioning of the wells completes the SCDHS-EHD requirements for site closure. It is our understanding that a Remedial Action Completion Certification will be issued to Darling by the SCDHS-EHD.

Please contact the undersigned at (415) 495-7110 if you require further information.

Sincerely yours,

MFG, INC.




Christopher B. White, C.HG.
Senior Hydrogeologist

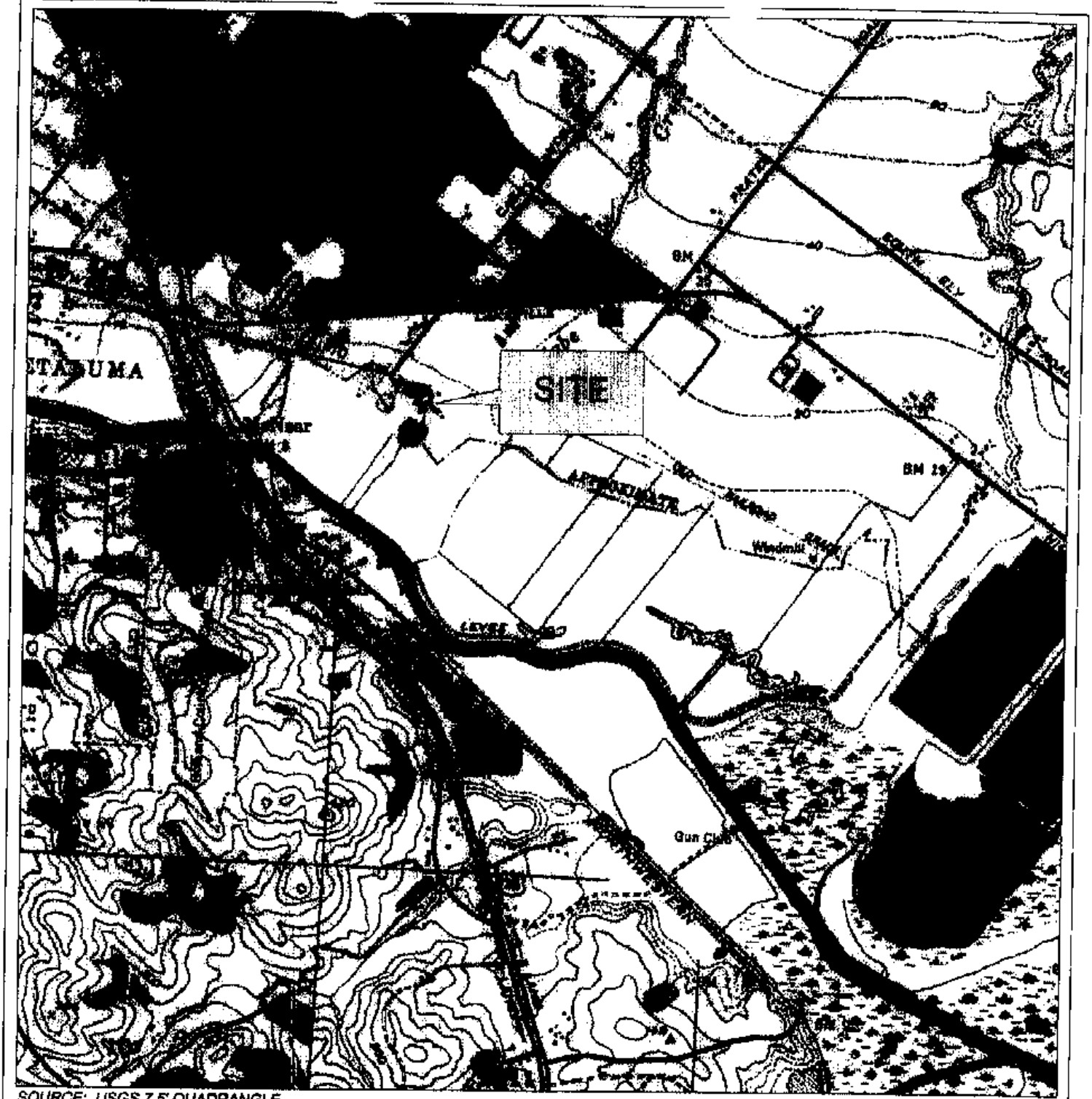
Attachments: Figure 1 - Site Location Map
Figure 2 - Monitoring Well Locations
Attachment A - Drilling Permit for Well Destruction
Attachment B - California Department of Water Resources Well Completion Reports (Form 188)

cc: Bill McMurtry, Darling International, Inc., with attachments
Steve Hester, TCR-NC Construction, Inc., with attachments

J:\030070\Task 4\Well Dest ltr.doc

**Figures**

J:\030070\TASK-1\REPORTS\SOIL REM WP\FIGURES\LOCATION( )LOT SCALE 1:1




*SOURCE: USGS 7.5' QUADRANGLE*
*PETALUMA RIVER, CALIFORNIA*
*PHOTOREVISED 1980*

N

0 2,000 FEET
APPROXIMATE SCALE

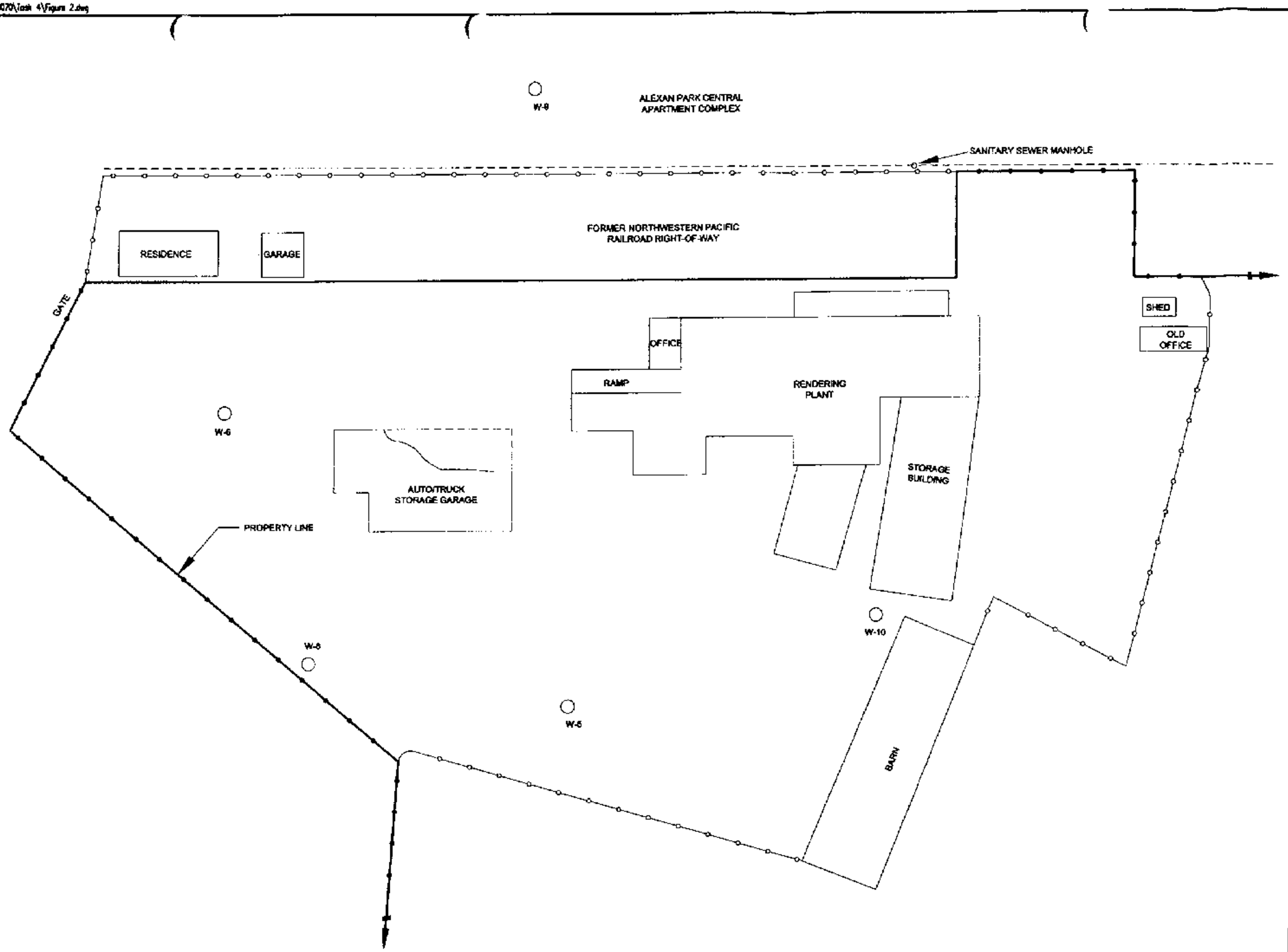
**SITE LOCATION MAP**

**Darling International Inc.**
**2592 Lakeville Highway**
**Petaluma, California**

| | | |
|---|---|---|
| PROJECT NO. 030070 | BY: N. JOHNSON | FIGURE 1 |
| DATE: 10/11/00 | CHECKED: csw | |

**MFG, Inc.**
consulting scientists and engineers

J:\030070\Task 4\Figure 2.dwg




EXPLANATION:

- ○ W-6 LOCATION AND DESIGNATION OF DECOMMISSIONED MONITORING WELL
- PROPERTY LINE
- FENCE

NOTE:

1. LOCATIONS ARE APPROXIMATE

N

0 60

MONITORING WELL LOCATIONS

Darling International, Inc.
2592 Lakeville Highway
Petaluma, California

| | | |
|---|---|---|
| Project No. 030070 | By: M. Lee | Figure 2 |
| Date: 11/10/03 | Checked: CBW | |

MFG, Inc.
consulting scientists and engineers

COUNTY of SONOMA
DEPARTMENT OF HEALTH SERVICES

Mark A. Kostielney - Director

Sharon Aguilera - Assistant Director

*Environmental Health Division*

Jonathan J. Krug - Director

Fi6 g

July 30, 2004

COPY

RECEIVED
AUG 9 REC'D
FIRE MARSHAL'S OFFICE

Mr. Bill McMurtry
Darling International, Inc.
251 O'Conner Ridge Boulevard, Suite 370
Irving, TX 75038-6525

Re: 2592 Lakeville Highway, Petaluma
Site # 00001359, SFBRWQCB, #49-0142

Dear Mr. McMurtry:

This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

JONATHAN J. KRUG, R.E.H.S.
Director of Environmental Health

3273 Airway Dr., Ste. D, Santa Rosa, CA 95403-2097 • *phone* (707) 565-6565 • *fax* (707) 565-6525 • www.sonoma-county.org

# Case Closure Summary

## Leaking Underground Fuel Storage Tank Program

**I. Agency Information** **Date: July 18, 2003**

| | | | |
|---|---|---|---|
| Agency name: | Sonoma County Dept. Health Services | Address: | 3273 Airway Drive, Suite D |
| City/State/Zip: | Santa Rosa, CA 95403 | Phone: | (707) 565-6573 |
| Responsible staff person: | Dale Radford | Title: | Civil Engineer |

**II. Case Information**

Site facility name: Royal Tallow & Soap Co.

Site facility address: 2592 Lakeville Highway, Petaluma, CA 94952

| RB LUSTIS #49-0142 | SWEEPS # NA | LOP #00001359 | URF filing date: August 3, 1989 | Local # NA |
|---|---|---|---|---|
| Responsible party | | Address | | Phone number |
| Darling International, Inc. | | 251 O'Conner Ridge Blvd., Suite 100, Irving, TX 75038 | | (214)717-0300 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| Tank # | Size in gal. | Contents | Closed-in-place/removed? | Date |
|---|---|---|---|---|
| 1 | 1,000 | Regular leaded gasoline | Removed | June 30, 1990 |
| 2 | 2,000 | Regular leaded gasoline | Removed | June 30, 1990 |
| | | | | |
| | | | | |

**III. Release and Site Characterization Information**

Cause and type of release: holes in tanks, fuel hydrocarbons

| | | |
|---|---|---|
| Site characterization complete? YES | | Date approved by oversight agency: July 15, 2003 |
| MW installed? YES | Number: 10 | Proper screened interval: YES, 2.5 to 13 ft. BGS, total well depth = 15 ft. |
| Highest GW depth BGS: 0.64 | Lowest depth: 7.52 | Flow direction: south/southwest |

Most sensitive current use: Estuary

| | |
|---|---|
| Are drinking water wells affected? no | Aquifer name: Petaluma Valley (2-1) |
| Is surface water affected? no | Nearest SW name: Petaluma River, 2000' sw/Adobe Creek 1300' east |

Off-site beneficial use impacts (addresses/locations): none

| | |
|---|---|
| Report(s) on file? YES | Where is report(s) filed: Sonoma County Department of Health Services |

Treatment and Disposal of Affected Material

| Material | Amount (include units) | Action (treatment or disposal w/ destination) | Date |
|---|---|---|---|
| Tanks | 2 | Erickson, Inc., Richmond, CA | 7/5/89 |
| Piping | Unknown | Erickson, Inc., Richmond, CA | 7/5/89 |
| Free product | Unknown | Present in excavation but no action taken | 1988 |
| Soil | 2,400 cubic yards | Treated onsite and used for backfill | 11/00 to 6/01 |
| Groundwater | 88,000 gal. | Storm and groundwater pumped to storm drain under permit | 12/00 and 6/01 |
| Barrels | 2 | Will be disposed after monitoring well destruction | |

# Case Closure Summary

**Release and Site Characterization Information (continued)** **Site Address: 2592 Lakeville Highway, Petaluma, CA**

Maximum Documented Contaminant Concentrations□Before and After Cleanup

| Contaminant | Soil (ppm) | | Water (ppm) | | Contaminant | Soil (ppm) | | Water (ppm) | |
|---|---|---|---|---|---|---|---|---|---|
| | Before | After | Before | After | | Before | After | Before | After |
| TPH (gas) | 2,900 | 438 | 125 | <.05 | Xylene | 303 | 10.4 | 9.52 | <.001 |
| TPH (diesel) | NA | NA | NA | NA | Ethylbenzene | 61.7 | 8.25 | 2.2 | <.001 |
| Benzene | 19.7 | .569 | 21.8 | <.001 | Oil & grease | NA | NA | NA | NA |
| Toluene | 151 | .609 | 16.0 | <.001 | Heavy metals | NA | NA | NA | NA |
| MTBE | NA | NA | <.005 | <.001 | 1,2-DCA | NA | NA | .0067 | .0016 |

Comments (depth of remediation, etc.): NA=not analyzed. Shallow soil remediation, <3 meters. Cleanup levels are equal to RBSLs Groundwater is not a potential source of drinking water. Excavated soil was treated with proprietary additive, biodegraded and used as backfill. Excavation naturally filled with groundwater and storm water while soil was being treated. Accumulated water was pumped to a storm drain under permit.

## IV. Closure

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? YES

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? YES

Does corrective action protect public health for current land use? YES

Site management requirements: Future site development should address the presence of residual soil contamination, proper handling and disposal. Site Safety Plan needed if future development is planned.

Should corrective action be reviewed if land use changes? YES

| Monitoring wells decommissioned? some | Number decommissioned: 6 | Number retained: 4 |
|---|---|---|

List enforcement actions taken: NONE

List enforcement actions rescinded: NONE

## V. Local Agency Representative Data

| Name: Jonathan J. Krug | Title: Director of Environmental Health |
|---|---|
| Signature: Jonathan J. Krug | Date: 7-21-03 |

## VI. RWQCB Notification

| Date submitted to RB: 7/28/03 | RB Response: Concurs with closure recommendation | |
|---|---|---|
| RWQCB staff name: John Jang (~~John Jang~~) | Title: WRCE | Date: 8/5/03 |

## VII. Additional Comments, Data, etc.

Six monitoring wells destroyed prior to over excavation of contaminated soil. Remaining four wells will be destroyed by RP after closure concurrence by SFBRWQCB. Analytical results of accumulated storm and ground water indicate TPHg, BTEX and MTBE were non-detect prior to discharge to storm drain.

# COUNTY OF SONOMA
# PUBLIC HEALTH DEPARTMENT
## ENVIRONMENTAL HEALTH SERVICES

MARK A. KOSTIELNEY
Director of Public Health
GEORGE R. FLORES, M.D.
Health Officer

1030 CENTER DRIVE, SUITE A • SANTA ROSA • CALIFORNIA 95403-2067 • TELEPHONE (707) 525-6500


June 12, 1991


FIRE MARSHALS office
JUN 17 1991
RECEIVED


Ms. Jennifer Barrett
City of Petaluma
Community Development
and Planning Department
P.O. Box 61
11 English Street
Petaluma, CA 94953

Subject: Lakeville Highway Road Widening

Dear Ms. Barrett;

Petroleum hydrocarbon contamination of the soil and/or groundwater exists, and the extent of contamination has not been fully defined, at the following sites in or near the area of the proposed widening of Lakeville Highway:

| | |
|---|---|
| 950 Lakeville | Kaiser Sand & Gravel |
| 1000 Lakeville | McPhails |
| 1001 Lakeville * | Lakeville Shell |
| 1004 Lakeville | Don's Plumbing |
| 1051 Lakeville * | Courtesy Auto & Truck Repair |
| 1731 Lakeville * | Big 4 Rents |
| 2592 Lakeville | Royal Tallow & Soap |
| 2601 Lakeville * | Beacon Station |
| 2700 Lakeville | Petaluma Poultry Processors |
| 3200 Lakeville | Stero Dishwashing Machines |

The addresses that are followed by the asterisk are the sites most critical to the road widening. These sites all involve groundwater contamination. Remediation of contaminated groundwater may not interfere with the project, but remediation of soil contamination existing at or above the water table could possibly involve the roadway. Further investigation is required at these sites.

Please contact me at (707) 525-6573 if you need any further information regarding these sites.

Sincerely,

MARY ANN METZLER
Geologist

cc: Charles Noyes, SFBRWQCB
Clyde Thomas, City of Petaluma Fire Department

CITY OF PETALUMA
*Post and English Streets*
Petaluma, California 94952

REQUEST FOR REVIEW AND COMMENTS

DATE: October 10, 1975

In Reply Refer To:

Richard D. A. Anderson
Associate Planner

TO: Fire Chief
Asst. City Engineer
Chief Bldg. Inspector

FROM: Planning Department

SUBJECT: MCR Inc., Site Design Review & Use Permit Application for a Meat De-Boning Plant to be Located Adjacent to Royal Tallow Meat Rendering at 2592 Lakeville Hwy.

The subject project has been submitted to this office for processing. It would be appreciated if your office would review the attached applicable materials, provide your comments or recommendations in the space provided below, and return one copy to this office.

This project has been tentatively scheduled for the Planning Commission meeting to be held on November 4, 1975. In order to meet this deadline, information should be received by this office not later than October 23, 1975.

COMMENTS OF REVIEWING DEPARTMENT/AGENCY: 10-21-75

WATER SUPPLY FOR THIS FACILITY IS PROVIDED BY HOLDING PONDS AT SOUTH CORNER OF PROPERTY.

SITE DESIGN REQUIREMENTS FOR THIS PROJECT ARE: 1. IMPROVE FIRE DEPARTMENT ACCESS TO HOLDING PONDS, TO SUPPORT FIRE APPARATUS.
2. MAINTAIN FIRE DEPARTMENT ACCESS TO HOLDING PONDS.

C. Thomas
Fire Marshal

PL-25-1/74

MARK A. KOSTIELNEY
Director of Public Health
GEORGE R. FLORES, M.D.
Health Officer

# COUNTY OF SONOMA
# PUBLIC HEALTH DEPARTMENT
## ENVIRONMENTAL HEALTH SERVICES

1030 CENTER DRIVE, SUITE A • SANTA ROSA • CALIFORNIA 95403-2067 • TELEPHONE (707) 525-6565

FIRE MARSHALS
office
OCT 18 1990

October 15, 1990

RECEIVED

Mel Roshanravan
Vice President of Environmental Affairs
Darling-Delaware Co., Inc.
8737 King George Drive, Ste. 200
Dallas, TX 75235

Subject: Site Investigation #1359 at 2592 Lakeville Highway, Petaluma, CA

On September 5, 1990, this Department received the Site Characterization Report from Ecology & Environment, Inc. (E & E). I would like to compliment you and your consultant on the quality and thoroughness of the report submitted for my review. In my August 27, 1990 letter, I stated that reports are due within 30 days of fieldwork. I would like to correct that statement, workplans are due within 30 days of a request, technical reports are generally submitted for review within 60 to 90 days. The six month delay for receipt of this report was not acceptable. However, if future in-depth reports similar to this require more than 60 days to complete, it is recommended that a written request for an extension be submitted prior to the deadline. I would also recommend submitting a copy of the analytical laboratory report as soon as it is available. Part of my responsibilities include informing the public on a monthly basis of the status of sites with contaminated groundwater.

The following comments are based on review of the report:

1. Be advised that this Department has been told that electrical tape may cause toluene to be detected in samples.

2. Soil should be disposed prior to the rainy season.

3. Future reports should include <u>all</u> pH, conductivity, and temperature measurements taken prior to groundwater sampling.

4. A monitoring well is required within 10 feet of each tank excavation in the verified downgradient direction. Monitoring wells W-2 and W-3 appear to be directly downgradient on June 1, 1990. However, they do not appear to be downgradient on April 3, May 3 and July 10, 1990. Additional wells may be required on the west side of the excavations. Continue to measure water levels and the groundwater flow direction monthly.

5. Detection limits were higher than the minimum requirement in the Tri-Regional Guidelines (enclosed). Non-detectable results cannot be considered valid unless minimum detect limits are met.

6. Beneficial uses of water include more than domestic and agricultural uses. Groundwater remediation will be required to non-detectable levels, unless otherwise stated in writing by this Department or the San Francisco Regional Water Quality Control Board.

A workplan to further define the extent of contamination should be submitted by November 15, 1990. This office is to be notified at least 48 hours prior to any fieldwork at the site, and a tentative schedule for fieldwork should be submitted immediately. Please do not hesitate to contact me at (707) 525-6573 if you have any questions.

Sincerely,

MARY ANN METZLER
Geologist

MAM/ss

Enc: Tri-Regional Guidelines

cc: Charles Noyes, San Francisco Regional Water Quality Control Board
Clyde Thomas, Petaluma Fire Department
Ed Jenkins, Royal Tallow & Soap Company
Steve Morin, Ecology & Environment

# PETALUMA FIRE MARSHAL'S OFFICE
## INSTALLATION AND MAINTENANCE
## PERMIT APPLICATION
(When signed and fees paid, Application becomes Permit)

Permit # 9168 ► **POST IN A CONSPICUOUS PLACE** ◄ DATE 6-26-89

24-Hour Notice is Required
for Inspection Service
**778-4389**

Acct. # 2263 FIRST

Applicant PENCLEUM ENGINEERING Phone 415-456-1766

Address 11 WEST NINTH ST, SANTA ROSA, CA 95401

Owner RYAN FALLOW & SCAP Phone

Address P.O. BOX 55666, S.F. CA 94

Location of Work 7542 LAKEVILLE HWY

Project Name RYAN FALLOW

**INSTALLATION IS TO BE IN ACCORDANCE WITH FIRE PREVENTION CODE AND OTHER FIRE PREVENTION REGULATIONS**

| **FIRE ALARM SYSTEMS** | | **SPRINKLER SYSTEMS** | |
|---|---|---|---|
| # of Detectors | $ | # of Heads | $ |
| Communication Center | | Fire Service Size | |
| Connection | $ | Inches | |
| **Flammable Liquid** | | **Special Fire** | |
| Tanks Installed | $ | **Protection System** | |
| Tanks Removed 2 | $ 50.00 | Type | $ |
| Flammable Liquid & | | | |
| Vapor Piping | $ | | |
| | | | |

Fee Received $ 50.00 Cash ☐ Check ☒ # 15252

Applicant Signature: [signature] Date 6/30/89

## INSPECTION RECORD

| Date | Type | Init. | Date | Type | Init. |
|---|---|---|---|---|---|
| 6-30-89 | 2 TKS Out | | 7-5-89 | CK LEL LESS THAN | [signature] |
| | 1, 2,000 GAL | | | 20% ON SUSHP | |
| | 1- 1,000 GAL | | | | |
| | LEL of 80% FAIL | | | | |

Permit Issued By [signature] Date: 7-7-89

Worker Compensation Insurance Certificate on file with City of Petaluma [signature]

# PERMIT RECORD

**STREET ADDRESS:** — Ø. Casa Grande - AKA 2041 Lakeville Hwy

**COUNTY ASSESSOR'S PARCEL NUMBER**

| LOT | SUBDIV. | ZONING DIST. | FIRE ZONE | OCCUP. | OTHER: Royal Jallow |
|---|---|---|---|---|---|

| TYPE OF PERMIT | PERMIT NO. | PLAN NO. | DATE ISSUED | OTHER | REMARKS |
|---|---|---|---|---|---|
| | 20080385 | | 4/24/2008 | | SHORELAND PERMIT |
| | | | | | AMD |

PERMIT DESIGNATION:

B – BUILDING
P – PLUMBING
T – TRAILER

E – ELECTRICAL

U – USE PERMIT
V - VARIANCE
H - HEATING

HM – HOUSE MOVING

CITY OF PETALUMA
COMMUNITY DEVELOPMENT DEPARTMENT
11 ENGLISH STREET, PETALUMA, CA 94952
(707) 778-4302 Fax (707) 778-4498

# Permit to Perform Work

**Permit Number:** 20080389

**Inspection Request: (707) 778-4479**

**LICENSED CONTRACTORS DECLARATION**

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.
License No._____Class_____ Exp. Date_____

**WORKERS COMPENSATION DECLARATION**

I hereby affirm under penalty of perjury one of the following declarations:
___ I have and will maintain a certificate of consent to self-insure for workers compensation as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
___I have and will maintain workers compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers compensation insurance carrier, policy number and expiration date are:
Carrier:_____Policy No._____Exp.Date _____
___I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers compensation laws of California, and agree that if I should become subject to the workers compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with these provisions or this permit shall be deemed revoked.

**WARNING: FAILURE TO SECURE WORKERS COMPENSATION COVERAGE IS UNLAWFUL, AN SHALL SUBJECT AND EMPLOYER TO CRIMINAL PENALTIES AND CIVIL CRIMES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3700 OF THE LABOR CODE, INTEREST, AND ATTORNEY S FEES.**

**OWNER-BUILDER DECLARATION**

___I hereby affirm under penalty of perjury that I am exempt from the Business and Professions Code, Chapter 9, Division 3, for the following reasons:
___I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale.
___I, as owner of the property, am exclusively contracting with licensed contractors to construct the project.
___I certify that I have read this application and state that the information given is true and correct. I agree to comply with all City ordinances and State laws relating to building construction and hereby authorize representatives of the City to enter upon the aforementioned property for inspection purposes at any time, and I make this statement under penalty of law.

**HAZARDOUS MATERIALS**

**Hazardous Materials: Indicate if the intended occupancy will use chemicals. Initialing Yes acknowledges that Health & Safety Code Sections 25505, 25533 & 25534 as well as filing directions were made available to you.yes_____ no_____**

**CONSTRUCTION LENDING AGENCY**

I hereby affirm that there is a construction-lending agency for the performance of the work for which this permit is issued (Section 3097, Civil Code)
Lenders Name: _____
Lenders Address: _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all City and County ordinances and State laws relating to building construction, and hereby authorize representatives of this agency to enter upon the above-mentioned property for inspection purposes. I further agree to save, indemnify and hold harmless the City of Petaluma against liabilities, judgments, costs and expenses, which may in any way accrue against the City in consequence of the granting of this permit and will pay all expenses including attorney's fees in connection therewith. All work performed by virtue of this permit must conform to plans and specifications filed by the owner or his/her authorized agent with the City. This permit does not constitute approval of any violation of the above-recited provisions, nor of any State or City ordinance.

Signature: _____ Date: _____

**THIS PERMIT SHALL EXPIRE BY LIMITATION IF AUTHORIZED WORK IS NOT COMMENCED WITHIN 180 DAYS OF ISSUANCE OR IS ABANDONED FOR 180 DAYS OR MORE (PER CALIFORNIA BUILDING CODE AND PETALUMA MUNICIPAL CODE).**

| | |
|---|---|
| **Date Applied:** | 04/21/2008 |
| **Date Issued:** | May 16 2008 12:00AM |
| **Permit Type:** | Building/Building/ Demolition/NA |
| **Job Address:** | 0 CASA GRANDE RD PETALUMA CA |
| **Parcel No.:** | 005060041, 005060042 |
| **Owner:** | LANDS OF BAYWOOD LLC 414 AVIATION BLVD SANTA ROSA, CA 95407 578-5344 |
| **Applicant:** | DAVIS, DANIEL O INC 1051 TODD RD SANTA ROSA, CA 95407 585-1903 |
| **CONTRACTOR:** | DAVIS, DANIEL O INC 1051 TODD RD SANTA ROSA, CA 95407 585-1903 431984 |
| **Valuation: (Contractor)** | $ 100,000.00 |

**Fee Information:**

| Fee Items | # of Each | Amount |
|---|---|---|
| Demolition Permit (enter 1) | 1.00 | $1,446.57 |
| Incremental Records Fee (enter 1) | 1.00 | $610.00 |
| Microfilm - 8.5x11 (each) | 1.00 | $2.50 |
| Microfilm - Lg. Plans / Blue Prints (each) | 2.00 | $8.50 |
| FirePlanCheckFee - Grading (Soil Remidiation) (enter 1) | 1.00 | $475.00 |
| Demo Plan Check Fee (enter 1) | 1.00 | $1,446.57 |
| Total | | $3,989.14 |

**Payment Information:**

| Date | Receipt No. | Amount |
|---|---|---|
| 04/21/2008 15:54:22 | | $1,446.57 |
| 05/16/2008 11:25:11 | 17829 | $2,542.57 |
| Total | | $3,989.14 |

Description of Work:
"ROYAL TALLOW" SITE - AKA 2044 LAKEVILLE & 2596 CASA GRANDE RD. DEMOLISH & REMOVE COMMERCIAL FACILITY BUILDINGS AND ASSOCIATED BUILIDINGS DOWN TO CLEAN DIRT. CLEAR PROPERTY OF ANY DEBRIS.

CITY OF PETALUMA
PLANNING/BUILDING
MAY 16 2008

PAID

0 Casa Grande Rd

FILE COPY

131) SPECIAL INSPECTION REQUIRED ☐ YES ☐ NO IF YES, SEE ADDITIONAL SHEET

| INSPECTION RECORD | DATE | NAME | REMARKS |
|---|---|---|---|
| 103) FOUNDATION | | | |
| FORMS/SETBACK | | | |
| FOOTING | | | |
| WALLS | | | |
| | | | |
| 106) UFER GROUND # | | | |
| 104) CAISSONS/PIERS | | | |
| 105) SLAB REINFORCING | | | |
| 107) UNDERGROUND UTILITIES | | | |
| ☐ SEWER ☐ WATER ☐ FIRE | | | |
| 110) MASONRY | | | |
| 109) RETAINING WALLS | | | |
| 120) UNDERSLAB | | | |
| ☐ PLUMBING ☐ ELECTRICAL | | | |
| 115) HYDRONICS | | | |
| 116) U/F ELECTRICAL | | | |
| 117) U/F MECHANICAL | | | |
| 118) U/F PLUMBING | | | |
| 119) U/F FRAMING | | | |
| 139) U/F INSULATION | | | |
| 126) SHEAR WALLS | | | |
| ☐ INTERIOR ☐ EXTERIOR | | | |
| | | | |
| 127) DIAPHRAGMS | | | |
| ☐ ROOF ☐ FLOOR | | | |
| 137) Roofing Progress | | | |
| 134) SIDING/SHEATHING | | | |
| 125) HOLD DOWNS | | | |
| 132) CLOSE-IN | | | |
| 122) ROUGH ELECTRICAL | | | |
| 123) ROUGH MECHANICAL | | | |
| 124) ROUGH PLUMBING | | | |
| 128) ROUGH FRAME | | | |
| 759) FIRE SPRINKLER/CLOSE-IN/HYDRO | | | |
| 139) INSULATION | | | |
| ☐ WALLS ☐ CEILING | | | |
| 142) WALLBOARD | | | |
| 143) FIREWALLS | | | |
| 135) STUCCO/PLASTER | | | |
| ☐ LATH ☐ SCRATCH | | | |
| 130) TUB/SHOWER PAN | | | |
| | | | |
| 164) SUSPENDED CEILING | | | |
| ☐ ROUGH ELEC. ☐ ROUGH MECH. | | | |
| 171) TEMPORARY ELECTRICAL | | | |
| 172) TEMPORARY GAS | | | |
| 174) ELECTRIC METER AUTHORIZATION | | | |
| 175) GAS METER AUTHORIZATION | | | |
| 153) GAS PRESSURE TEST | | | |
| ☐ HOUSE ☐ YARD | | | |
| **SWIMMING POOLS** | | | |
| 194) PRE-GUNITE/POOL PIPING | | | |
| 195) PRE-DECK | | | |
| 196) PRE-PLASTER/FENCE | | | |
| 197) PREFAB/POOL EXCAVATION/PIPING | | | |
| ANTI-ENTRAPMENT COVER | | | |
| ☐ VERIFIED ☐ N/A | | | |
| **FINALS** | | | |
| 102) SIGN FINAL | | | |
| 176) ELECTRICAL FINAL | | | |
| 177) MECHANICAL FINAL | | | |
| 178) PLUMBING FINAL | | | |
| 199) BUILDING FINAL | 10/16/12 | 30-09 | |
| OCCUPANCY (OK TO OCCUPY) | | | |

| EXTERIOR WILDFIRE CONSTRUCTION | DATE | NAME |
|---|---|---|
| DEFENSIBLE SPACE-(FIRE TO VERIFY) | | |
| CLASS A ROOF | | |
| • VALLEY INTERWOVEN COMP SHINGLE (IF APPLICABLE) | | |
| • METAL FLASHING OVER #72 ASTM CAP SHEET (IF APPLICABLE) | | |
| ROOF GUTTER PROVIDED WITH MEANS TO PREVENT ACCUMULATION | | |
| EAVE AND CORNICE VENTS NOT PERMITTED UNLESS PROVIDED WITH FLAME INTRUSION ASSEMBLY | | |
| NON-COMBUSTIBLE EXTERIOR | | |
| DOUBLE PANE WINDOWS W/ONE TEMPERED PANE | | |
| NON-COMBUSTIBLE OR SOLID CORE EXTERIOR DOOR(S) | | |

FIRE INSPECTION REQUIRED

☐ YES ☐ NO

FOR FIRE INSPECTION CALL 778-4399

| | | |
|---|---|---|
| 772) FUEL TANK/DISPENSOR | | |
| 776) FIRE HYDRANTS/UNDERGROUND | | |
| 770) FIRE SPRINKLER FINAL | | |
| 779) ALARM SYSTEM | | |
| 780) HOOD & DUCT SYSTEM | | |

CLEARANCES/CERTIFICATE OF OCCUPANCY:

*FIRE*

*HEALTH DEPARTMENT*

*PLANNING*

*PUBLIC WORKS*

*WATER*

ROLLED PLANS ☐ YES ☐ NO

# CITY OF PETALUMA

POST OFFICE BOX 61
PETALUMA, CA 94953-0061

Pamela Torliatt
*Mayor*

Teresa Barrett
David Glass
Mike Harris
Mike Healy
David Rabbitt
Tiffany Renée
*Councilmembers*

October 28, 2009

Lands of Baywood LLC or Current Owner
414 Aviation Blvd.
Santa Rosa, CA 95407

RE: Address: 0 Casa Grande Road Permit #: 20080389

Dear Sir or Madam,

Our records indicate that an outstanding building permit exists for your property. A review of the permit file verified that the work has not been inspected for over 180 days and per the 2007 California Building Code Sections 106.4.4 and 107.4, the permit has expired. We are giving you this last opportunity to final the following permit(s):

Project: Royal Tallow site – demolition of entire site
Date Issued: 5/16/08
Last Inspected: never

We would like to validate the work performed under the above permit(s). If no work has been performed, and you wish to keep the permit active, please respond **in writing** to request a one-time 180 day extension on the above permit(s). Please call (707) 778-4479 to schedule an inspection, or provide your records to us showing that inspections have been performed and the permit has been finaled. You may do this by:

1) **Mailing a copy of the permit to the Building Division,**
2) **Faxing a copy of the permit to the Building Division at (707) 778-4498,**
3) **Bringing a copy of the permit to the Building Division office at City Hall.**

This letter is formal notification that if we do not hear from you within **10 working days** from the date of this letter, the permit will be expired and become null and void. Our records will indicate that the work was done without a finalized permit, and that no further permits of any kind will be issued until this matter is resolved. Notification of this action will be recorded in our permit tracking system, and is public record. Please contact our office with any questions you may have, as we would like to assist you in this process. When calling this office, please make reference to this letter.

Sincerely,

Edward John Hamer
Chief Building Official
City of Petaluma

***Community Development Department***
*11 English Street*
*Petaluma, CA 94952*
*E-Mail*
*cdd@ci.petaluma.ca.us*

***Building***
*Phone (707) 778-4301*
*Fax (707) 778-4498*
***To Schedule Inspections:***
*Phone (707) 778-4479*

***Planning***
*Phone (707) 778-4301*
*Fax (707) 778-4498*

EQUAL HOUSING OPPORTUNITY

S:\BUILDING\BP Expire Letters\Letters sent 2009\Letters sent Oct 28\0 Casa Grande.doc

# CITY OF PETALUMA

11 English Street
Petaluma, CA 94952
Office: (707) 778-4302 Fax: (707) 778-4498

UM 5/14/08 DF

## CONTRACTOR ONLY PERMIT WORKSHEET

Permit # 200800389

| BUILDING ADDRESS | SUBDIVISION/LOT # | PARCEL # |
|---|---|---|
| ~~2044 Lakeville Hwy~~ & Casa Grande Rd | | 005-060-075 |

| OWNER NAME | (H) PHONE | (W) PHONE |
|---|---|---|
| Lands of Baywood, LLC | | 707/578-5344 |

| OWNER MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 414 Aviation Blvd. | Santa Rosa | Ca | 95403 |

| ARCHITECT/DESIGNER | LICENSE NO. | PHONE | |
|---|---|---|---|
| | | | |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| | | | |

| ENGINEER | LICENSE NO. | PHONE | |
|---|---|---|---|
| | | | |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| | | | |

| CONTRACTOR | LICENSE NO. | PHONE | |
|---|---|---|---|
| Daniel O. Davis Inc. | 431984 | 707/585-1903 | |

| MAIL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 1051 Todd Rd | Santa Rosa | Ca | 95407 |

- ☐ BUILDING
- ☐ MECHANICAL
- ☐ GRADING
- ☐ BUILDING SURVEY
- ☒ DEMOLITION
- ☐ RE-ROOF
- ☐ ELECTRICAL
- ☐ PLUMBING
- ☐ SIGN
- ☐ MOVE BUILDING
- ☐ POOL
- ☐ FENCE

Fund 001-400-0000

| | | |
|---|---|---|
| BUILDING | 3321 | 1446.57 |
| PLAN CHK | 3322 | 1446.57 |
| | | |
| FIRE PLN CK | 3371 | 475.00 |
| INCREMENTAL | 3323 | 610.00 |
| CSIF/CSIFO | 3324 | |

- ☐ NEW
- ☐ ALTERATION
- ☐ ACCESSORY BLD.
- ☐ ASF
- ☐ DUPLEX
- ☐ CONDO
- ☐ ADDITION
- ☐ REPAIR
- ☐ RESIDENTAL
- ☐ DSF
- ☐ APARTMENT
- ☐ COMMERCIAL

| | | |
|---|---|---|
| ENERGY | 3325 | |
| ELECTRICAL | 3326 | |
| MECHANICAL | 3327 | |
| PLUMBING | 3327 | |
| MICROFILM | 3312 | 12.00 11.00 |
| MINEN/MINER | 3329 | |

$3,989.14

(1,446.57)

| FLOOR AREA (Sq. ft.) | REMODEL FLOOR AREA (Sq. ft.) | VALUATION | $2,542.57 |
|---|---|---|---|
| 40,940 | | $100,000 | |
| GARAGE AREA (Sq. ft.) | REMODEL GARAGE AREA (Sq. ft.) | MAX OCC | STORIES |
| DECK AREA (Sq. ft.) | REMODEL DECK AREA (Sq. ft.) | GROUP | TYPE |
| BEDROOMS | | CBC 2001 | NEC 1999 |

**PROPOSED WORK:** Demolish and remove commercial facility. Buildings and associated buildings to clean dirt. Clear property of misc. debris.

(OVER)

CONSTRUCTION LENDING AGENCY. I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. (Sec. 3097, Civ. C)

LENDER NAME N/A

MAILING ADDRESS | CITY | STATE | ZIP

I hereby affirm under penalty of perjury that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

LICENSE CLASS A, C21 | STATE LICENSE NUMBER 431984 | EXPIRE DATE 12/31/08

**Hazardous Materials:** Indicate if the intended occupancy will use chemicals. Initialing YES acknowledges that H & S Code Sections 25505, 25533 & 25534 as well as filing directions were made available to you.

YES_____ NO X

WORKERS' COMPENSATION DECLARATION I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

_X_ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier Redwood Fire & Casualty

Policy Number: W-7A38098 Exp: 10/1/08

(*This section need not be completed if the permit is for one hundred dollars ($100) or less.)

____ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR COE, INTEREST AND ATTORNEY'S FEES.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building, construction, and hereby authorize representatives of this agency to enter upon the above-mentioned property for inspection purposes. I (we) further agree to save, indemnify and keep harmless the City of Petaluma against liabilities, judgments, costs and expenses which may in any way accrue against said city in consequence of the granting of this permit and will pay all expenses including attorney's fees in connection therewith. All work performed by virtue of this permit must conform to plans and specifications and application filed by the owner or his authorized agent with the Building Inspection Division. This permit does not constitute approval of any violation of the above recited provisions, nor of any state or city ordinance.

Signature X

Print Name X Dustin D Davis Date 4-21-08

# CITY OF PETALUMA

POST OFFICE BOX 61
PETALUMA, CA 94953-0061

ENVIRONMENTAL
OCT 2 1 2003

David Glass
*Mayor*

Keith Canevaro
Mike Harris
Mike Healy
Bryant Moynihan
Mike O'Brien
Pamela Torliatt
*Councilmembers*

## NOTICE AND ORDER

Per The Abatement of Dangerous Buildings Ch. 4

January 2, 2003

**To:** Darling Delaware Company, Inc.
251 O'Connor Ridge Blvd., Suite 370
Irving, TX 75038-6525

**REGARDING ADDRESS:** 2592 Lakeville Highway, Petaluma, CA

**LOCATION DESCRIPTION:** The property is located at the west end of Casa Grande Road. Buildings on the property consist of a Single Family Dwelling, an abandoned industrial tallow plant and several outbuildings, such as barns and garages.

**ASSESSOR'S PARCEL NUMBER: 005-060-042**

**DATE OF INSPECTION:** January 31, 2002

**CONDUCTING INSPECTION:** Clifford Kendall, Deputy Chief Building Official

**THE BUILDING OFFICIAL HAS FOUND THE ABOVE BUILDING DANGEROUS AND UNINHABITABLE DUE TO THE BELOW CONDITIONS.**

The above referenced structures are hereby declared dangerous and uninhabitable, as per Uniform Code For The Abatement Of Dangerous Buildings, Chapter 3, Section 302 Item # 15 and #18 for the following reasons:

RECEIVED
MAY 15 2008
BUILDING DIV.

The buildings on the property have been abandoned and because of lack of maintenance and faulty construction have caused dilapidation and deterioration to constitute a public nuisance.

**Determination of Chief Building Official**

FILE COPY

DI007441

*Community Development Department*
*11 English Street*
*Petaluma, CA 94952*
*E-Mail*
*cdd@ci.petaluma.ca.us*

*Code Enforcement*
*Phone (707) 778-4469*
*Fax (707) 778-4498*
*E-Mail*
*codeenforcement@ci.petaluma.ca.us*

*Engineering*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

*Inspection Services*
*Phone (707) 778-4301*
*Fax (707) 778-4498*
*To Schedule Inspections:*
*Phone (707) 778-4479*

*Permits*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

*Planning*
*Phone (707) 778-4301*
*Fax (707) 778-4498*

It is my determination as Chief Building Official that the buildings are to be demolished.

**Corrective Action To Be Taken**

**You must see that the habitants are vacated and permits to demolish all structures on property are obtained and approved by the Building Official within sixty (60) days from the date of the order.**

**If the work is not commenced within the time specified, I will order the building vacated and posted to prevent further occupancy until the work is complete, and may proceed to cause the work to be done and charge the costs thereof against the property or its owner.**

**Any person having any record title or legal interest in the property may appeal from the notice and order or any action of the Building Official to the board of appeals, provided the appeal is made in writing as provided in this code and filed with the Building Official within 30 days from the date of service of this notice and order. Failure to appear will constitute a waiver of all right to an administrative hearing and determination of the matter.**

# CITY OF PETALUMA

## ACTION REPORT

[ ] Inquiry
[X] Complaint

Date Received: August 4, 2003
Date Closed:

Name of Caller: Jodi Winters, Trammel Crow Residential
Caller's Address: 2682 Bishop Drive, Suite 101, San Ramon, CA 94583
Caller's Phone Number: 925.901.1896

City Employee/Department Receiving Call: Jane Thomson, Code Enforcement Officer

Address of Inquiry/Complaint: 2044 Casa Grande Road

Received Via: [X] Telephone [ ] Letter [ ] In Person

---

Statement as to Nature of Call: Royal Tallow

1. Accessory structure next to property line fencing is disintegrating and falling onto the fence
2. Believes there to be hazardous materials on site that need to be removed/cleaned up
3. The main building is not secured and is an attractive nuisance
4. The property is not secured, and children are accessing it and the buildings

---

Route to:

| | | |
|---|---|---|
| [ ] Animal Control | [ ] Finance | [ ] Recreation |
| [X] Building Division cc/ltr | [X ] Fire | [ ] Sonoma County Health |
| [ ] City Attorney | [ ] Parks | [ ] Traffic Committee |
| [ ] City Clerk | [X] Planning | [ ] Transit |
| [x] City Manager | [ ] Police | [ ] Other: _____ |
| [ ] Engineering | [ ] Public Works | |

---

REPORT OR ACTION TAKEN
(Attach Additional Documentation as Required)

---

Date:_____ By _____

Complainant / Inquirer was notified of the outcome of complaint/inquiry by:
Mail [ ] / Phone [ ] / In Person [ ] on: by:

---

H:\kt\abitactionreport\2044casegrande

DI007443

**City Of Petaluma Parcel Information Report**
**APN #005060042**

| | |
|---|---|
| APN | 005060042 |
| Address | CASA GRANDE RD |
| Use Code | 0202 |
| Tax Rate Area | 003011 |
| Land Size (Sq Ft) | 811,523 |
| Owner Name | DARLING DELAWARE COMPANY INC |
| In Care Of | |
| Owner Address | 251 OCONNOR RIDGE BLVD STE 370 |
| Owner City/State | IRVING TX |
| Owner Zip | 750386525 |
| Com/Ind Year Built | 1942 |
| Total Bldg Area (Sq Ft) | 000020606 |
| Single Family Res Year Built | 1941 |
| Living Area (Sq Ft) | 000000962 |
| Bedrooms | 02 |
| Bathrooms | 01 |
| Total Living Area (Sq Ft) | 000000000 |
| Multi Family Res Year Built | 0000 |
| Number of Units | 000 |
| Number of Structures | 01 |
| Sale Price | 000000000 |
| Recording Date | 010175 |
| Official Record Number | 75R2185217 |

1/27/03

Darling Delaware Company Inc
251 O'Connor ridge Blvd Ste 370
Irving, TX 750386525

RE: Royal Tallow & Soap Co. Inc./ 2592 Lakeville Highway

Dear Sirs:

On June 8, 2001 a demolition permit was issued to Speelman Excavation for the partial demolition of a truck garage (Approx 1200 sq.ft. to be removed) and for the removal of contaminated soil beneath slab to a five-foot depth. As of this date the work has not been completed and no inspections have been requested.

As you may well know there is a large Apartment complex under construction on the adjacent parcel to yours. With this in mind the City of Petaluma is very concerned with the condition of your property. It is the City of Petaluma's desire that you as the legal property owner will acquire permits to remove the potent ional attractive nuisance that may exists due to the vacated and dilapidated condition of the buildings on your property.

Please contact me upon of receipt of this letter to further discuss this matter.

Sincerely,

Clifford Kendall
Deputy Chief Building Official

c: Mike Moore

address file

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

# COMPLIANCE & ENFORCEMENT DIVISION

*Regulation 11, Rule 2*

## *Acknowledgement of Notification and Payment of Fees*

4/10/2008

Daniel O Davis Inc
1051 Todd Road
Santa Rosa, CA 95407

Job No: **2Y944**
Invoice No: **1XN52**

The Bay Area Air Quality Management District (BAAQMD) acknowledges receipt of your payment and your Asbestos Removal or Demolition Plan described as: **Demolition**

Site address 2044 Lakeville Hwy
Petaluma, CA 94954

Start Date April 22, 2008
Completion Date July 22, 2008

Removal amounts of friable ACM 0 linear feet 0 square feet 0 cubic feet

Should it become necessary to revise this plan, please do so in the spaces provided below and immediately copy the District by fax or by mail.

| REGULATION 11-2 REVISION | BAAQMD J# **2Y944** |
|---|---|

| REVISION # | START DATE | COMPLETION DATE |
|---|---|---|
| 1 | ___/___/___ | ___/___/___ |
| 2 | ___/___/___ | ___/___/___ |
| 3 | ___/___/___ | ___/___/___ |
| 4 | ___/___/___ | ___/___/___ |
| 5 | ___/___/___ | ___/___/___ |

*NOTE: This form is not intended as a verification of either the completeness of your original notification or of its compliance with BAAQMD Regulation 11-2. If you have any questions about this acknowledgment please call our office at (415) 749-4762.*

RECEIVED
APR 21 2008
BUILDING DEV

FILE COPY

Plant number ..... 1300  A1300
Business name ..... Royal Tallow & Soap Co
Location address ..... 2592 Lakeville Hwy
  City ..... Petaluma, CA  94952
  Telephone ..... 707-762-2731
Mailing address ..... P O Box 738
  City ..... Petaluma, CA  94953
SIC .....
Contact ..... Jake L Gray
  Title ..... Manager
  Address ..... 2592 Lakeville Hwy
  City ..... Petaluma, CA  94952
  Telephone ..... (707) 762-2731
Permit engineer ..... Leonard R Clayton (144)
Ownership type ..... Private
Inside city limits ..... Yes
Ceased operation ..... Oct 31, 1986, Closed

Plant #: 1300
Company name: Royal Tallow & Soap Co
Location: 2592 Lakeville Hwy, Petaluma, CA  94952

Application #: 26750
Project title: Not available
Engineer: Wayne E Yeager [295 ]
Received: 11/21/78
Final disposition: A/C granted, 07/27/79

Application #: 29297
Project title: Not available
Engineer: Leonard R Clayton [144 ]
Received: 04/05/83
Final disposition: Canceled, 07/01/83

Application #: 30448
Project title: Retro rendering plt
Engineer: Leonard R Clayton [144 ]
Received: 10/10/84
Final disposition: Waived A/C, 12/10/84

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Deborah O. Raphael, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

## EPA ID PROFILE

**ID Number:** CAC000162333 **Name :** 1X ROYAL TALLOW AND SOAP

**Status:** INACTIVE **Inactive Date:** 01/01/1900 **Record Entered:** 03/30/1989 **Last Updated:** 05/02/2000

**County:** SONOMA **NAICS:** **SIC:**

| | Name | Address | City | State | Zip Code | Phone |
|---|---|---|---|---|---|---|
| **Location** | 1X ROYAL TALLOW AND SOAP | 2592 LAKEVILLE HWY | PETALUMA | CA | 949520000 | |
| **Mailing** | | -- | SAN FRANCISCO | CA | 941880000 | |
| **Owner** | DARLING-DELAWARE CORP. | -- | -- | 99 | -- | 0000000000 |
| **Operator/ Contact** | BARBARA GOMES, SECTY. | -- | -- | 99 | -- | 4156474890 |

**Based ONLY upon ID Number** **CAC000162333**

| Calif. Manifests ? | Non Calif. Manifests ? | Transporter Registration ? |
|---|---|---|
| NO | NO | NO |

**California and Non California Manifest Tonnage Total and Waste Code by Year Matrix by Entity Type (if available) are on the next page**

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Deborah O. Raphael, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

## EPA ID PROFILE

**ID Number:** CAC002207113 **Name :** DARLING INTL INC

**Status:** INACTIVE **Inactive Date:** 06/11/2001 **Record Entered:** 05/02/2000 **Last Updated:** 06/11/2001

**County:** SONOMA **NAICS:** **SIC:**

| | Name | Address | City | State | Zip Code | Phone |
|---|---|---|---|---|---|---|
| **Location** | DARLING INTL INC | 2592 LAKEVILLE HWY | PETALUMA | CA | 949520000 | |
| **Mailing** | | 251 OCONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | |
| **Owner** | DARLING INTERNATIONAL INC | 251 OCONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | 0000000000 |
| **Operator/ Contact** | BILL MCMURTRY | 251 OCONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | 9722814409 |

**Based ONLY upon ID Number** **CAC002207113**

| Calif. Manifests ? | Non Calif. Manifests ? | Transporter Registration ? |
|---|---|---|
| YES | NO | NO |

**California and Non California Manifest Tonnage Total and Waste Code by Year Matrix by Entity Type (if available) are on the next page**

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

## Calif. Manifest Counts and Total Tonnage

Top line represents Manifest Count and Bottom line represents Total Tonnage

| | GENERATOR |
|---|---|
| 2000 | 7<br>14.3804 |

## Non California Manifest Total Tonnage

## Waste Code By Year By Entity Matrix Report (based on California Manifests only)

| Calif. | Generator | Transporter 1 | Transporter 2 | TSDF | Alt. TSDF |
|---|---|---|---|---|---|
| RCRA | Generator | Transporter 1 | Transporter 2 | TSDF | Alt. TSDF |

# California Waste Code By Year Matrix

**ID Number:** CAC002207113

**Entity Type :** GENERATOR

***Weight ( in Tons)***

**Ship Years**

| Calif. Code | Description | 2000 |
|---|---|---|
| 181 | OTHER INORGANIC SOLID WASTE | 2.2500 |
| 213 | HYDROCARBON SOLVENTS | 0.0500 |
| 214 | UNSPECIFIED SOLVENT MIXTURE | 0.0050 |
| 221 | WASTE OIL AND MIXED OIL | 0.5014 |
| 222 | OIL/WATER SEPARATION SLUDGE | 9.1740 |
| 223 | UNSPECIFIED OIL-CONTAINING WASTE | 0.9000 |
| 331 | OFF-SPEC, AGED, OR SURPLUS ORGANICS | 1.3100 |
| 551 | LABORATORY WASTE CHEMICALS | 0.1900 |
| | **Grand Total** | **14.3804** |

# RCRA Waste Code By Year Matrix Report

**ID Number:** CAC002207113

**Entity Type:** GENERATOR

*Weight ( in Tons)*

| RCRA Code | Description | Ship Years |
|---|---|---|
| | | 2000 |
| | Blank/Unknown | **14.1354** |
| D001 | Ignitable | **0.2050** |
| D002 | Corrosives | **0.0400** |
| | **Grand Total** | **14.3804** |

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Deborah O. Raphael, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

## EPA ID PROFILE

**ID Number:** CAC002252793 **Name :** DARLING INTERNATIONAL

**Status:** INACTIVE **Inactive Date:** 09/11/2001 **Record Entered:** 11/01/2000 **Last Updated:** 09/11/2001

**County:** SONOMA **NAICS:** **SIC:**

| | Name | Address | City | State | Zip Code | Phone |
|---|---|---|---|---|---|---|
| **Location** | DARLING INTERNATIONAL | 2592 LAKEVILLE HWY | PETALUMA | CA | 949520000 | |
| **Mailing** | | 251 O'CONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | |
| **Owner** | DARLING INTERNATIONAL INC | 251 O'CONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | 9722814409 |
| **Operator/ Contact** | BILL MCMURTRY-VP | 251 O'CONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | 9722814409 |

**Based ONLY upon ID Number** **CAC002252793**

| Calif. Manifests ? | Non Calif. Manifests ? | Transporter Registration ? |
|---|---|---|
| YES | NO | NO |

**California and Non California Manifest Tonnage Total and Waste Code by Year Matrix by Entity Type (if available) are on the next page**

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

## Calif. Manifest Counts and Total Tonnage

Top line represents Manifest Count and Bottom line represents Total Tonnage

| | GENERATOR |
|---|---|
| 2000 | 2<br>1.6956 |

## Non California Manifest Total Tonnage

## Waste Code By Year By Entity Matrix Report (based on California Manifests only)

| Calif. | Generator | Transporter 1 | Transporter 2 | TSDF | Alt. TSDF |
|---|---|---|---|---|---|
| RCRA | Generator | Transporter 1 | Transporter 2 | TSDF | Alt. TSDF |

# California Waste Code By Year Matrix

**ID Number:** CAC002252793

**Entity Type :** GENERATOR

*Weight ( in Tons)*

**Ship Years**

| Calif. Code | Description | 2000 |
|---|---|---|
| 151 | ASBESTOS-CONTAINING WASTE | 1.6856 |
| 181 | OTHER INORGANIC SOLID WASTE | 0.0100 |
| | **Grand Total** | **1.6956** |

# RCRA Waste Code By Year Matrix Report

**ID Number:** CAC002252793

**Entity Type:** GENERATOR

*Weight ( in Tons)*

| RCRA Code | Description | *Ship Years* 2000 |
|---|---|---|
| | Blank/Unknown | **1.6956** |
| | **Grand Total** | **1.6956** |

Matthew Rodriquez
Secretary for
Environmental Protection

# Department of Toxic Substances Control

Deborah O. Raphael, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

## EPA ID PROFILE

**ID Number:** CAC002368151 **Name :** DARLING INTERNATIONAL INC

**Status:** INACTIVE **Inactive Date:** 01/11/2002 **Record Entered:** 05/15/2001 **Last Updated:** 01/17/2002

**County:** SONOMA **NAICS:** **SIC:**

| | Name | Address | City | State | Zip Code | Phone |
|---|---|---|---|---|---|---|
| **Location** | DARLING INTERNATIONAL INC | 2592 LAKEVILLE HWY | PETALUMA | CA | 949520000 | |
| **Mailing** | | 251 O'CONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | |
| **Owner** | DARLING INTERNATIONAL INC | 251 O'CONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | 9722814409 |
| **Operator/ Contact** | BILL MCMURTRY - VP | 251 O'CONNOR RIDGE BLVD STE 3 | IRVING | TX | 750380000 | 9722814409 |

**Based ONLY upon ID Number** **CAC002368151**

| Calif. Manifests ? | Non Calif. Manifests ? | Transporter Registration ? |
|---|---|---|
| YES | NO | NO |

**California and Non California Manifest Tonnage Total and Waste Code by Year Matrix by Entity Type (if available) are on the next page**

The Department of Toxics Substances Control (DTSC) takes every precaution to ensure the accuracy of data in the Hazardous Waste Tracking System (HWTS). However, because of the large number of manifests handled, inaccuracies in the submitted data, limitations of the manifest system and the technical limitations of the database, DTSC cannot guarantee that the data accurately reflect what was actually transported or produced.

## Calif. Manifest Counts and Total Tonnage

Top line represents Manifest Count and Bottom line represents Total Tonnage

| | GENERATOR |
|---|---|
| 2001 | 1<br>0.4214 |

## Non California Manifest Total Tonnage

## Waste Code By Year By Entity Matrix Report (based on California Manifests only)

| Calif. | Generator | Transporter 1 | Transporter 2 | TSDF | Alt. TSDF |
|---|---|---|---|---|---|
| RCRA | Generator | Transporter 1 | Transporter 2 | TSDF | Alt. TSDF |

# California Waste Code By Year Matrix

**ID Number:** CAC002368151

**Entity Type :** GENERATOR

***Weight ( in Tons)***

**Ship Years**

| Calif. Code | Description | 2001 |
|---|---|---|
| 151 | ASBESTOS-CONTAINING WASTE | 0.4214 |
| | **Grand Total** | **0.4214** |

# RCRA Waste Code By Year Matrix Report

**ID Number:** CAC002368151

**Entity Type:** GENERATOR

*Weight ( in Tons)*

| RCRA Code | Description | Ship Years |
|---|---|---|
| | | 2001 |
| | Blank/Unknown | 0.4214 |
| | **Grand Total** | **0.4214** |

County of Sonoma
DEPARTMENT OF HEALTH SERVICES
Mark A. Kostielney - Director
Sharon Aguilera - Assistant Director
*Environmental Health Division*
Jonathan J. Krug - Director

July 30, 2004

Mr. Bill McMurtry
Darling International, Inc.
251 O'Conner Ridge Boulevard, Suite 370
Irving, TX 75038-6525

Re: 2592 Lakeville Highway, Petaluma
Site # 00001359, SFBRWQCB, #49-0142

Dear Mr. McMurtry:

This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

Jonathan J. Krug

JONATHAN J. KRUG, R.E.H.S.
Director of Environmental Health

3273 Airway Dr., Ste. D, Santa Rosa, CA 95403-2097 • *phone* (707) 565-6565 • *fax* (707) 565-6525 • www.sonoma-county.org

# Case Closure Summary

## Leaking Underground Fuel Storage Tank Program

**I. Agency Information** **Date: July 18, 2003**

| | | | |
|---|---|---|---|
| Agency name: | Sonoma County Dept. Health Services | Address: | 3273 Airway Drive, Suite D |
| City/State/Zip: | Santa Rosa, CA 95403 | Phone: | (707) 565-6573 |
| Responsible staff person: | Dale Radford | Title: | Civil Engineer |

**II. Case Information**

Site facility name: Royal Tallow & Soap Co.

Site facility address: 2592 Lakeville Highway, Petaluma, CA 94952

| RB LUSTIS #49-0142 | SWEEPS # NA | LOP #00001359 | URF filing date: August 3, 1989 | Local # NA |
|---|---|---|---|---|

| Responsible party | Address | Phone number |
|---|---|---|
| Darling International, Inc. | 251 O'Conner Ridge Blvd., Suite 100, Irving, TX 75038 | (214)717-0300 |
| | | |
| | | |
| | | |
| | | |
| | | |

| Tank # | Size in gal. | Contents | Closed-in-place/removed? | Date |
|---|---|---|---|---|
| 1 | 1,000 | Regular leaded gasoline | Removed | June 30, 1990 |
| 2 | 2,000 | Regular leaded gasoline | Removed | June 30, 1990 |
| | | | | |
| | | | | |

**III. Release and Site Characterization Information**

Cause and type of release: holes in tanks, fuel hydrocarbons

| | | |
|---|---|---|
| Site characterization complete? YES | | Date approved by oversight agency: July 15, 2003 |
| MW installed? YES | Number: 10 | Proper screened interval: YES, 2.5 to 13 ft. BGS, total well depth = 15 ft. |
| Highest GW depth BGS: 0.64 | Lowest depth: 7.52 | Flow direction: south/southwest |

Most sensitive current use: Estuary

| | |
|---|---|
| Are drinking water wells affected? no | Aquifer name: Petaluma Valley (2-1) |
| Is surface water affected? no | Nearest SW name: Petaluma River, 2000' sw/Adobe Creek 1300' east |

Off-site beneficial use impacts (addresses/locations): none

| | |
|---|---|
| Report(s) on file? YES | Where is report(s) filed: Sonoma County Department of Health Services |

Treatment and Disposal of Affected Material

| Material | Amount (include units) | Action (treatment or disposal w/ destination) | Date |
|---|---|---|---|
| Tanks | 2 | Erickson, Inc., Richmond, CA | 7/5/89 |
| Piping | Unknown | Erickson, Inc., Richmond, CA | 7/5/89 |
| Free product | Unknown | Present in excavation but no action taken | 1988 |
| Soil | 2,400 cubic yards | Treated onsite and used for backfill | 11/00 to 6/01 |
| Groundwater | 88,000 gal. | Storm and groundwater pumped to storm drain under permit | 12/00 and 6/01 |
| Barrels | 2 | Will be disposed after monitoring well destruction | |

## Case Closure Summary

**III. Release and Site Characterization Information (continued)** **Site Address: 2592 Lakeville Highway, Petaluma, CA**

Maximum Documented Contaminant Concentrations□Before and After Cleanup

| Contaminant | Soil (ppm) | | Water (ppm) | | Contaminant | Soil (ppm) | | Water (ppm) | |
|---|---|---|---|---|---|---|---|---|---|
| | Before | After | Before | After | | Before | After | Before | After |
| TPH (gas) | 2,900 | 438 | 125 | <.05 | Xylene | 303 | 10.4 | 9.52 | <.001 |
| TPH (diesel) | NA | NA | NA | NA | Ethylbenzene | 61.7 | 8.25 | 2.2 | <.001 |
| Benzene | 19.7 | .569 | 21.8 | <.001 | Oil & grease | NA | NA | NA | NA |
| Toluene | 151 | .609 | 16.0 | <.001 | Heavy metals | NA | NA | NA | NA |
| MTBE | NA | NA | <.005 | <.001 | 1,2-DCA | NA | NA | .0067 | .0016 |

Comments (depth of remediation, etc.): NA=not analyzed. Shallow soil remediation, <3 meters. Cleanup levels are equal to RBSLs Groundwater is not a potential source of drinking water. Excavated soil was treated with proprietary additive, biodegraded and used as backfill. Excavation naturally filled with groundwater and storm water while soil was being treated. Accumulated water was pumped to a storm drain under permit.

**IV. Closure**

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? YES

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? YES

Does corrective action protect public health for current land use? YES

Site management requirements: Future site development should address the presence of residual soil contamination, proper handling and disposal. Site Safety Plan needed if future development is planned.

Should corrective action be reviewed if land use changes? YES

| Monitoring wells decommissioned? some | Number decommissioned: 6 | Number retained: 4 |
|---|---|---|

List enforcement actions taken: NONE

List enforcement actions rescinded: NONE

**V. Local Agency Representative Data**

| Name: Jonathan J. Krug | Title: Director of Environmental Health |
|---|---|
| Signature: Jonathan J. Krug | Date: 7-21-03 |

**VI. RWQCB Notification**

| Date submitted to RB: 7/28/03 | RB Response: Concurs with closure recommendation | |
|---|---|---|
| RWQCB staff name: John Jang (~~John Jang~~) | Title: WRCE | Date: 8/5/03 |

**VII. Additional Comments, Data, etc.**

Six monitoring wells destroyed prior to over excavation of contaminated soil. Remaining four wells will be destroyed by RP after closure concurrence by SFBRWQCB. Analytical results of accumulated storm and ground water indicate TPHg, BTEX and MTBE were non-detect prior to discharge to storm drain.

# APPENDIX E

# ASTM USER QUESTIONNAIRE

AEI Consultants
Environmental & Engineering Services

# ASTM E 1527-05 User Questionnaire

In order to qualify for the protection offered under the EPA All Appropriate Inquiry (AAI) Standard, the **User** (entities seeking to use the ASTM E1527-05 Practice to complete an environmental site assessment of the property; i.e. Lenders and/or Borrowers) must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that AAI is not complete. This information should be the collective knowledge of the entities relying on the Phase I. **Please note that you are not being asked to evaluate the property, but rather to provide your knowledge of information on the property.**

Site Name/Address: Baywood - Casa Grande Rd, Petaluma

Person Interviewed/Title: Derek Pampe - Director of Land Acquisition Date: 3/18/20

If known, when was the property initially developed? unknown

If different, when were the current building(s) on the property constructed? _____

1. Environmental cleanup liens that are filed or recorded against the site (40 CFR 312.25).

Are you aware of any environmental cleanup liens against the *property* that are filed or recorded under federal, tribal, state or local law? (**Note:** If unknown, a review of title records or an environmental lien search is recommended)

Yes ☐ No ☑ If you answer yes, please include an explanation in the space provided below:

_____

2. Activity and land use limitations that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).

Are you aware of any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

*Engineering Controls* are defined as physical modifications to a site or facility to reduce or eliminate the potential for exposure to hazardous substances or petroleum products in the soil or ground water on the property). *Institutional Controls* are defined as a legal or administrative restriction on the use of, or access to, a site or facility to 1) reduce or eliminate the potential for exposure to hazardous substances or petroleum products in the soil or ground water on the property, or 2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment.

Yes ☐ No ☑ If you answer yes, please include an explanation in the space provided below:

_____

3. Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).

As the *User* of this *ESA* do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an adjoining *property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?

Yes☐ No☑ If you answer yes, please include an explanation in the space provided below:

4. Relationship of the purchase price to the fair market value of the *property* if it were not contaminated (40 CFR 312.29).

a) Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*?

Yes☑ No☐ If you answer no, please include an explanation in the space provided below, including whether the lower purchase price is because contamination is known or believed to be present at the *property*?

5. Commonly known or *reasonably ascertainable* information about the *property* (40 CFR 312.30).

Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example, as *User*:

a. Do you know the past uses of the *property*?

Yes☑ No☐

b. Do you know of specific chemicals that are present or once were present at the *property*?

Yes☑ No☐

c. Do you know of spills or other chemical releases that have taken place at the *property*?

Yes☑ No☐

d. Do you know of any environmental cleanups that have taken place at the *property*?

Yes☑ No☐

If you answered yes to any of the questions above, please include an explanation in the space provided below:

~~Based on my review of the documents provided by the property owner, a number contaminates once existed. A copy of those documents have been provided. Namely, a summary of that history and the contaminants can be found in expert report by Dwight Hoenig~~

6. The degree of obviousness of the presence of likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).

As the *User* of this *ESA*, based on your knowledge and experience related to the *property*, are there any *obvious* indicators that point to the presence or likely presence of contamination at the *property*?

Yes ☐ No ☑ If you answer yes, please include an explanation in the space provided below:

Please provide the following property contact information:

Property Owner: Baywood, LLC Phone Number: _____

Key Site Personnel: Patrick Imbimbo Phone Number: 707-578-5344

Past Owner: _____ Phone Number: _____

Signature: _____ Date: 3/18/14

# APPENDIX F

# PREVIOUS REPORTS

# ROYAL TALLOW AND SOAP COMPANY
# UNDERGROUND STORAGE TANK
# SITE CHARACTERIZATION REPORT
# PETALUMA, CALIFORNIA

DEPOSITION EXHIBIT
PLF. / DEF. 325
WITNESS: _____
DATE: _____
TIFFANY D. DEUSEBIO, CSR #9086

ecology and environment, inc.
International Specialists in the Environment

MFG03043
2946

ecology and environment, inc.
160 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105, TEL. 415/777-2811
International Specialists in the Environment

August 17, 1990

Mr. Mel Roshanravan
Darling-Delaware Co., Inc.
8737 King George Dr., Ste. 200
Dallas, TX 75235

Dear Mr. Roshanravan:

Pursuant to your request, please find enclosed a copy of our report entitled Underground Storage Tank Site Characterazation. This report covers the work completed to date by Ecology and Environment, Inc. at your Royal Tallow and Soap Co. facility in Petaluma, CA. Please note that some work still remains to be completed at the site including monthly water level measurements from September 1990 through February 1991, and two additional quarterly sampling rounds in October 1990 and January 1991, as required by the County of Sonoma and as outlined in our work plan dated December 19, 1990.

If you have any questions concerning this report or the remaining work items, please feel free to call either me or Ralph Lambert at (415) 777-2811.

Sincerely,
ecology and environment, inc.

Steven M. Morin

Steven M. Morin
Project Manager

cc: Mr. Subba Rao, Darling-Delaware, Cleveland

recycled paper

TABLE OF CONTENTS


| Section | | Page |
|---|---|---|
| | EXECUTIVE SUMMARY | 1 |
| 1. | INTRODUCTION | 1-1 |
| | 1.1 OBJECTIVE | 1-1 |
| | 1.2 SITE LOCATION AND HISTORY | 1-1 |
| 2. | WORK PLAN AND SUMMARY | 2-1 |
| 3. | FIELD ACTIVITIES AND PROCEDURES | 3-1 |
| | 3.1 SOIL-GAS SURVEY | 3-1 |
| | 3.2 WELL DRILLING AND INSTALLATION | 3-2 |
| | 3.2.1 Soil Borings and Soil Sampling | 3-4 |
| | 3.2.2 Well Completion | 3-4 |
| | 3.3 GROUNDWATER SAMPLING AND WATER LEVEL MEASUREMENTS | 3-6 |
| | 3.4 AQUIFER TESTING | 3-9 |
| 4. | HYDROGEOLOGIC SETTING | 4-1 |
| | 4.1 SITE SETTING | 4-1 |
| | 4.2 SITE HYDROGEOLOGY | 4-1 |
| 5. | CHEMICAL ASSESSMENT | 5-1 |
| | 5.1 SOILS ASSESSMENT | 5-1 |
| | 5.2 GROUNDWATER ASSESSMENT | 5-5 |
| 6. | SUMMARY AND CONCLUSIONS | 6-1 |
| 7. | REFERENCES | 7-1 |

Appendix

| | |
|---|---|
| A | WELL COMPLETION LOGS |
| B | PERMITS |
| C | AQUIFER TEST DATA AND PLOTS |
| D | LABORATORY ANALYSES |

## LIST OF ILLUSTRATIONS


| Figure | | Page |
|---|---|---|
| 1-1 | SITE LOCATION MAP | 1-2 |
| 1-2 | VICINITY MAP | 1-3 |
| 3-1 | WELL LOCATION MAP | 3-3 |
| 4-1 | CROSS-SECTION A-A | 4-2 |
| 4-2 | CROSS-SECTION LOCATION AND WATER TABLE ELEVATION - APRIL 3, 1990 | 4-3 |
| 4-3 | WATER TABLE ELEVATION - MAY 3, 1990 | 4-4 |
| 4-4 | WATER TABLE ELEVATION - JUNE 1, 1990 | 4-5 |
| 4-5 | WATER TABLE ELEVATION - JULY 10, 1990 | 4-6 |
| 4-6 | STATIC WATER LEVELS IN WELL W-5 | 4-9 |
| 5-1 | TPH (GAS) IN SOIL AT 9.5- TO 10-FOOT DEPTH | 5-4 |
| 5-2 | TPH IN GROUNDWATER - APRIL 3, 1990 | 5-7 |

## LIST OF TABLES


| Table | | Page |
|---|---|---|
| 3-1 | WELL CONSTRUCTION DETAILS ..... | 3-5 |
| 3-2 | MONITORING WELL DEVELOPMENT AND PURGING SUMMARY ..... | 3-8 |
| 4-1 | WATER TABLE ELEVATIONS ..... | 4-8 |
| 5-1 | SOIL SAMPLE RESULTS ..... | 5-2 |
| 5-2 | GROUNDWATER ANALYSES - APRIL AND JULY 1990, PETALUMA ..... | 5-6 |

# EXECUTIVE SUMMARY

One or both underground gasoline storage tanks at the Royal Tallow and Soap Company property in Petaluma, California leaked prior to their removal in 1989. Groundwater onsite is shallow (three to five feet below ground surface) and generally flows south or southwest. The hydraulic conductivity of the soil is fairly low and the calculated groundwater flow velocities range from 10 to 31 feet per year. The shallow groundwater is brackish and is not used for any beneficial purpose.

Ten of 21 soil samples had total petroleum hydrocarbon (TPH) concentrations in excess of 100 mg/kg. The volatile aromatic compounds of benzene, toluene, xylene, and ethylbenzene were also found at elevated levels in some soil samples.

No measurable floating product was found on the shallow groundwater. However, groundwater analysis from the five monitoring wells yielded TPH concentrations up to 20 mg/l. The California drinking water standard for benzene was exceeded in water from four of the five wells, and in one well for xylene and ethylbenzene. Ethylene dibromide was not detected in any soil or groundwater sample, and organo lead was detected in only four of 21 soil samples (at a maximum concentration of 1.82 mg/kg) and was undetected in groundwater.



MFG03049

# 1. INTRODUCTION

This site characterization report has been prepared by Ecology and Environment, Inc., (E & E) under contract to Darling-Delaware Company, Inc. to document field activities and present the results of a preliminary assessment of petroleum hydrocarbons caused by one or more leaking underground storage tanks (USTs) at the Royal Tallow and Soap Company (RTSC) site in Petaluma, California.

## 1.1 OBJECTIVE

The objective of this preliminary site characterization was to determine the areal extent, nature, and concentration of petroleum hydrocarbons in the soil and groundwater near the location of the leaking gasoline tanks. The two gasoline tanks were removed prior to this site characterization.

## 1.2 SITE LOCATION AND HISTORY

The RTSC site is located in Petaluma, California, at 2592 Lakeville Highway (Figure 1-1). The site occupies approximately 18.8 acres and is located between the former location of the Northwestern Pacific Railroad tracks to the north and the Petaluma River to the south. The USTs in question were located in the northwest section of the RTSC property adjacent to a truck scale and approximately 2,000 feet northeast of the river (Figure 1-2).

RTSC operated a rendering plant at this site in which fats were converted into oils for the production of tallow and soap. Normal plant operations were discontinued in March of 1986, at which time the facility was used solely as a transfer station.

Darling Delaware Company, Inc., the parent company of RTSC, decided to sell the RTSC property in Petaluma and began measures to prepare the site. This preparation included the removal of the USTs. Based on



MFG03050

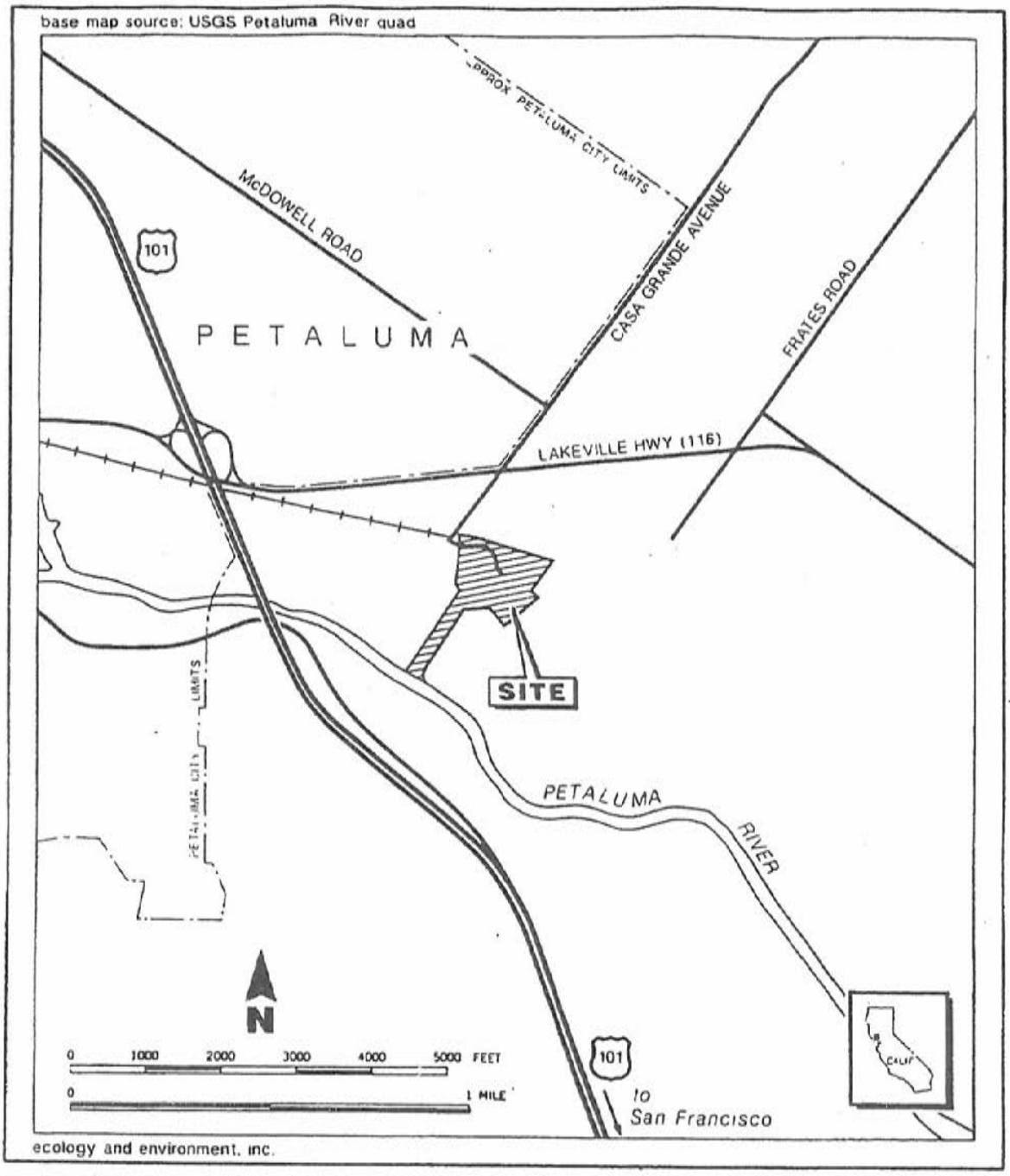



Figure 1-1

LOCATION MAP -- ROYAL TALLOW & SOAP COMPANY

Petaluma, California



MFG03051

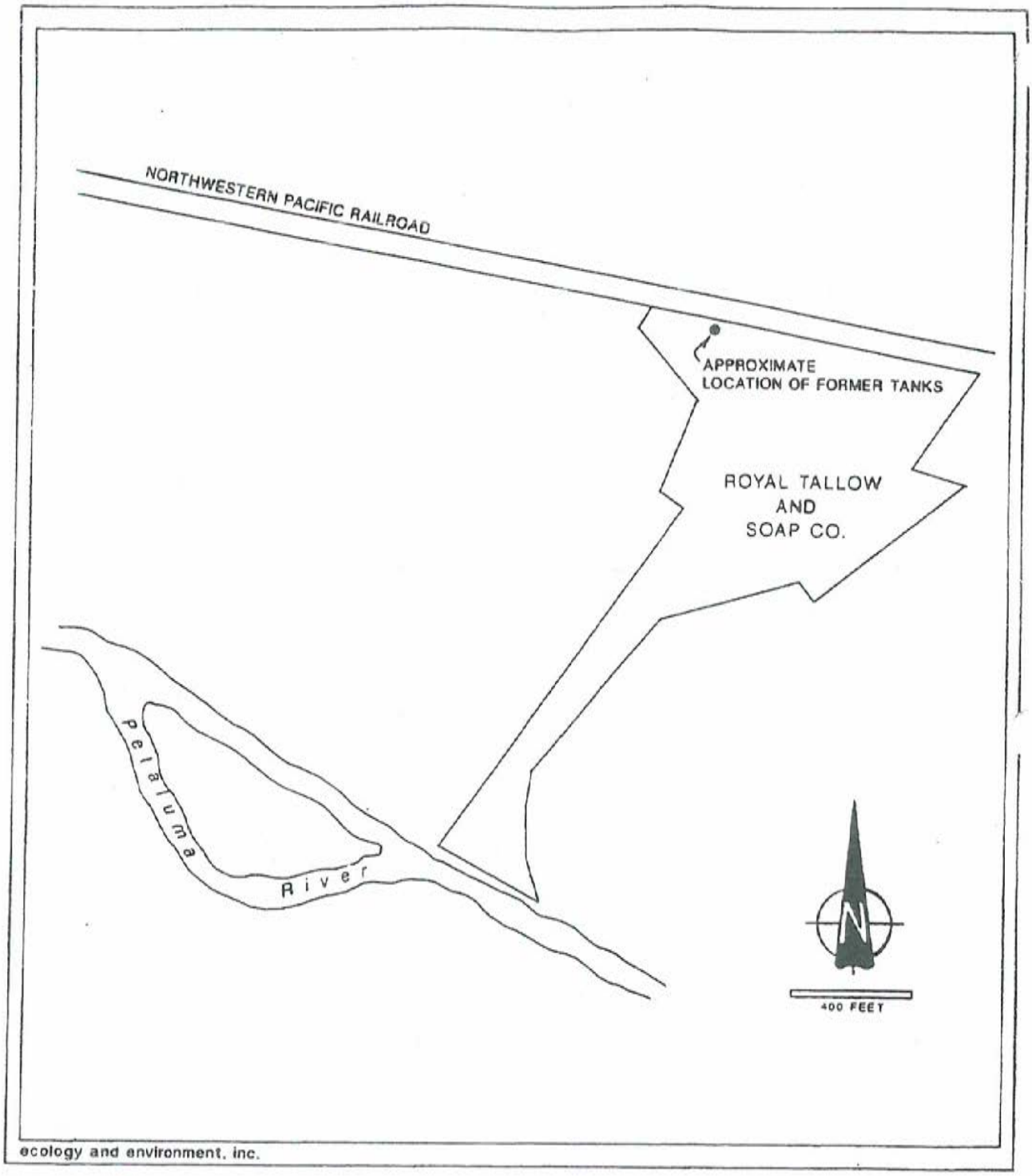



Figure 1-2 VICINITY MAP
ROYAL TALLOW AND SOAP CO.

available information, there were only two USTs known to have existed at the RTSC facility. Both of these steel tanks, one with a 500-gallon capacity and one with a 1,000- to 2,000-gallon capacity, contained regular leaded gasoline. The smaller of these two tanks was found to be leaking approximately 20 years ago and was immediately taken out of service and abandoned. The larger tank was replaced with a new tank approximately 14 years ago. After the decision was made to sell the property, this second tank was emptied in early 1987 and remained empty until its removal in 1989.

On June 30, 1989, both tanks were excavated and removed for disposal. At that time floating product was detected in the open excavation. Visual inspection of the tanks indicated the presence of small holes due to corrosion in at least one of the tanks.

The tanks were excavated by Petroleum Engineering, Inc. of Santa Rosa, California (General Contractor License No. 224358); the tanks were transported to an approved disposal site by H&H Environmental Services, Inc. (DHS Hazardous Waste Haulers No. 38-001-78); and the tanks were disassembled for scrap metal by Levin Metals Corporation. The excavations remain open and the excavated soil remains stockpiled on a concrete pad covered with visqueen.

The County of Sonoma Public Health Department submitted a letter to RTSC on July 29, 1989, requesting that an "Underground Storage Tank Unauthorized Release (Leak) Contamination Site Report" be completed and filed within five days. RTSC filed this form with the county on August 3, 1989.

As required, two soil samples were collected from the bottom of each tank excavation. These samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline; the volatile organics benzene, toluene, xylene, and ethylbenzene (BTXE); and organic lead. No lead was detected but TPH ranged from 86 to 820 mg/kg and BTXE was detected. The specific levels are reported with the results of this investigation in Section 5.



MFG03053

## 2. WORK PLAN SUMMARY

E & E prepared a work plan for this site characterization which was approved by the Sonoma County Public Health Department and by the Darling-Delaware Company, Inc. (E & E 1989). The work plan states that E & E would perform a soil-gas survey to help define the boundary of a petroleum hydrocarbon plume; drill and install five groundwater monitoring wells; sample the wells on a quarterly basis; take water levels monthly; and do an aquifer test to help define the groundwater flow characteristics.

Of the five monitoring wells, one well was to be placed upgradient (north) of the tank locations, one well was to be within 10 feet of each UST excavation on the downgradient side, and two wells were to be downgradient of the tank locations.



MFG03054

# 3. FIELD ACTIVITIES AND PROCEDURES

To carry out the investigation of the RTSC UST site, the following field activities have been undertaken:

- o A soil-gas survey;
- o The drilling and installation of five monitoring wells;
- o The measurement of monthly water levels from the monitoring wells; and
- o Quarterly sampling of the groundwater.

## 3.1 SOIL-GAS SURVEY

E & E performed a soil-gas survey on February 28, 1990, to assess the relative concentration and extent of volatile organic compounds (VOCs) in the vadose zone of the site, to assist in defining the extent of the groundwater plume, and to help guide the subsequent placement of monitoring wells. A permit was filed for the soil gas survey with the Sonoma County Public Health Department and permission was received. A copy is attached in Appendix B. Two public health inspectors visited the site during the survey.

The survey consisted of installing 12 hollow steel probes into the soil at depths ranging from one to five feet using a rotor hammer. Due to the presence of a very shallow water table, the soil was too saturated to permit sample collection; i.e., when the vacuum sampling pump was attached, water entered the sampling port. The soil-gas survey instrumentation is designed for gas analysis only.

## 3.2 WELL DRILLING AND INSTALLATION

Five soil borings were drilled, the soil was sampled, and the groundwater monitoring wells were completed between March 27 and 30, 1990. Permission was obtained from Baywood Partners, Inc. to drill an



MFG03055

upgradient well on their property, and permits for the wells were obtained from the county (Appendix B).

### 3.2.1 Soil Borings and Soil Sampling

The primary objectives of the soil sampling program were to make a preliminary determination of the vertical and areal extent and concentrations of petroleum hydrocarbons in the soil surrounding the USTs, and to install wells. A secondary objective was to characterize the subsurface geology.

Borehole locations, as shown in Figure 3-1, were selected based on the expected location of encountering petroleum hydrocarbons. The boreholes ranged from 15 to 17.5 feet deep and the soil was lithologically logged by a California registered geologist using drill cuttings and samples. The lithologic logs are included in Appendix A. Cuttings were described in terms of color, grain size, composition, moisture content, degree of compactness, and the obvious evidence of petroleum hydrocarbons. As required, a water well drillers report was filed for each well with both the State Department of Water Resources and the County Public Health Department.

The soil borings were drilled on March 27 and 28, 1990, using a 10.6-inch-diameter hollow-stem auger drill rig provided by WESTEX Drilling of West Sacramento, California. The borings were drilled without the addition of drilling mud or water to preserve sample quality.

A clean hollow-stem auger was advanced to the desired sampling depth (approximately 4, 9, and 14 feet) and samples were collected by driving an 18-inch-long, split-spoon drive sampler ahead of the augers using a 140-pound hammer. The 2-inch inside-diameter split-spoon sampler was equipped with three 6-inch-long brass liners. The middle or bottom brass liner became the sample container. After drilling, each boring was immediately completed as a well.



MFG03056

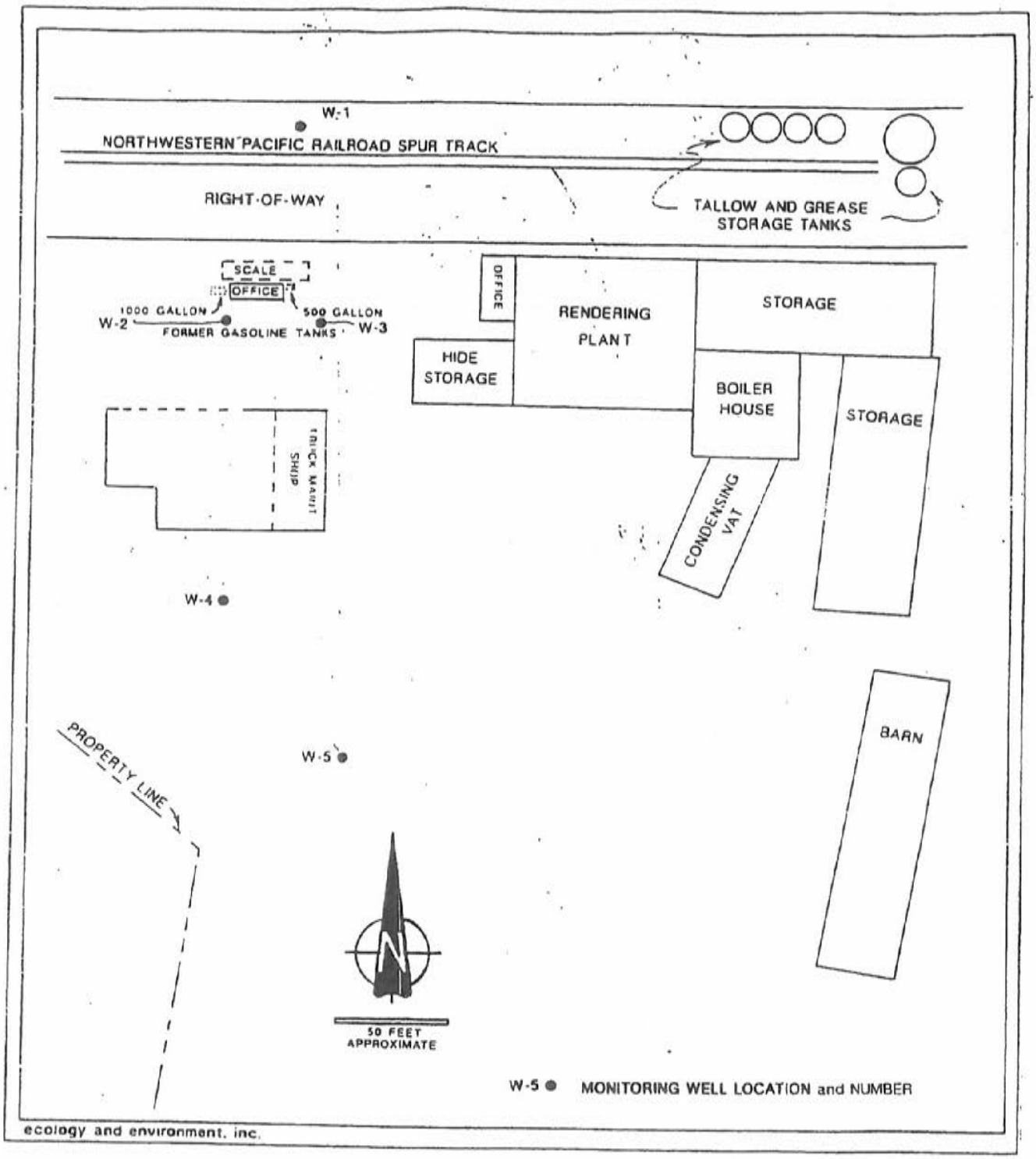



Figure 3-1 WELL LOCATION MAP
ROYAL TALLOW AND SOAP CO.

The ends of the brass liner selected as the sample were covered with aluminum foil, a tight fitting plastic cap, and sealed with electrical tape. The sample was then labeled and stored on ice at a temperature of 4°C for shipment.

E & E shipped a total of 17 soil samples, using strict chain-of-custody procedures, to Eureka Laboratories in Sacramento, California. Soil samples were analyzed for total petroleum hydrocarbons (TPH, using EPA method #8015 modified), VOCs (EPA method #8020), ethylene dibromide (EDB, EPA method #8010), and tetraethyl or organo lead (TEL, ASTM D3237-79 modified). VOCs specifically included benzene, toluene, xylene, and ethylbenzene (BTXE). These parameters satisfy the requirements of the State Water Resources Control Board for leaking underground storage tanks and closure monitoring (1989) and the Regional Board Staff Recommendations of the San Francisco Regional Water Quality Control Board (1988).

New sample liners were used and were decontaminated by steam cleaning and air drying prior to use. Samplers were decontaminated by washing in a nonphosphate detergent solution, rinsing with tap water, and air drying, or by steam cleaning. The augers used in drilling were steam-cleaned between boreholes.

Drill cuttings were added to the stockpiled soil that had been excavated from around the tanks. This soil is stored on a concrete apron and is covered with plastic.

### 3.2.2 Well Completion

Monitoring well casing depths ranged from 12.2 to 13.6 feet and were cased with 4-inch inside-diameter schedule 40 PVC pipe and screen (Table 3-1). The completion logs for these wells are contained in Appendix A. The screens are 10 feet approximately 10 feet long, and have 0.02-inch-vide slots.



MFG03058

Table 3-1

WELL CONSTRUCTION DETAILS
(All measurements in feet)

| Well | Ground Elevation (above MSL)+ | Elevation at Top of PVC Casing | Depth to Water (5/3/90) (below grade) | Screened Interval- (below grade) | Total Depth of Boring (below grade) | Relative Location* | |
|---|---|---|---|---|---|---|---|
| | | | | | | North | East |
| W-1 | 8.2 | 9.90 | 3.97 | 2.8 - 12.4 | 17.5 | 1,159.4 | 948.2 |
| W-2 | 8.36 | 7.62 | 4.12 | 3.2 - 12.8 | 17 | 1,069.9 | 915.8 |
| W-3 | 8.78 | 8.44 | 4.43 | 4.1 - 13.6 | 15.5 | 1,068.0 | 958.2 |
| W-4 | 7.6 | 9.51 | 3.55 | 3.7 - 13.5 | 15.5 | 942.8 | 918.2 |
| W-5 | 6.7 | 8.72 | 2.75 | 2.6 - 12.2 | 15 | 872.6 | 966.1 |

+ MSL = mean sea level

* The location of the wells were surveyed relative to a point on-site, which was arbitrary location of 1,000 north, 1,000 east.



rl/petaluma/t3-1

After the boreholes were drilled to the desired depth, flush-threaded PVC pipe and screen was installed. All casing and the bottom plugs were steam-cleaned prior to installation.

The wells were installed by lowering the well casing through the augers and pouring clean filter pack (Lapis Luster #3 sand) through the annular space as the augers were withdrawn. The filter pack was brought up to about 6 inches above the screen. At each well, E & E attempted to place the screen so that is extended above the top of the static water level to detect any floating product and allow for monitoring of tidal fluctuations. An approximately 1-foot-thick layer of bentonite clay was placed above the filter pack. Some tap water was added to the bentonite to hydrate the clay and form a good seal. After the hydration of the bentonite, the remaining annular space was filled using a cement-bentonite-sand slurry. Each well was completed with a locking well head. Wells W-2 and W-3 were completed in utility boxes at grade, while the remaining wells were completed above grade.

The monitoring wells were developed by pumping and bailing. Development took place two days after well installation and was designed to help make the produced water sand/silt-free and to increase well yield. Some tap water was added to each well to help surge the wells, but in each case five to eight more wetted casing volumes of water were removed than were added. The water from each well initially was very turbid due to the fine grained nature of the water-bearing material, but subsequent water samples were fairly clear.

Produced water was stored on-site in labeled drums pending results of the analytical data.

### 3.3 GROUNDWATER SAMPLING AND WATER LEVEL MEASUREMENTS

The objectives of sampling the groundwater were to assist in determining the areal extent and thickness of any petroleum hydrocarbons floating on the water table, and to make an initial determination of the areal extent and concentration of hydrocarbon contaminants in the groundwater.



MFG03060

Water levels were measured to determine groundwater flow direction and gradient.

Groundwater was first sampled on April 3, 1990, four days after development. The second round of water samples were collected on July 10, 1990. Before groundwater samples were collected, the water levels were measured in each well using a steel tape to the nearest 1/100th of a foot. Knowing the well construction details and the water levels enabled the calculation of the following wetted casing volumes for the April sampling: W-1, 6.6 gallons; W-2, 6.4 gallons; W-3, 6.7 gallons; W-4, 7.4 gallons; and W-5, 7.0 gallons. Water from the wells was purged using clean Teflon bailers and new rope, or a pump. While purging, the water quality parameters of temperature, electrical conductivity, and pH were monitored (Table 3-2). Three to nine casing volumes of water were purged from each well before sampling. After purging, the wells were allowed to recover prior to sampling.

Groundwater samples were collected using clean bailers. Each sample was transferred directly from the bailer to the sample containers. Duplicate samples were collected from W-1 and W-2 during the various sampling events. Equipment rinsate blanks were prepared using organic-free water for the volatile aromatics (BTXE) and EDB analyses, and deionized water for the TPH and TEL analyses. The blanks were prepared by pouring the blank water into a bailer which has been cleaned, and from the bailer into the sample containers. The rinsate blanks test the effectiveness of the decontamination procedures used on the bailers. The duplicate and blank samples were given separate identification numbers so that they could not be distinguished from the real samples. Samples were analyzed for TPH using the modified EPA Method 8015, for BTXE using EPA Method 602, for EDB using Method 601, and for TEL using a modified ASTM Method D-3237-79. Prior to purging, each bailer was decontaminated by washing in a TSP solution, rinsing with tap water, spraying with hexane, air drying, and rinsing with deionized water. Since no EDB and TEL was detected in any water sample after the first two sampling rounds, verbal permission was obtained from the County Health Department to omit these analyses during subsequent sampling.



MFG03061

Table 3-2

MONITORING WELL DEVELOPMENT AND PURGING SUMMARY

| Well | Development Volume-Net Gallons+ | April 3, 1990 | | | | July 10, 1990 | |
|---|---|---|---|---|---|---|---|
| | | Purge Volume (gallons) | Final pH | Final Temperature (°C) | Final EC* (µmhos/cm) | Purge Volume (gallons) | Final EC* (µmhos/cm) |
| W-1 | 60 | 22 | 7 | 16 | 2,160 | 45 | 2,560 |
| W-2 | 47 | 25 | 7 | 18 | 10,000 | 32 | 10,400 |
| W-3 | 47 | 20 | 7 | 17 | ±5,000 | 25 | 6,100 |
| W-4 | 63 | 48 | 7 | 17.1 | 4,880 | 55 | 4,040 |
| W-5 | 37 | 38 | 7.5 | 19 | 13,000 | 35 | 8,900 |

+ This is volume of water withdrawn from the well in excess of any water added to aide development.

* EC is electrical conductance of the water. This is a reflection of the water salinity and the total dissolved solids.

MFG03062

Groundwater samples were packaged carefully to avoid breakage or contamination, and stored on ice for shipment. The samples were shipped to Eureka Laboratories via Federal Express using chain-of-custody procedures.

The relative location and the elevation of the wells were surveyed by Fitzgerald and Associates (a licensed surveyor) of Petaluma, California. The elevations relative to mean sea level and the relative locations of the wells were surveyed to the nearest 1/100 of a foot. Elevations are presented in Table 3-1 and on the individual well logs in Appendix A.

## 3.4 AQUIFER TESTING

The purpose of the slug-type aquifer tests was to determine the hydraulic conductivity (permeability) of the formation immediately surrounding the screened section of the subject well. This information was used in conjunction with the local hydraulic gradient, determined from the measured water levels, and an estimated porosity to calculate the groundwater flow velocity. Rising head slug tests were performed on wells W-1 and W-2.

Water levels were recorded using an In-Situ Hermit 1000 data logger and a pressure transducer. The transducer was placed near the bottom of the well prior to the slug test. This enabled the temperature-sensitive instrument to equalize and gather background data. The slug test was performed by lowering a large bailer into the well and allowing the water level to stabilize. After stabilization the bailer was rapidly withdrawn from the well, which caused the water level to drop and water to flow into the well from the surrounding formation. During the slug test at W-1 the water level was lowered 1.51 feet, and at W-2 the water level dropped 1.28 feet. Water level measurements were automatically collected by the data logger according to the following schedule:



MFG03063

| Time Since Start | Interval Between Readings |
|---|---|
| 0-5 seconds | 0.5 seconds |
| 5-20 seconds | 1 second |
| 20-120 seconds | 5 seconds |
| 2-10 minutes | 30 seconds |
| 10-100 minutes | 2 minutes |

Water level measurements were collected until the water table fully recovered to the pretest static level.

To monitor for tidal fluctuations in the well closest to the river, water levels were automatically measured every 20 minutes for approximately 19.5 hours in well W-5.



MFG03064

# 4. HYDROGEOLOGIC SETTING

## 4.1 SITE SETTING

The RTSC site near the UST location has an elevation of about 8 feet above mean sea level, and gently slopes toward the river 2,000 feet to the south. Both sides of the property, near the river, are bounded by shallow drainage ditches which drain to the river. The closest ditch drains a pond which is approximately 600 feet southwest of the tanks. The pond is adjacent to a debris landfill located off the RTSC property.

RTSC is located in an area of poorly drained silty clays that are formed from mixed bay deposits and stream alluvium, as are typically found in salt water marshes adjacent to the bay (U.S. Dept. of Agriculture 1972). Figure 4-1 is a cross-section of the shallow geology indicating the soil types which were encountered during drilling. The shallowest 8 to 17 feet are silty clays or clayey silts. Beneath this silt and clay zone is a thin sandy zone. The USTs were located mainly within the low permeability clayey zone as illustrated in the cross-section.

## 4.2 SITE HYDROGEOLOGY

In the vicinity of the former USTs groundwater is found at a depth of about 3.5 feet. Electrical conductivity measurements of discharged groundwater, with a range of about 2,500 to 10,500 µmhos (Table 3-2), indicate that the shallow groundwater is brackish. Brackish water is not suitable for most domestic or agricultural usage. The high salinity of the water is believed to be natural and due to salt water intrusion from the bay.

Figures 4-2 through 4-5 are water table elevation maps based on water level measurements over four months (Table 4-1). Figures 4-2 and 4-3 (representing April and May, 1990 water levels) are very similar and show groundwater flowing to the southwest. However, Figure 4-4 shows that groundwater was flowing to the south-southeast when measured in



MFG03065

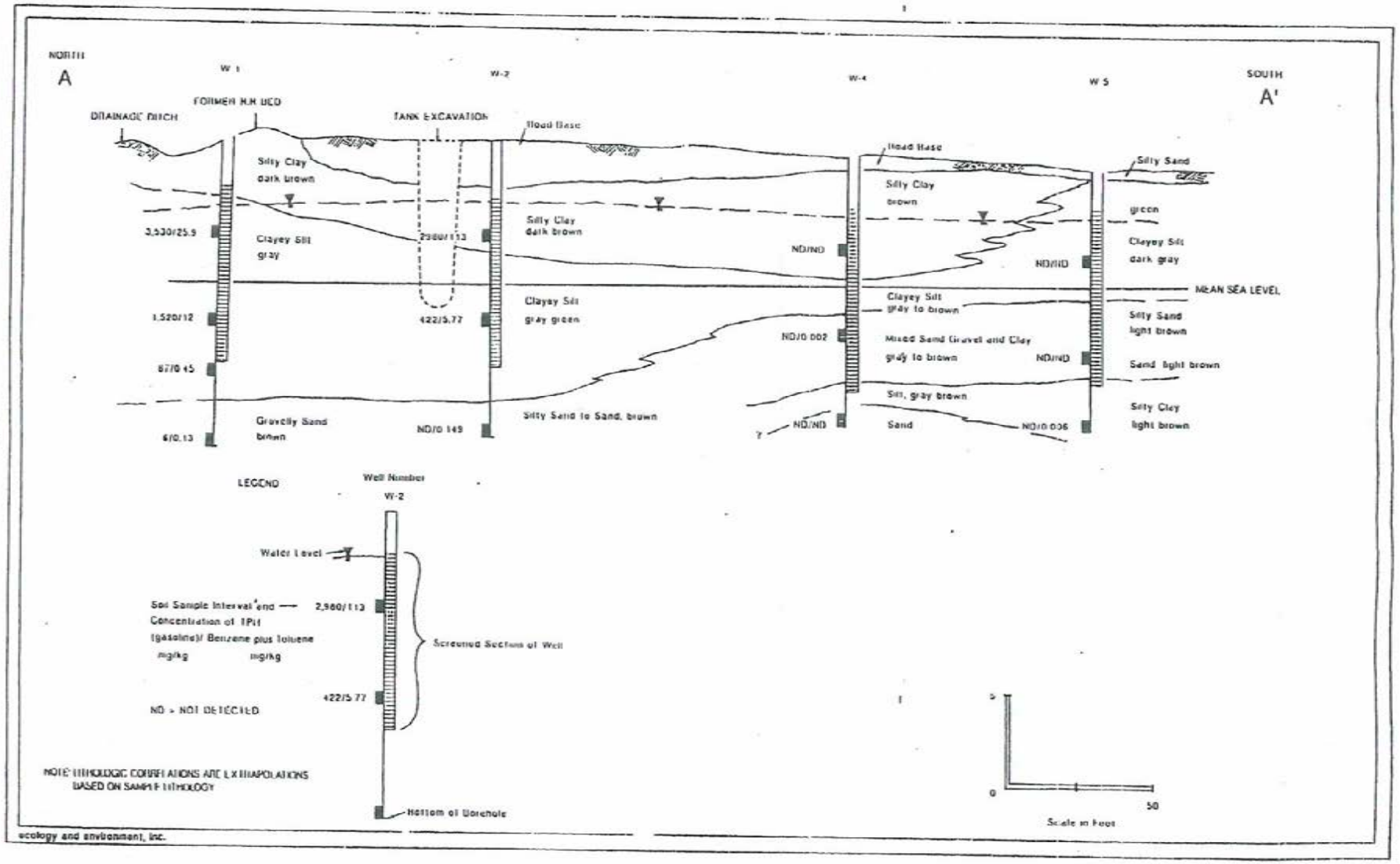



Figure 4-1. CROSS-SECTION A - A'
ROYAL TALLOW & SOAP CO., PETALUMA

4-2

MFG03066

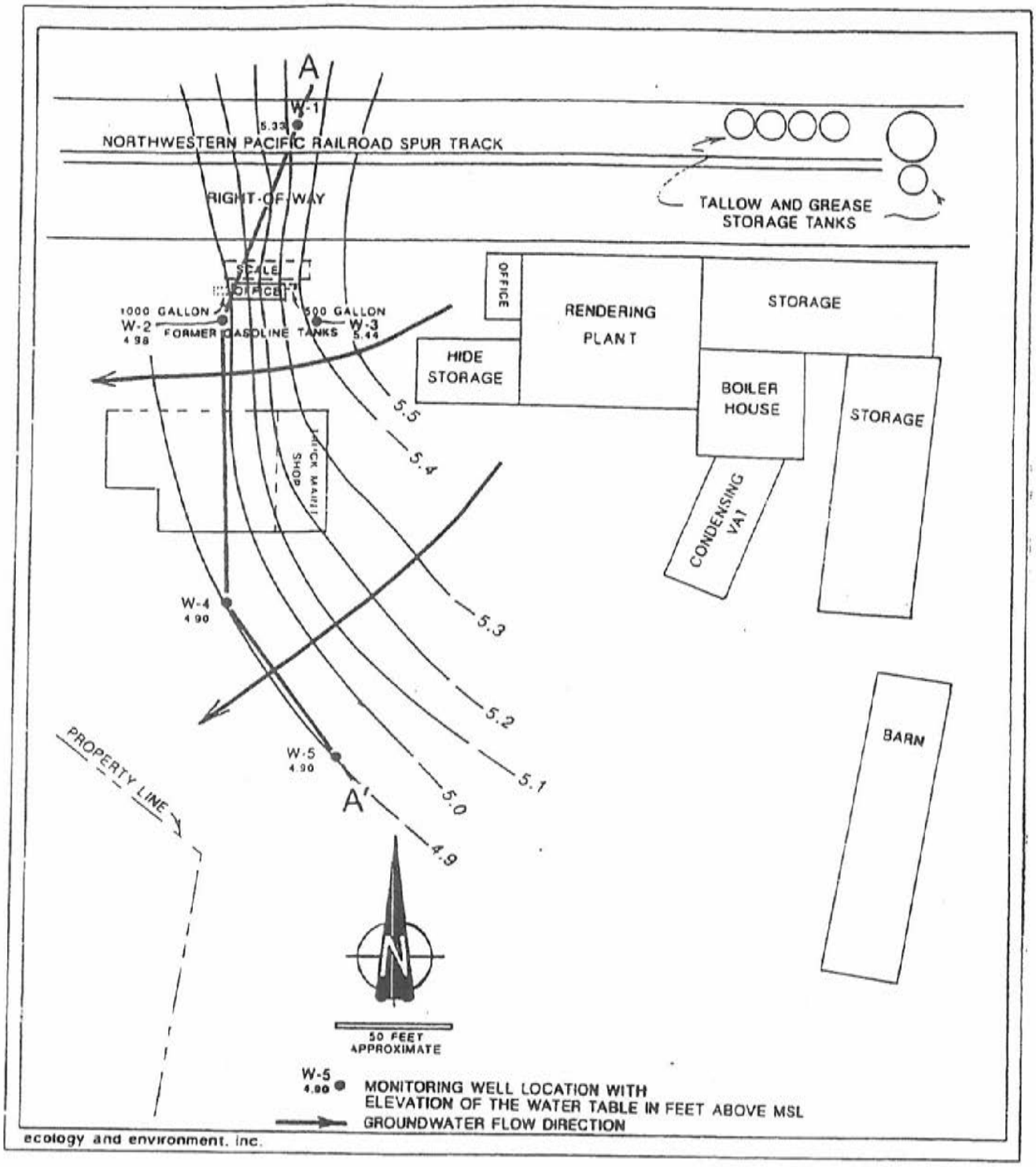



Figure 4-2 CROSS SECTION LOCATION AND
WATER TABLE ELEVATION - APRIL 3, 1990
ROYAL TALLOW AND SOAP CO.

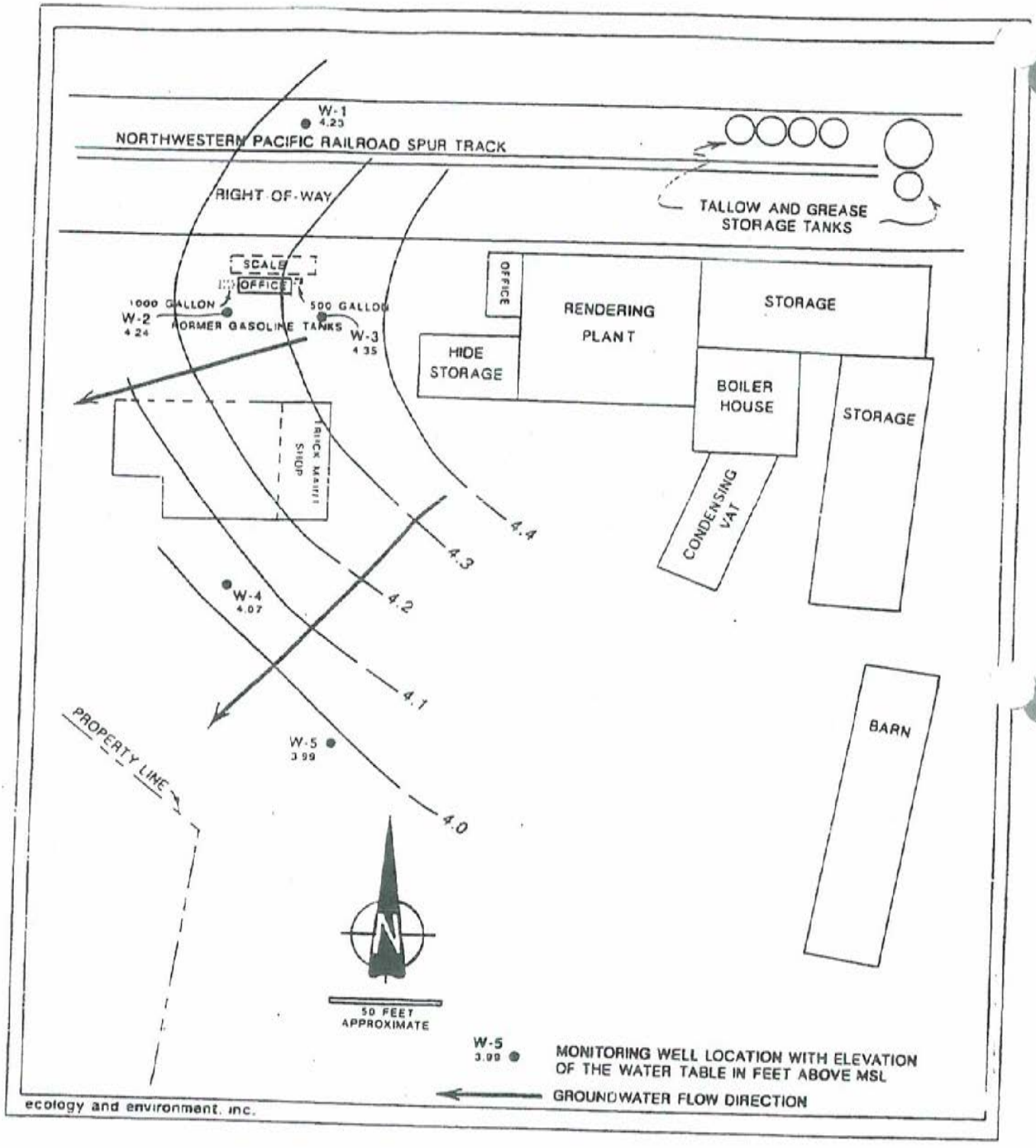



Figure 4-3 WATER TABLE ELEVATION - MAY 3, 1990
ROYAL TALLOW AND SOAP CO.

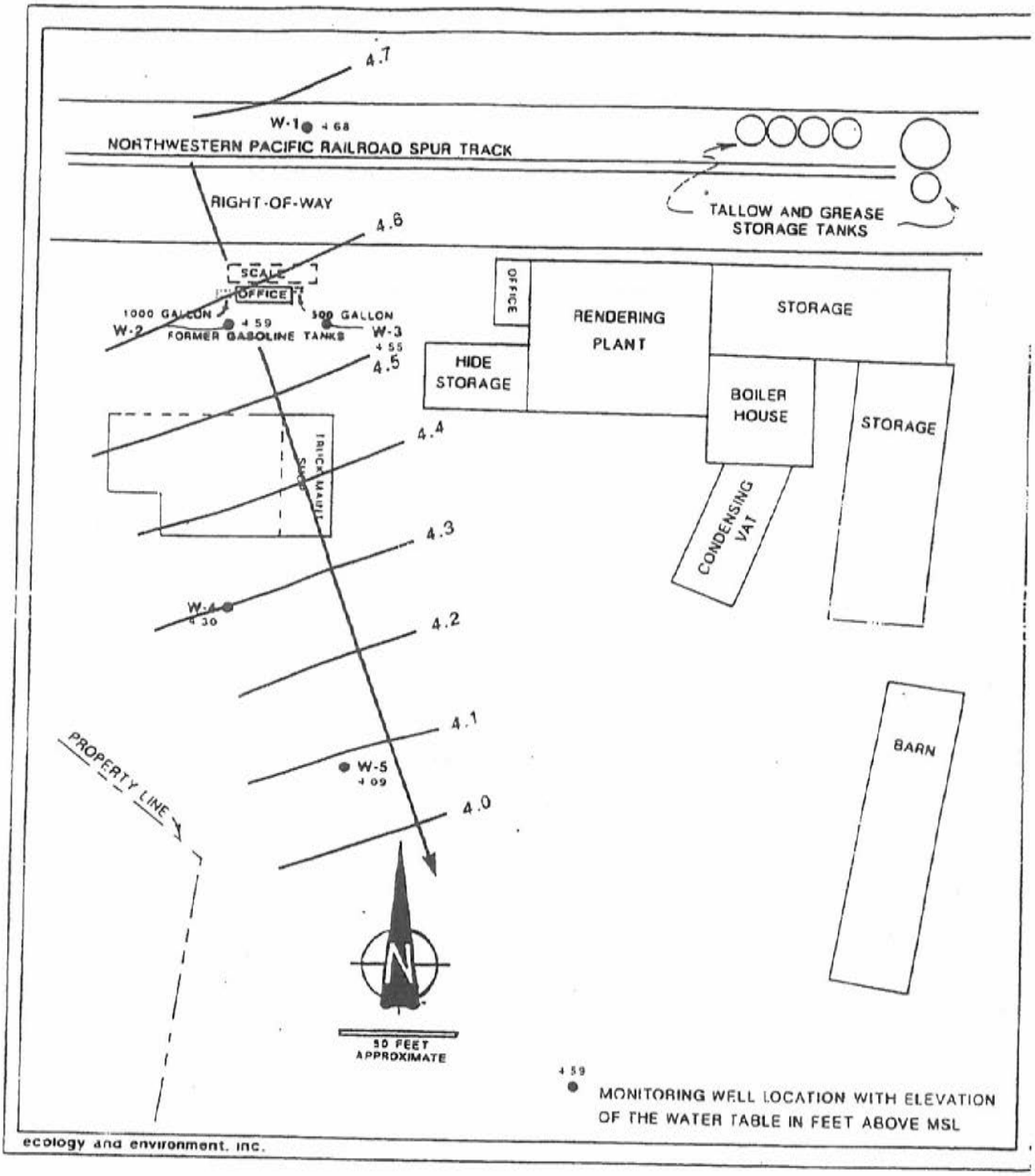



Figure 4-4 WATER TABLE ELEVATION - JUNE 1, 1990

ROYAL TALLOW AND SOAP CO.

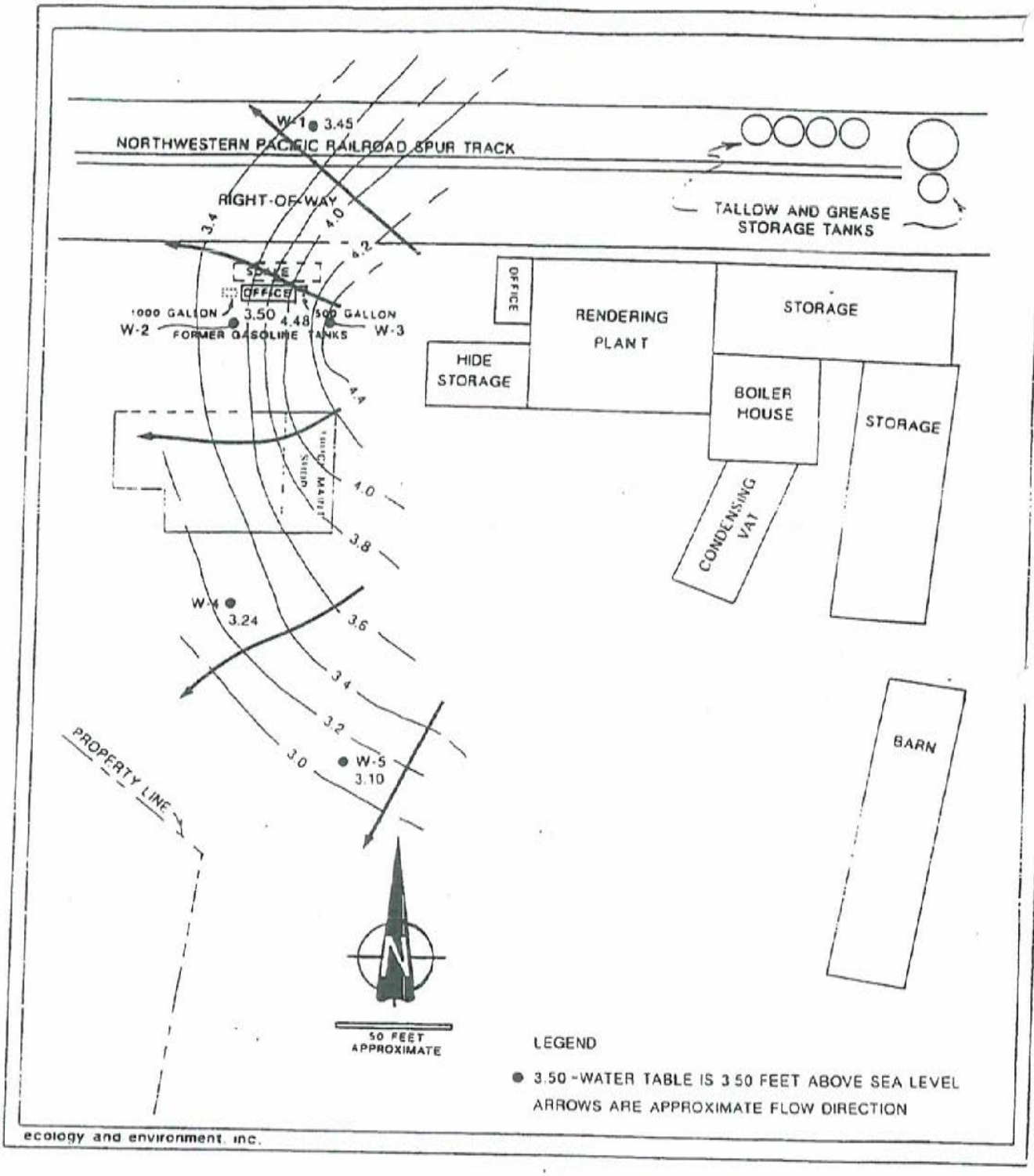



Figure 4-5: WATER TABLE ELEVATION - JULY 10, 1990
ROYAL TALLOW AND SOAP CO.



MFG03070

June, 1990. Figure 4-5 shows that groundwater is floving toward the northwest, west, and southwest away from a local groundwater high at well W-3 in July, 1990. August groundwater flow directions are similar to July's. The gradient, or slope, of the groundwater surface is much steeper in July than in other months. Table 4-1 shows that water levels in individual wells have fallen 1.60 to 2.34 feet over a four month period in response to the dry summer months.

Data from the first three months of water level measurements show that the gradient is fairly flat (approximately 0.006 feet per foot). Analysis of the slug type aquifer tests from wells W-1 and W-2 gives a hydraulic conductivity (k or permeability) of $1.3 \times 10^{-3}$ cm/s and $4.0 \times 10^{-4}$ cm/s, respectively. This k value is within the range expected for silty sand (Freeze and Cherry 1979). The results of the aquifer test and analysis of the data may be found in Appendix C. Assuming a formation porosity of 26% and a gradient of 0.006, groundwater flow velocities of 10 feet per year for W-2, and 31 feet per year for W-1 are calculated. It should be pointed out that k values vary from well to well, and that the gradient also varies with time. Tidal influence may decrease the overall velocity. Also, groundwater velocity in the clay or silt zone will be much less than in the sandy zone.

To investigate the influence of tides on the groundwater level the water level was measured every 20 minutes for 19.5 hours in well W-5. Well W-5 is the closest well to the river and canal and thus is expected to show the greatest tidal influence of any of the wells. Figure 4-6 is a plot of the water level and shows a 3 cm (1.2-inch) drop in the first two hours and then no measurable change for 13 hours, followed by a 1 cm (0.4-inch) rise. This period covers two low and two high tides with a maximum variation of 1.78m (5.9 feet) at Petaluma River drawbridge according to standard tide tables. Thus, over this time period there was little tidal influence on the groundwater level at W-5.



MFG03071

Table 4-1

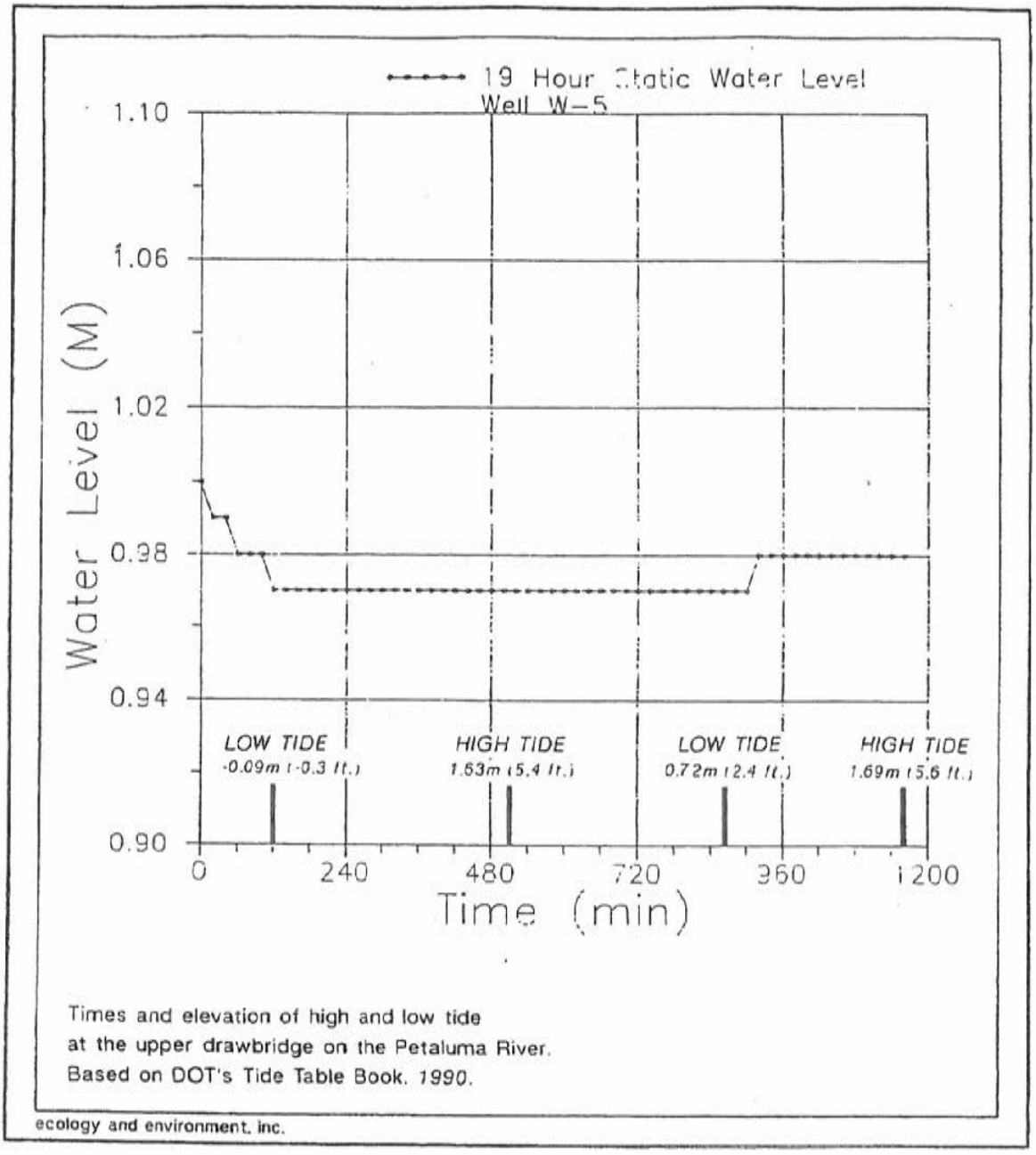
WATER TABLE ELEVATIONS
ROYAL TALLOW AND SOAP CO., PETALUMA

(Elevation in feet above mean sea level)

| Well | Casing Elevation | Water Elevation (1990) (Feet above mean sea level) | | | | | |
|---|---|---|---|---|---|---|---|
| | | March 30 | April 3 | May 3 | June 1 | July 10 | August 3 |
| W-1 | 9.90 | 5.45 | 5.33 | 4.23 | 4.68 | 3.45 | 3.11 |
| W-2 | 7.62 | 5.05 | 4.98 | 4.24 | 4.59 | 3.50 | 3.14 |
| W-3 | 8.78 | 4.82 | 5.44 | 4.35 | 4.55 | 4.48 | 3.22 |
| W-4 | 9.51 | 4.81 | 4.90 | 4.07 | 4.30 | 3.24 | 2.90 |
| W-5 | 8.72 | 4.82 | 4.90 | 3.99 | 4.09 | 3.10 | 2.72 |



MFG03072




Times and elevation of high and low tide
at the upper drawbridge on the Petaluma River.
Based on DOT's Tide Table Book, 1990.

ecology and environment, inc.

Figure 4-6

STATIC WATER LEVELS IN WELL W-5

In summary, groundwater flows in a generally south westerly direction, though this varies, and there is little tidal influence. The hydraulic conductivity of the soils is moderately low and calculations show flow velocities of 10 to 31 feet per year in the two wells tested.



MFG03074

# 5. CHEMICAL ASSESSMENT

Analytical results of the soils and groundwater investigation are presented in this section.

## 5.1 SOILS ASSESSMENT

Laboratory results of the soil samples are presented in Table 5-1, the actual laboratory sheets are found in Appendix D. Of the four soil samples collected from the tank excavation during removal in June 1989 by RTSC, samples #630-1 and #630-2 were taken from the western-most excavation (where the largest tank was located), nearest monitoring well W-2, and from a depth of about 10.5 feet. Samples #630-3 and #630-4 were collected from below the 500 gallon tank located closer to well W-3, from a depth of about eight feet. The concentration of total petroleum hydrocarbons (TPH) in the depth interval of 8 to 10.5 feet are presented in Figure 5-1, and can also be seen in the cross-section (Figure 4-1). The table and figures show that elevated levels (above 100 mg/kg or ppm) of gasoline range TPH are found in soil samples collected from borings W-1, W-2, and W-3 at depths shallower than 10 feet. Reference to Figure 4-1 and Table 5-1 also show a rapid decrease in TPH concentrations with depth. One soil sample had TPH in the diesel range (sample W1-3 at 330 mg/kg). There is no evidence to suggest that this diesel is related to the USTs or that diesel is widespread. TPH was not detected in any soil samples from borings W-4 and W-5.

Ethylene dibromide was not detected in any soil samples and tetraethyl (or organo) lead was detected in four of the 21 samples at concentrations ranging from 0.30 to 1.82 mg/kg (Table 5-1). The volatile organics benzene, toluene, xylene, and ethylbenzene (BTXE) were detected in all samples from borings W-1, W-2, and W-3 and from the soil samples collected from the excavations. However, benzene was not detected in soil from W-4 or W-5, and the other volatile organics were below detection limits or at very low levels. Of the BTXE compounds,



MFG03075

Table 5-1

SOIL SAMPLE RESULTS

| Sample No. | Depth (ft) | Soil Type | TPH Gas (a) | TPH Diesel (a) | BTXE(b) | | | | EDB(c) | TEL(d) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | B | T | X | E | | |
| W1-1 | 4.5 | silt | 3,530 | ND(e) | 4.19 | 21.7 | 150 | 26.2 | <.25 | 1.62 |
| W1-2 | 9.5 | silt | 1,520 | ND | 4.56 | 7.40 | 53.8 | 9.71 | <.25 | 0.55 |
| W1-3 | 12.5 | silt | 87 | 330 | 0.36 | 0.09 | 1.03 | 0.81 | <.005 | ND |
| W1-4 | 16 | sand | 6 | ND | 0.056 | 0.071 | 0.70 | 0.128 | <.001 | ND |
| W2-1 | 4.5 | clay | 2,980 | ND | 11.2 | 102 | 141 | 24.7 | <.25 | 0.30 |
| W2-2 | 9.5 | silt | 422 | ND | 4.88 | 0.89 | 12.7 | 6.79 | <.05 | ND |
| W2-3 | 16 | sand | ND | ND | 0.029 | 0.120 | 0.172 | 0.032 | <.001 | ND |
| W3-1 | 4.5 | clay | 1,270 | ND | 3.19 | 59.4 | 146 | 23.4 | <.125 | 0.57 |
| W3-2 | 9.5 | silt | 204 | ND | 1.78 | 0.22 | 14.4 | 2.13 | <.025 | ND |
| W3-3 | 10 | silt | 705 | ND | 2.70 | 1.09 | 32.2 | 2.51 | <.05 | ND |
| W3-4 | 15 | sand | 47 | ND | 0.682 | 0.148 | 1.53 | 0.426 | <.005 | ND |
| W4-1 | 5 | clay | ND | ND | ND | ND | ND | ND | <.001 | ND |
| W4-2 | 10 | sand | ND | ND | ND | 0.002 | 0.025 | 0.007 | <.001 | ND |
| W4-3 | 14.5 | sand | ND | ND | ND | ND | ND | ND | <.001 | ND |
| W5-1 | 4.5 | silt | ND | ND | ND | ND | ND | ND | <.001 | ND |
| W5-2 | 10 | sand | ND | ND | ND | ND | ND | ND | <.001 | ND |
| W5-3 | 14.5 | clay | ND | ND | ND | 0.006 | ND | ND | <.001 | ND |

(a) TPH: Total petroleum hydrocarbons in the gasoline and diesel range.

(b) BTXE = Benzene, toluene, xylene, and ethylbenzene.

(c) EDB = Ethylene Dibromide. EDB was not detected, but the detection limits vary. For example, <.25 means that EDB was not detected at the detection limit of .25 ppm.

(d) TEL = Tetraethyl lead or organo-lead.

(e) ND = not detected. The detection limit for TPH (gas) was 5 ppm; for TPH (diesel) it was 10 ppm; for BTXE it was 0.001 ppm for each compound; and for TEL it was 0.05 ppm.

rl/petaluma/t5-1

MFG03076

Table 5-1 (continued)

SOIL SAMPLE RESULTS

| Sample No. | Depth (ft) | Soil Type | TPH Gas (a) | TPH Diesel (a) | BTXE(b) B | T | X | E | EDB(c) | TEL(d) |
|---|---|---|---|---|---|---|---|---|---|---|
| 630-1 | 10.5 | NR | 170 | ND | 1.20 | 1.10 | 18 | 2.8 | NA | ND |
| 630-2 | 10.5 | NR | 86 | ND | 0.68 | 0.57 | 8.5 | 1.4 | NA | ND |
| 630-3 | 8 | NR | 820 | ND | 9.30 | 32.0 | 110 | 18 | NA | ND |
| 630-4 | 8 | NR | 670 | ND | 2.90 | 19 | 69 | 12 | NA | ND |

NR = Soil type was not reported.

NA = Compound not analyzed for.

rl/petaluma/t5-1

MFG03077

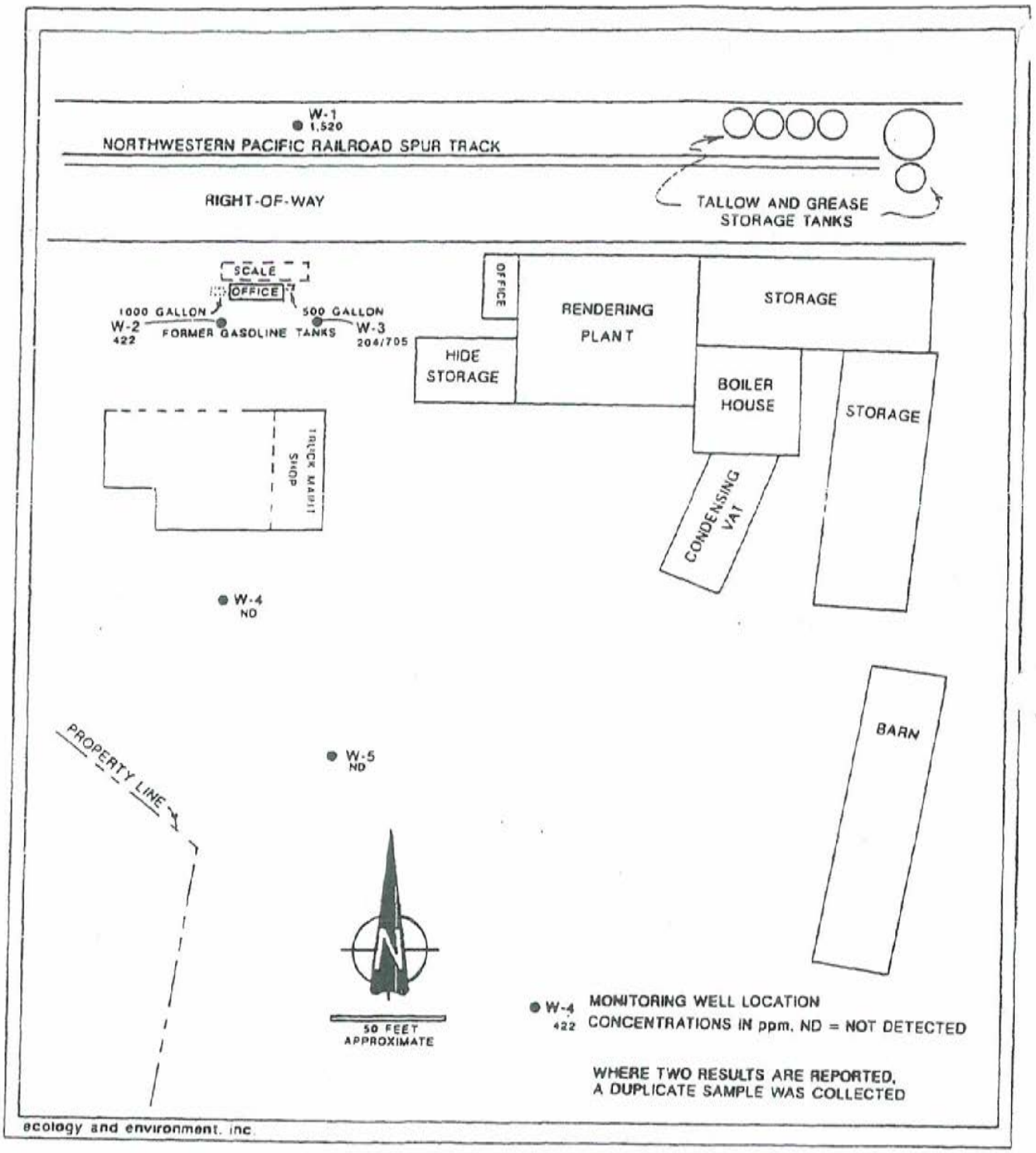



Figure 5-1 TPH (GAS) IN SOIL AT 9.5 TO 10-FOOT DEPTH
ROYAL TALLOW AND SOAP CO.



MFG03078

benzene and toluene have the lowest standards in drinking water, so, the concentration of these two compounds were added together and the sum is presented on the cross-section (Figure 4-1) as an indication of the volatiles in the soil. The distribution pattern of benzene and toluene are similar to TPH in borings W-1, W-2 and W-3; the concentration of each compound decreases substantially with depth.

## 5.2 GROUNDWATER ASSESSMENT

Analytical results of the two rounds of groundwater samples are presented in Table 5-2. TPH results for the April, 1990 sampling event are depicted in Figure 5-2. Both equipment rinsate blanks were undetected for all compounds, thus indicating satisfactory decontamination of the bailers, and an absence of cross-contamination from the other samples during shipment. The laboratory QA/QC is good based upon the results of their method blanks, spike recovery, and laboratory duplicates. A review of the field duplicates submitted to the laboratory show good correlation, in general, with the original sample. One exception to this good correlation is well W-1; toluene in the original sample was reported as 0.056 mg/l (ppm) while in the duplicate sample it was 0.009 mg/l. The other compounds, TPH, benzene, xylene and ethylbenzene all matched closely (Table 5-2). The second largest discrepancy between duplicate samples was for benzene in water from well W-2 (1.720 vs. 0.693 mg/l).

The chemical compounds EDB and TEL were not detected in any sample, and no trace of petroleum compounds were detected in groundwater from well W-5. However, TPH and BTXE have been found in the water from each of the other four wells. For both sampling events, and for each chemical compound, the water from W-3 has the highest levels (up to 20 mg/l TPH). A comparison of the April and July, 1990 sample results show that the concentrations of TPH and BTXE in groundwater increased in wells W-2, W-3, and W-4. However, the concentrations of TPH and BXE decreased in well W-1 (toluene concentration increased).



MFG03079

Table 5-2

GROUNDWATER ANALYSES - APRIL AND JULY 1990, PETALUMA

(All concentrations in mg/l (ppm))

| Location | Date | TPH (a) | Benzene | Toluene | Xylene | Ethyl-benzene | EDB(b) | TEL(c) |
|---|---|---|---|---|---|---|---|---|
| W-1 | 4/90 | 2.9 | 0.609 | 0.056 | 0.986 | <.005 | <.005 | ND |
| Duplicate | 4/90 | 2.6 | 0.670 | 0.009 | 0.975 | 0.007 | <.005 | ND |
| | 7/90 | 1.4 | 0.304 | 0.0496 | 0.602 | <.0025 | <.0025 | ND |
| W-2 | 4/90 | 1.7 | 1.23 | 0.121 | 0.555 | 0.012 | <.0025 | ND |
| | 7/90 | 5.6 | 1.72 | 0.305 | 0.616 | 0.351 | <.010 | ND |
| Duplicate | 7/90 | 4.4 | 0.693 | 0.368 | 0.699 | 0.399 | ND | ND |
| W-3 | 4/90 | 5.6 | 1.79 | 0.518 | 2.33 | 0.035 | <.010 | ND |
| | 7/90 | 20 | 6.84 | 6.88 | 6.23 | 1.26 | <.250 | ND |
| W-4 | 4/90 | 0.7 | 0.0244 | 0.0095 | 0.195 | 0.0064 | ND | ND |
| | 7/90 | 4.4 | 0.0893 | 0.0194 | 0.490 | 0.0493 | <.0025 | ND |
| W-5 | 4/90 | ND(d) | ND | ND | ND | ND | ND | ND |
| | 7/90 | ND | ND | ND | ND | ND | ND | ND |
| Equipment | 4/90 | ND | ND | ND | ND | ND | ND | ND |
| Blanks | 7/90 | ND | ND | ND | ND | ND | ND | ND |
| California (e) Standard | | NA | .001 | 0.1 | 1.75 | 0.68 | .00002 | NA |

(a) TPH is total petroleum hydrocarbons. All TPH was in the gasoline range. Detection limit is 0.1 ppm (gas), and 0.2 ppm (diesel).

(b) Ethylene Dibromide, the detection limit is 0.0005 unless otherwise noted.

(c) TEL - Tetraethyl lead or organo lead, the detection limit is 0.05 ppm.

(d) ND = Not detected at the detection limit specified. The detection limit for BTXE is 0.0005 ppm for each unless otherwise noted.

(e) California maximum contaminant levels (MCL) for drinking water. Toluene has a action level of 0.1 but no MCL. NA = not applicable, there is no MCL standard for this compound.



MFG03080

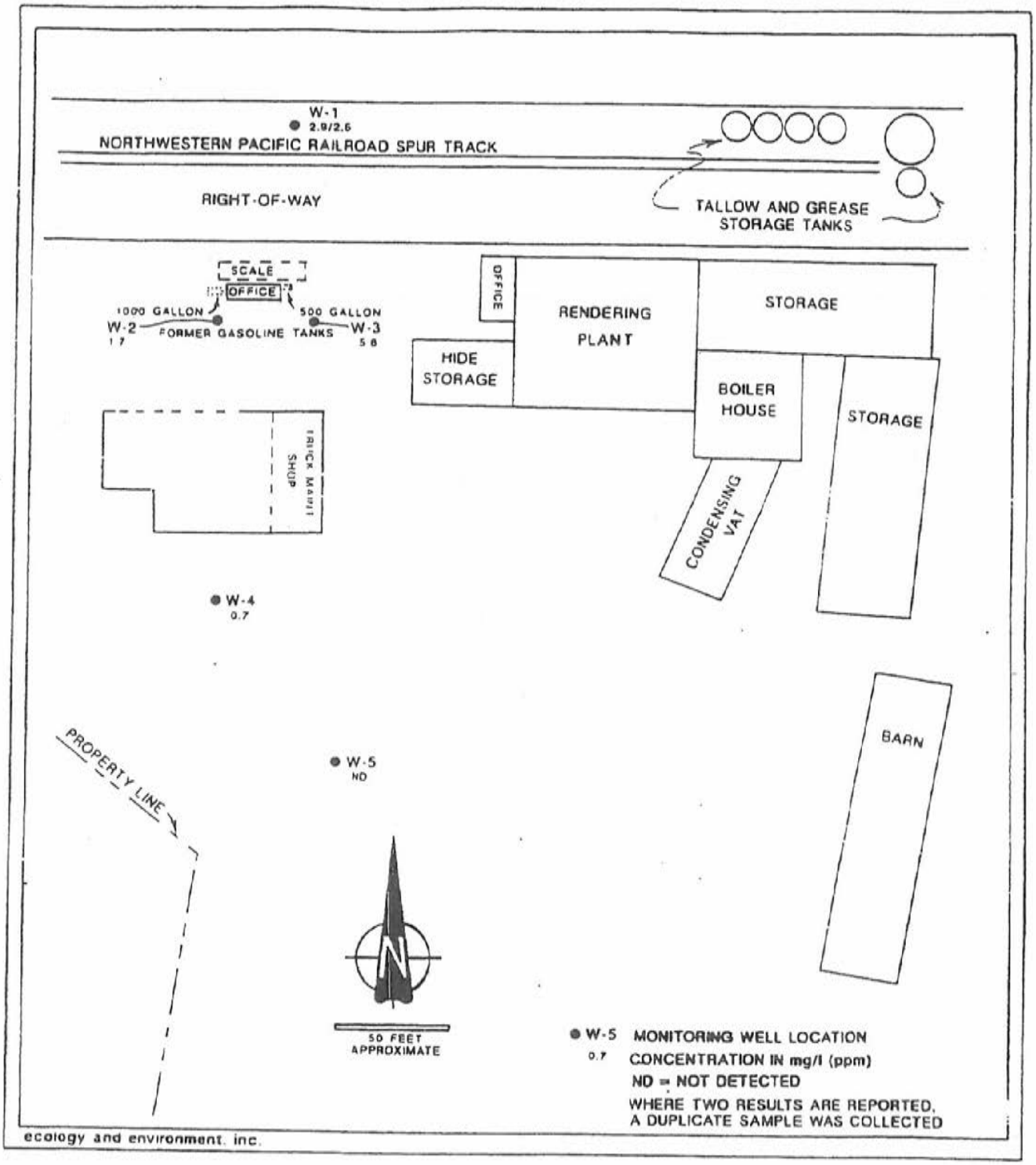



Figure 5-2 TPH IN GROUNDWATER - APRIL 3, 1990
ROYAL TALLOW AND SOAP CO.

The concentration of benzene in water from wells W-1, W-2, W-3, and W-4 all exceed the California maximum contaminant level (MCL) of 0.001 mg/l for drinking water. The MCL for xylene and ethylbenzene is exceeded by groundwater from well W-3. The MCL for xylene is 1.75 mg/l and 0.68 mg/l for ethylbenzene. Toluene has a state action level of 0.1 mg/l, and the water from W-2 and W-3 exceeds this amount. TPH does not have a state or federal level for drinking water. The brackish, shallow water at this location is not used for any beneficial purpose.

A sheen of floating product has been observed on the groundwater but there is no measurable thickness.



MFG03082

## 6. SUMMARY AND CONCLUSIONS

One or both USTs at the RTSC leaked gasoline prior to their removal. The concentration of TPH and of BTXE compounds in soil are generally higher from W-2, which is closest to the location of the westernmost tank, but concentrations of TPH and BTXE are higher in groundwater from W-3.

Some gasoline products (TPH and BTXE) were found in soil samples from W-1, W-2, and W-3, and at low concentrations in one soil sample each from W-4 and W-5. Ten of 21 soil samples had TPH concentrations in excess of 100 mg/kg. Petroleum products in the soil are mainly above a depth of 15 feet. TPH (at concentrations up to 20 mg/l) and some aromatic compounds are also found in the groundwater from wells W-1, W-2, W-3, and W-4. Of the volatile aromatic compounds in groundwater, benzene was found in concentrations as high as 6.84 mg/l (ppm), toluene was found at up to 6.88 mg/l, xylene at up to 6.23 mg/l, and ethylbenzene at up to 1.26 mg/l. EDB was not detected in any soil or groundwater sample, but TEL (lead) was detected at low levels in four soil samples.

The shallow groundwater flow direction and gradient varies, but is generally to the south or southwest. Groundwater is found onsite at a depth of approximately 3 to 5 feet. It is not clear how the petroleum products found in the soil and groundwater at W-1 got there, since this location typically is not downgradient of the USTs. The boundary of the groundwater-gasoline plume is not well defined. Groundwater onsite is shallow, brackish, and shows little or no tidal influence. The hydraulic conductivity of the soils is low, and the corresponding groundwater flow velocities which were calculated range from 10 to 31 feet per year.



MFG03083

## 7. REFERENCES


Ecology and Environment, Inc., 1989, Work Plan, Characterization and Remediation of an Underground Storage Tank Site, at Royal Tallow and Soap Company, Petaluma, California, prepared for Darling-Delaware Co., Inc. of Dallas, Texas.

Freeze and Cherry, 1979, Groundwater, Englewood Cliffs, N.J.: Prentice-Hall, Inc.

North Coast, San Francisco Bay and Central Valley Regional Water Quality Control Boards, June, 1988, Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks.

State Water Resources Control Board, October 1989, LUFT Field Manual Revision.

U.S. Department of Agriculture, May 1972, Soil Survey of Sonoma County, California.





MFG03084

# *Expert Report of Dwight R. Hoenig*

Darling International V. Baywood Partners, Inc. et al.
U.S.D.C. of California, N. District, Case No. C05-3758 EMC

March 2, 2007

Prepared for
**Miller Starr & Regalia**
Walnut Creek, California




BUREAU VERITAS

For the benefit of business and people

**Bureau Veritas North America, Inc.**
6920 Koll Center Parkway
Pleasanton, California 94566
925.426.2600
www.us.bureauveritas.com

EXPERT REPORT OF DWIGHT R. HOENIG

DARLING INTERNATIONAL V. BAYWOOD PARTNERS INC. et al.

U.S.D.C. of California, N. District, Case No. C05-3758 EMC

The following is the report of Dwight R, Hoenig, who has been retained as an expert by Baywood Partners in the litigation captioned Darling International Inc. v. Baywood Partners, Inc.

## 1.0 BIOGRAPHY

I, Dwight Hoenig, am a consultant with the environmental engineering firm of Bureau Veritas North America, Inc. (formerly known as Clayton Group Services). I serve as the Regional Chief Executive for the office located in Pleasanton, California. In this capacity I oversee an office of approximately 70 professional staff engaged in environmental services and health and safety consulting. I have been employed by Bureau Veritas (or a predecessor company) since December of 1989.

Prior to becoming a consultant I served as the Regional Administrator for the Toxic Substances Control Division (TSCD) now reorganized as the Department of Toxic Substances Control, (DTSC) of the California Department of Health Services from 1983 to 1989. In that capacity I directed the regional programs authorized under the Federal Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response Compensation and Liability Act (CERCLA), and California State programs authorized by the Hazardous Substances Account Act and Hazardous Waste Control Act. These programs included permitting, surveillance and enforcement, and site remediation for sites which either managed, or were impacted by hazardous waste.

Prior to my employment with the State of California I was employed for eight years by the U.S Environmental Protection Agency (EPA) in the Dallas Regional Office. While there I served in several positions including Chief of Groundwater Protection Programs (1979-1981) and Chief of the Superfund Operations Section (1981-1983).

I have been deposed as an expert witness on numerous occasions and have been qualified as an expert witness in the California State Superior Court, Counties of Alameda, and San Mateo, the United States District Court for the State of California, Central District, and the United States District Court for the State of California, Eastern District. (See resume, Appendix 1)

## 2.0 RELEVANT EXPERIENCE

The primary focus of my consulting career has been in the service of real estate developers, property management firms, financial institutions, and major and independent oil companies. In this capacity I have been directly involved in the investigation and/or remediation of over a hundred contaminated properties. For the majority of these, the goal was regulatory closure in the form of either a "Case Closure" or "No Further Action" (NFA) letter from the relevant regulatory agency. As a consultant, I have had the opportunity to work at the direction of numerous Federal, State and local environmental

regulatory agencies including the U.S. EPA, the DTSC, several of the Regional Water Quality Control Boards, including the San Francisco Regional Water Quality Control Board and numerous city and county agencies.

As Regional Administrator of the TSCD, I was in charge of the site remediation program for the North Coast California Region. This program included management of Federal and State Superfund projects as well as oversight of privately funded, enforcement actions and voluntary remediation projects. As the Regional Administrator I was a Signatory Official for virtually all of the Site Certifications and No Further Action Letters issued by the North Coast California Office of the TSCD from December of 1983 through January of 1989. The universe of sites which our Department worked on ranged from simple Leaking Underground Storage Tanks to complex State and Federal Superfund Sites.

During my tenure at the U.S. EPA I managed the Superfund Operations Section for the Region VI office in Dallas Texas. In that capacity I directed a staff of 13 engineers, geologists and contractors engaged in investigation, remediation and removal actions at 19 sites that were listed on the National Priority List (NPL) as authorized under CERCLA.

PREVIOUS EXPERT WITNESS DESIGNATIONS OF DWIGHT HOENIG

1) Costco V. Bay Area Rapid Transit: Extent of Contamination and Need for Remedial Action. (Deposition and Testimony at Trial) Retained by Deborah Sturmer, Esq. Lurch Sturmer LLC. Superior Court, State of California, County of San Mateo. Case No. CIV435478. Dates of engagement, May – December 2004,

2) City of Los Angeles v. San Pedro Boat Works (Coca Cola Bottling Co.) Provided declarations regarding causes of contamination related to heavy metals in Los Angeles Harbor. The matter is still pending in the United States District Court, Central District. Case No. 02-7986 ABC (JWJx) Retained by Joe Armao, Esq. Heller Ehrman, White & McAuliffe. Dates of Engagement: January 2004 to present.

**Publications**

In the past 10 years I authored the following publication:

- Dwight R. Hoenig, 2000, Dry Cleaning Tenants: Understanding and Minimizing the Risks. The Risk Management Newsletter, Volume 21, Issue 1
- Dwight R. Hoenig, 2001, An Overview of the Environmental Impacts of Metal Plating Facility Operations, Proceedings of the Environmental Bankers Association Conference, Scottsdale Az. March 9, 2001.
- Dwight R. Hoenig, 2005, Electrical Resistive Heating – A Presumptive Remedy for the Remediation of Chlorinated Solvent Releases, Proceedings of the California Groundwater Resources Association Symposium on Dry Cleaner Contamination, Sacramento Ca. April 7, 2004.

**Compensation**

Compensation to be paid is $210/ hour for consulting time and $300/ hour for deposition testimony and court appearances.

## 3.0 SITE BACKGROUND

The subject site is an 18.8 acre property which was the site of a former animal rendering plant operated by Royal Tallow and Soap Company and Darling International. (See attached map, MFG Figure #2) The facility ceased operation in approximately 1986. In 1989 two on-site underground storage tanks (UST) were removed. During UST removal, floating product was observed in the open excavation. On July 29, 1989, the Sonoma County Public Health Department directed Royal Tallow to undertake a preliminary assessment of the leakage. Darling was directed to follow the investigation procedures outlined in the "Tri-Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks" (Appendix 3) which was issued jointly by the staff of three Northern California Regional Water Quality Control Boards.

In August of 1990 the environmental consulting firm of Ecology and Environment was retained to conduct a subsurface investigation in the vicinity of the former underground storage tanks. That investigation identified gasoline contamination in both shallow soil and groundwater. (Appendix 4) In that investigation the maximum concentrations of Total Petroleum Hydrocarbons, as gasoline, (TPH-g) were found at concentrations of 20,000 ug/L in groundwater. The maximum concentrations found in soil were 3,530,000 ug/kg. The maximum concentration of benzene was reported at 11,200 ug/kg. Additional monitoring wells at this site were installed by Ecology and Environment in 1991.

In February of 1993, a second environmental consulting firm, Dames & Moore, was retained to complete a feasibility study of remedial alternatives which apparently considered only groundwater contamination. (Appendix 5) In the Executive Summary of that study, Dames and Moore mistakenly reported that "The impacted soil has also been removed from the ground and is awaiting disposal " It is apparent that the soil which was referred to in this document only included the soil which was removed during tank excavation and did not include the contaminated soil which was identified in the Ecology and Environment investigation of 1990.

In the feasibility study itself, Dames and Moore evaluated several alternatives to remove, treat or contain the contaminated groundwater. The report concluded that treatment of the groundwater by In-Situ Biodegradation through the use of air sparging technology, with the possible addition of nutrients, was the preferred alternative for groundwater cleanup. In the Executive Summary the report stated: "Further laboratory tests will be need to be conducted prior to installation of a full scale bioremediation system for the site. If these tests confirm preliminary laboratory results, an in-situ bioremediation system will be installed. If these tests indicate that bioremediation would not be effective, an extraction and treatment system will be installed at the site."

The record indicates that this study was submitted to the County but it does not appear that Darling implemented any of the remedial actions that were identified by Dames & Moore. Darling essentially chose a "no-action" alternative by attempting to demonstrate through additional studies that no actual remediation was necessary.

In June of 1995 Dames & Moore prepared a Request for Classification As Non-Attainment Zone for this site. (Appendix 6) This approach was considered to be appropriate for sites where there is "...residual soil pollution with limited water quality, environmental and human health risks. The Request For Non-Attainment Zone Classification contained language indicating that a deed notification would need to be placed on the site for future owners to properly manage the hazards associated with the remaining soil

contamination which was going to be left on-site. My review of the file does not indicate that this Request was ever sent to the regulatory agencies.

In January of 1996 the consulting firm of Risk Based Decisions prepared a Risk Based Corrective Action Report (Appendix 7) which contained the following conclusions:

- The fuel tank leak had stopped and ongoing sources including free product had been removed or remediated.
- The site had been adequately characterized.
- The dissolved hydrocarbon plume was not migrating.
- No Water wells or sensitive receptors were likely to be impacted.
- The site presented no significant risk to human health.
- The site presented no significant risk to the environment.

The report made a recommendation to install one additional monitoring well on site, and further, that future actions at the site be limited to groundwater monitoring.

It is important to note that this report did not include the quantified soil data first identified by Ecology and Environment in 1990. If identified, that data would have shown the hazardous conditions associated with the potentially ignitable shallow soil, and the high benzene concentrations which the agencies later determined were a health risk to future on-site construction workers.

On March 11, 1997 the Sonoma County Department of Health Services, Environmental Health Division issued a letter stating in part that "...no further remedial action will be needed at this site if after two years of annual monitoring there is no evidence of adverse pollutant migration. At the end of the two year monitoring period the site will be evaluated for closure." (Appendix 8)

Ultimately in March of 2000, a fourth consulting firm, Delta Environmental Consultants, submitted the required Appendix B Closure Report (Appendix 9) which provided a summary of the current site conditions describing the residual groundwater contamination and the gasoline contamination in the shallow soil horizon.

Upon reviewing this data in this report the County Department of Health Services requested further evaluation of the site due to the health hazards posed by benzene in the soil and the potential for fire or explosion due to the high concentrations of residual gasoline which remained in the shallow soil.

As a result, Darling hired a fifth consulting firm, MFG, to excavate treat and reuse a volume of 2,390 cubic yards of gasoline impacted soil to eliminate the hazards posed by residual gasoline/benzene contamination. The cleanup criteria specified for commercial/industrial development for this project was 400 mg/kg as gasoline with benzene concentrations not to exceed 0. 39 mg/kg.

The soil remediation project was finished in August of 2002. (Appendix 10) However Darling did not receive the requested "No Further Action" (NFA) letter until August 3, 2004. (Appendix 11) The County File Log indicates that prior to drafting the NFA letter, the County went through an extensive series of technical and administrative reviews before signing off on the NFA. The process included: obtaining concurrence from the Regional Water Quality Control Board; properly abandoning all monitoring wells;

updating the data points on the GeoTracker Data Base; conducting file reviews; preparing the Case Closure Summary (CCS); preparing a Draft Closure Recommendation Letter to the RWQCB; conducting a site visit; preparing a Notice of Pending Action form; obtaining signatures on the Case Closure Letter from the Director of Health and the RWQCB etc. The exhaustive steps that the County went through to finally issue the NFA letter are a clear indication of the level of scrutiny a site must go through before receiving any form of official NFA Determination or "Closure" for a County administered clean up project.

Other environmental assessments completed on this property focused on other environmental issues in addition to the underground storage tanks. The consulting firm of REA (later name changed to "pH7") completed one such assessment in May of 1990. (Appendix 12) That assessment identified and documented the locations of hazardous materials on site and identified several environmental concerns including the following:

- Materials which were found or presumed to be Friable Asbestos Insulation was identified in several locations throughout the property including "cookers" located both inside and outside the remaining structures, lagging materials found in the laundry room, pig barn, mill room, garage and boiler room.
- Miscellaneous wastes including "numerous 55 gallon drums" "Jerry cans" of gasoline, Waste oil drums, point cans etc.
- "Uncharacterized sludge's" in the sewer building

A recent evaluation of environmental issues at the Site was completed by pH7 in May of 2005. (Appendix 13) That evaluation cited an inspection done by IHI Environmental in 2002. Those reports indicated that significant quantities of Hazardous Materials remained on the Site. The Hazardous Materials noted included asbestos, which was found at 9 separate locations, various deposits of "loose and peeling" lead based paint which exceeded Federal RCRA hazardous Waste standards of 5,000 mg/kg. The reports also discussed the presence of significant quantities of non-hazardous biologic waste sludge. This report also provided a cost: "...estimate for abatement and biologic waste disposal...is $192,323.00."

My review of the files and Site inspection indicates that the majority of these Hazardous Materials and animal wastes are still located on the Site today.

## 4.0 SCOPE OF ASSIGNMENT AND SPECIFIC OPINIONS RELATED TO DARLING INTERNATIONAL, PETALUMA CALIFORNIA

The scope of my assignment is described in the February 9, 2007 letter to me from counsel for Baywood, (Appendix 2). The following sets forth my opinions on the issues raised in my assignment.

4.1 ***As of May 1, 1997, Darling International had not removed, treated, remediated, and/or contained Hazardous Materials as that term is defined in section 4.2 of the April 30, 1990 Purchase and Sale Agreement, (contract, Appendix 14) including asbestos and animal waste products, from the property. The regulatory agencies had not accepted Darling's removal of Hazardous Materials from the property as complete.***

The basis of this opinion is further developed in the responses to the following sub issues.

4.2 ***The Sonoma County Department of Health Services, Environmental Health Division letter dated March 11, 1997, did not constitute acknowledgment of completion of the removal,***

***treatment, remediation, or containment of Hazardous Materials at the Property in the manner required by any remediation work plan submitted by Darling and approved by the relevant public agencies.***

The March 11, 1997 letter does not acknowledge "completion" of the removal, treatment, remediation or containment of hazardous materials. The letter constitutes a request for additional information and not an acknowledgment of completion or closure. This letter requests an additional 2 years of monitoring well data and states that "if...there is no evidence of adverse pollutant migration...the site will be evaluated for closure." Further based on my reading of the file, there had been no attempt to accomplish actual removal, treatment, remediation or containment of these contaminants by the date of this letter.

- At times prior to this date, Darling did consider various schemes to actively remediate the groundwater contamination related to the leaking underground storage tanks, (Dames & Moore, Feasibility Study Report, February 8, 1993); however it appears that none of these active remediation schemes were ever implemented.
- The Sonoma County Leaking Underground Storage Tank (LUST) File Log (Appendix 15) indicates that neither the County, nor Darling, considered the site work to be complete in 1997.
- As of the date of the letter, Darling had not submitted the necessary documentation, in the form of an Appendix B Report, or other report, which was a required submittal for an agency to make a determination as to the acceptability or completeness of a remedial action. Without the opportunity to review this is report, the Agency would not make findings as to the completion of site remediation.
    - The Appendix B Closure Report was submitted on April 3, 2000, and it was rejected by the County. The report, submitted by Delta Consultants on behalf of Darling International, was rejected by Sonoma County because gasoline and benzene contaminated soil which was considered to be a Hazardous Waste, due to the potential for the soil to ignite, was still present in shallow soil on the site.
    - Darling International was required to undertake the previously described soil removal project which delayed an agency determination on this property until August of 2004.
- The fact that Darling had not completed the required actions on this property is further documented in a journal entry made on March 16, 1998 to the Underground Storage Tank File Log from the Sonoma County Environmental Health Department. In this entry Mary Allen reports a voice mail received from Subba Rao of Darling which states in part "...Subba's not sure if site is complete."
    - A journal entry in that same log made on April 28, 1998, reports a voice mail received from Mike Berrington of Delta Environmental Consultants. The voice mail posed the question "When are they finished?" Ms. Allen's response is recorded as "...I haven't had time to research it yet."
- A journal entry dated November 30, 1999 indicates a telephone call received by Mary Allen from Bill McMurtry of Darling. The entry reads in part "We discussed closure process. He (McMurtry) will have Delta write a site summary."

- A journal entry dated February 3, 2000 reports a voice mail message from Bill McMurtry regarding the "...status of closure" and "...procedure for closure." The entry goes on to say the "He [McMurtry] feels Delta is stalling. We should receive [site summary] by the end of the month."
  - Additional entries in this file log indicate that the Site Summary Report (Appendix B Report) was ultimately received by the County on April 3, 2000.
- The State Water Resources Control Board Geo Tracker Database, which tracks the progress of the remediation of LUST sites throughout the State, indicates that remediation of soil and groundwater took place from February through December of 2000. Verification monitoring was completed in January of 2003, and Case Closure was granted on July 30, 2004. (Appendix 16)
- Additional documentation demonstrating that Darling had not completed remediation of the UST related Hazardous Materials, as of May 1, 1997, is found in an e-mail from Bill McMurtry to Al Gaither dated December 23, 1999 which states "We are still waiting for a response from the agency. All the work is complete and we have requested closure. We are probably a couple of months away from official closure..."

In summary, it is my opinion that The March 11, 1997 letter did not constitute completion of the removal, treatment, remediation or containment of Hazardous Materials at this property.

4.3 ***As of March 11, 1997 Darling's efforts to remove, treat, remediate, and/or contain Hazardous Materials from the Property were not accepted by the relevant public agencies as having been completed to a level below action levels for commercial use and development.***

My review of the record indicates that the agencies did not make a finding regarding the suitability of the site for commercial use and development. The agencies did consider Darlings data relative to groundwater contamination and in the March 11 letter, gave a preliminary indication that following an additional two years of groundwater monitoring, assuming there was no evidence of adverse pollutant migration, "...the site will be evaluated for closure."

When that evaluation was undertaken in April of 2000, the site was found to be unacceptable due to the continuing presence of potentially ignitable soil and the presence of benzene at concentrations which were thought to pose a hazard to future construction workers at the site. (SCDHS Letter, Appendix 17)

In terms of the ability to redevelop the property, it was pointed out in the Draft Non-Attainment Zone Application by Dames and Moore that Federal OSHA regulations would have applied to the exposure of onsite workers who would come into contact with the gasoline contaminated soil which remained on the site in May of 1997.

- In June of 1995, Dames and Moore prepared the Draft Request for Classification As Non-Attainment Zone. That document was prepared in accordance with the relevant guidelines issued by the San Francisco RWQCB. In section 5.0 of that document Dames and Moore describes the need for a permanent notification to be placed on the deed to serve as a warning to future owners, construction workers, utility workers etc. such that future workers will know the nature, location and extent of contamination in soil and groundwater. This

section further states that "...these parties will be indemnified by Darling...so that their liability for future cleanup is limited." According to Dames and Moore, the areas which would have been subject to these requirements are shown on figures 6 and 7 of this draft report.

- Section 5.1 of the Dames & Moore draft provides a notification plan to protect future site workers; the plan instructs future workers to become knowledgeable of the health hazards of contaminants known to be left in soil by reviewing Material Safety Data Sheets related, specifically, to gasoline, diesel fuel, motor oil, benzene, toluene, ethyl benzene, xylene. This section also specifies the minimum Personnel Protective Equipment (PPE) to be worn by all workers in the areas of residual contamination consisting of: steel-toed shoes, safety goggles, hard hats, surgical latex inner gloves and Nitrile outer gloves.

- Section 5.1 also states that any trenching or excavating activities in the affected areas should be continuously monitored for gasoline vapors by use of a photo ionization detector, (PID) and that if readings exceed 1 part per million (PPM) in the breathing zone, workers be required to wear air purifying respirators. I have noted that during the soil remediation project undertaken by MFG in 2001, that PID readings were taken from the soil piles which had been excavated and partially treated for several months to reduce hydrocarbon content. The Headspace PID readings which are reported in Table 6 of that report (MFG, October 31, 2002) showed a high reading of 87 PPM. Approximately 38% of the readings reported in this table were above the threshold value of 1.0 PPM. This indicates to me that there is a high likelihood that on-site construction workers who were doing in-ground construction activities in the vicinity of these soils would have been required to wear the OSHA prescribed personnel protective equipment, including air purifying respirators.

- Section 5.1 properly indicates that work done in these areas shall be done consistent with the requirements of 29 CFR 1910 and 1926 (equivalent to Cal OSHA regulations found in Title 8 of the California Code of Regulations. Relevant sections include 8CCR 5192 (1)C). These regulations describe the Training, Health and Safety programs, Hazard Communication Programs, Medical Surveillance, Work Practices, Engineering Controls, Personnel Protective Equipment and Monitoring Programs that must be in place when working in and around contaminated soil,

It is my opinion that, based on the analytical data which describes the gasoline contaminated soil at Darling that on-site construction workers would have been subject to the OSHA regulations as prescribed in the Dames and Moore Non-Attainment Zone Petition. It is also my opinion that the extensive training and medical surveillance monitoring prescribed by the regulations is not provided to the employees of typical construction companies.

In conclusion, there is no indication of any "acceptance" or "completion" of the remedial action in 1997 to a level below action levels for commercial use and development of the property. Furthermore, I believe that if the sale of the Site had gone forward with these contaminants remaining in place, the ultimate redevelopment project would have been compromised by the exposure of construction workers to high concentrations of gasoline and benzene, and the need to halt and disrupt the redevelopment project by undertaking the same remediation project which MFG undertook in the year 2000.

4.4 ***As of May 1, 1997, Darling had not removed, treated, remediated, or contained all Hazardous Materials as that term is defined in Section 4.2 of the Contract. Section 4.2 of the contract provides a broad and inclusive definition of what are to be included as hazardous materials The definition includes "...all substances chemicals, wastes, sewage or other materials which are...regulated, controlled, or prohibited by any local, state or federal law or regulation requiring removal, containment, warning, or restrictions on use, disposal or transportation..." A review of the file indicates that the only substantive removal or treatment of hazardous materials accomplished by Darling, other then the excavation of the underground storage tanks and removal of the associated soil, was related to the excavation and treatment of the residual gasoline contaminated soil. Darling did not finish the remediation of these contaminants until August of 2002. Other Hazardous Materials as defined in Section 4.2 of the Contract apparently remain on site to this date.***

The file documentation indicates that the following hazardous substances and regulated materials were present on site as of May 1, 1997.

- **Asbestos Containing Materials: (ACM)**
  - Materials containing more then 1% friable asbestos (by weight) are listed as a "Hazardous Materials" in Title 22 of the California Code of Regulations.
  - Section 4.2 of the contract also specifically states, "The term Hazardous Materials also includes, without limitation asbestos..." etc.
  - The presence of ACM is documented in several reports and file documents relevant to this site, including REA, June 2, 1990, (Appendix 12) pH7, March 8, 1998, and March 28, 2001, IHI Environmental, April 25, 2001, Sterling Environmental Corporation, May 12, 2001 and July 1, 2002, Van Brunt Associates March 10, 2005. (Appendix 18)
  - The IHI hazardous Material Survey in April 2001 documented the finding of Asbestos Cement Pipe which was found in the excavation debris pile which was associated with the soil excavation project undertaken by MFG. (See Photo # 1 attached) Additional documentation indicates that there was 30 lineal feet of Asbestos Pipe which was apparently removed by a licensed contractor. (Sterling Environmental, May 12, 2001.) Based on the deposition of Mr. Chris White of MFG it would appear that Asbestos Cement Pipe associated with abandoned storm drains is still located in the subsurface of the property beyond the area of the soil excavation project. Asbestos is a Hazardous Material per section 4.2 of the Contract.
  - During my own inspection of the site on November 9, 2006 I observed suspect ACM in several areas of the site where the previous inspections had confirmed that ACM was present. During that inspection Mr. Chris White, Senior Hydrogeologist with the consulting firm MFG verbally confirmed the presence of ACM at several locations around the site including the insulation materials found on the "cookers" (Photo #2) and the insulation found in the Boiler Room. (Photo #3)
  - During the November 9 inspection I examined the underground cisterns (Photo #4) to evaluate the possible presence of ACM. I found no indications of ACM in this area with the exception of roofing tile debris which was lying on the ground throughout the area. That material appeared to have the potential to be an ACM.

- In terms of the suspect use of ACM, I know of no practical application or reason to suspect that asbestos would have been used in the construction or operation of in-ground concrete cisterns such as those in use at this facility. I did not observe any physical structure, (other then the roof) construction material, or process piping or other equipment which would cause me to believe that ACM would have ever been associated with these cisterns.

- **Hydrocarbon Contaminated Soil**

  - Darling did not remove treat or contain hydrocarbon contaminated soil as of May 1, 1997. The hydrocarbon contaminated soil is regulated by several California agencies and therefore is captured in the definition of Hazardous Materials in Section 4.2 of the contract.

  - The hazardous constituents (gasoline) contained in the soil subjected the soil to a variety of regulations under the authority of both State and Federal agencies:

    The subject soil was considered to be a "Hazardous Waste." Appendix G of the Leaking Underground Fuel Tank Manual, (Appendix 19) issued by the California State Water Resources Control Board, (October 18, 1989) recommends that soil containing greater then 1,000 mg/kg of Total Petroleum Hydrocarbons (TPH) be classified as Hazardous Waste for purposes of storage, transportation manifesting and treatment. This determination was stated in the Sonoma County Department of Health Services April 20, 2000 review of Darling International's March, 2000 Appendix B Closure Report. Sonoma County noted that shallow soil containing gasoline-range TPH remained at the site at concentrations reported to be as high as 3,530 mg/kg. For this reason the gasoline contaminated soil meets the definition of Hazardous Material as stated in Section 4.2 of the contract.

    In addition, the State of California Water Quality Control Board regulates soil containing significant concentrations of petroleum hydrocarbons as "Designated Waste" which is also known as Class II Waste. California Water Code Section 13173 defines the term Designated Waste, (also referred to as Class II waste) The classification includes "...non-hazardous waste that consists of or contains pollutants that...could be released in concentrations that exceed applicable water quality objectives or that could be expected to affect beneficial uses of water of the state..."

    The fact that this soil was a Designated Waste, with the ability to contaminate water resources, was further demonstrated by the MFG Soil Remediation Report of October 31, 2002. In Section 3.2 of that report MFG reports the analytical results for rainwater which had accumulated in a soil excavation and had subsequently come into contact with the contaminated soil in the excavation. Their analysis reported contamination of the contact water with petroleum hydrocarbons at concentrations in excess of 1,000 ug/L. Therefore it is my opinion that this soil would be regulated as a Designated Waste under the authority of the RWQCB.

    The water which came into contact with this soil was also regulated under the Federal Clean Water Act. A total of 88,000 gallons of hydrocarbon contaminated water was

required to be discharged to the Petaluma Sanitary Sewer under a Special Discharge Permit (MFG, Section 2.1.4) between December 2000 and June of 2001.

The Delta Environmental Consultants proposal of August 23, 2000 identifies and confirms that the contaminated soil is considered to be a Class II Designated Waste. In that proposal Delta proposes to excavate and dispose of 1,200 tons of hydrocarbon contaminated soil. The proposal anticipated disposal at an offsite landfill permitted to accept Class II regulated waste. The operating permit issued by the RWQCB for that facility specifies that waste [soil] in excess of .050 mg/kg of TPH-Gasoline must be managed in the permitted Class II Waste landfill cell.

It is my opinion that the disposal of gasoline contaminated soil at this facility is captured by the regulations of the State of California and therefore is considered a Hazardous material as defined in Section 4.2 of the contract.

- The Bay Area Air Quality Management District (BAAQMD) also regulates the excavation, storage and treatment of petroleum contaminated soil under Regulation 8, Rule 40, which applies to soil contaminated with hydrocarbons in excess of 50 mg/kg. The prescriptive regulations cover the following activities:

  Rule 8-40-301: Soil Aeration Restrictions
  Rule 8-40 402: Reporting Excavation of Contaminated Soil.
  Rule 8-40-403: Reporting Aeration of Soil
  Rule 8-40-601: Contaminated Soil Sampling

For this reason the gasoline contaminated soil is also "controlled" by the BAAQMD and therefore meets the definition of "Hazardous Materials" as defined in Section 4.2 of the contract.

- Fuel Pipeline Containing Bunker C Fuel

  - Based on the deposition of Chris White and my own inspection of the Site on November 9, 2006 a fuel oil pipeline containing Bunker C Fuel Oil (or similar product) remains on site. (See photo # 5) The pipeline appears to be one of a series of pipelines which extend from the former tallow above ground storage tanks in the direction of the rendering plant. I found no documentation to indicate that the length of this pipeline run had been investigated for possible leakage or contamination. The Bunker C Fuel is regulated as a as a Hazardous Material under 49 CFR 172.101, and is similarly captured under the California Health and Safety Code, Section 25501.

Based on the above findings, Darling had not removed, treated, remediated or contained all Hazardous Materials at the property as of May 1, 1997.

4.5 ***As of May 1, 1997, Darling had not removed all animal waste products from the underground cisterns at the property.***

- During the inspection of November 9, 2006, I noted the presence of large volumes of biological waste (animal fats and waste water) in the in-ground cisterns. The observation was confirmed by sampling of the floating residue found in the cisterns. Samples of floating sludge materials were analyzed and found by laboratory analytical analysis to contain 200,000 mg/kg of total hydrocarbons which I have concluded were derived from residual animal fats. (Photo # 6) (Lab analysis, Appendix 20)

- As a confirmation, an additional sample of what appeared to be waste animal fat and grease was taken from one of the approximately 40 above ground storage tanks found on site. The analytical results from those containers reported 95,000 mg/kg of total hydrocarbons suggesting that these two materials had a common origin as animal fat. (Photo # 7)

Based on the above findings, Darling had not removed all animal waste products as of May 1, 1997.

Dwight R. Hoenig

March 2, 2007

DARLING INTERNATIONAL, INC..

V.

BAYWOOD PARTNERS, INC.

U.S. NORTHERN DISTRICT COURT OF CALIFORNIA
SAN FRANCISCO DIVISION
CASE NO. C05-3758 EMC

# BAYWOOD PARTNERS INC.'S TRIAL EXHIBITS

## VOLUME 3 OF 4
## EXHIBIT B520 – B522

**DRM**
**COPY**

BAYW45063.20.30.03
BAYWOOD PARTNERS, INC.
Darling International Inc.
Baywood Trial Exhibits
(Numeric) Vol 3 of 4

DRM / DRM

**MILLER STARR REGALIA**

IN THE UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

| | | |
|---|---|---|
| Darling International, Inc., Plaintiff | : | |
| v. | : | Case No: CV05-03758 EMC |
| Baywood Partners, Inc., et al., Defendants. | : | |

# EXPERT REPORT OF

# JEFFREY ZELIKSON

March 5, 2007

Jeffrey Zelikson
Director
LECG, LLC
335 Bryant Street, 2nd Floor
Palo Alto, California 94301
650.473.4200

# Section 1

# Expert Opinion

## I. Qualifications

I am a Director with LECG, LLC, a global consulting services firm that provides consulting, expert analysis and testimony in a wide variety of disciplines including economics, finance, accounting, environmental matters and health care amongst other areas of specialty. LECG was founded in 1988 and provides its services to Fortune 500 companies, global businesses, legal firms, public sector industries and both foreign and domestic governments. LECG has a staff of over 1,000 professionals in offices on four continents. My consulting practice focuses on strategic and management consulting and expert analysis related to environmental matters, especially for matters related to management and remediation of hazardous substances.

Prior to joining LECG, I was with the environmental consulting practice of the PA Consulting Group, PHB Hagler Bailly and before that Putnam, Hayes & Bartlett, Inc. (PHB). The environmental consulting practice of the PA Consulting Group moved to LECG in April, 2001. PHB and PHB Hagler Bailly were both predecessor companies to the PA Consulting Group.

Prior to joining PHB in 1995, I served at the U.S. Environmental Protection Agency (US EPA) for nearly 25 years. I held executive level positions at EPA regional offices in New York and San Francisco. I also served as the state of New Jersey's chief water resource official in the 1970s. From 1987 through 1995, I was Director of the Hazardous Waste Management Division for the EPA's Western Regional Office in San Francisco. Among other matters, my responsibilities included the direction of EPA Region IX's hazardous waste regulatory, site cleanup (Superfund) programs and the underground storage tank (UST) and clean-up (LUST) programs and oversight of similar programs for the states of California, Arizona, Nevada and Hawaii.

I have had extensive experience across a range of environmental matters, with particular focus on the remediation of hazardous waste sites. I have over 25 years of experience in this particular environmental specialty, dating back to the identification of the first hazardous waste sites in the country in the late 1970s.

While Director of the Hazardous Waste Management Division for EPA Region IX, I oversaw the investigation and cleanup of more than 125 Superfund sites on the National Priorities List (NPL). For these sites, I was responsible for making hundreds of decisions that were governed by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and I was ultimately responsible for assuring that compliance was achieved with the NCP in investigating and cleaning up the Superfund sites under my direction. In addition, I was responsible for the oversight of other government agencies' efforts to remediate Superfund sites consistent with the requirements of the NCP.

I also directed the implementation of the underground storage tank program including oversight of states' efforts to regulate and clean-up leaks from thousands of underground tanks in Region IX.

Since 1995, I have been retained on a number of matters involving expert testimony on recovery of remediation costs. My expert analysis and testimony has focused on consistency with the NCP, on matters related to the necessity, appropriateness and reasonableness of remediation costs and related issues. I have been retained to provide expert testimony in more than 50 private party Superfund cost recovery actions, for both plaintiffs and defendants.

I have also been retained on several matters to provide expert analysis and testimony regarding environmental regulatory activities and implications of those activities, including agency determinations regarding completion of remedial activities.

I received a Bachelor of Science degree in mechanical engineering from the City University of New York and completed graduate courses in mechanical engineering at the Stevens Institute of Technology. I am a registered professional engineer in New York and New Jersey. Before joining the EPA in 1971, I designed petrochemical facilities for the foreign affiliates of the Exxon Corporation for five years.

A copy of my Prior Expert Testimony and my Curriculum Vitae is provided in Sections 3 and 4 of this report.

My fee for professional services, including trial testimony, is $425 per hour.

## II. Assignment

Counsel asked me to evaluate and to provide an expert opinion regarding whether Darling International, Inc. (Darling)[1] fulfilled its remedial obligations set forth in section 4.7 of the Agreement of Purchase and Sale (Sale Agreement) entered with Baywood Partners, Inc. (Baywood) on April 30, 1990 for the former Royal Tallow property located in Petaluma, California (Site or Darling facility). Specifically, counsel asked me to evaluate whether a letter received form Sonoma County Department of Health Services (SCDHS) dated March 11, 1997 fulfilled the requirement of Sale Agreement Section 4.7 on Definition of Completion of Remedial Work.

Counsel also asked me to evaluate and provide an expert option regarding whether the Royal Tallow and Soap Company Underground Storage Tank Site Characterization Report, prepared by Ecology & Environment, Inc. (E&E) dated August 14, 1990 (1990 E&E Report) fulfilled the requirement of Section 4.4.1 the Sale Agreement regarding the completion of a Tank Report.

[1] Darling is the successor to Royal Tallow and Soap Company, Inc. In this report, I use Darling to refer to both Darling International, Inc. and its predecessors associated with the former Royal Tallow facility in Petaluma, California.

In addition, counsel asked me to evaluate and provide an expert opinion regarding whether the Feasibility Study Report for the Royal Tallow and Soap Company, prepared by Dames & Moore (D&M) dated February 8, 1993 (1993 D&M FS) contains information on site conditions at least equivalent to the information contained in the 1990 E&E Report.

My opinions are summarized below in Paragraph III of this report, and the bases for my opinions are presented in Paragraph VII below.

## I. Summary of Opinions

A. Darling fulfilled its remedial obligations pursuant to Section 4.7 of the Sale Agreement with the issuance of the March 11, 1997 letter from SCDHS.

B. The 1990 E&E Report meets the requirement for a Tank Report as described by Section 4.4.1 of the Sale Agreement.

C. The 1993 D&M FS contains the same information on site conditions as the 1990 E&E Report and is more comprehensive.

## III. Work Performed

In forming my opinions in this matter, I reviewed and supervised my staff's review of documents including correspondence among Darling, Baywood, their consultants and regulatory agencies, including the San Francisco Bay Regional Water Quality Control Board (Regional Board) and the SCDHS. I also reviewed and supervised my staff's review of reports that describe the response actions taken at the Site. A complete list of documents that I have considered and relied upon in forming my opinions is shown in Section 2 of this report.

## IV. Additional Work to Be Performed

Based on direction from counsel, I may be asked to provide a rebuttal opinion to expert opinions from Baywood. In addition, I expect to provide deposition and trial testimony in this matter, as necessary and as directed by counsel.

## II. Background and History of Response at the Site

The Regional Board issued a Tentative Order for Site Closure Requirements to Darling dated May 19, 1986.

Darling had two gasoline Underground Storage Tanks (USTs) removed in June 1989, and, upon removal, the USTs were found to have leaked. SCDHS required Darling to conduct a preliminary assessment of the leaking USTs in accordance with Regional Board guidance. Darling retained E&E to conduct the investigation of the contamination. E&E prepared a Work Plan for the Characterization and Remediation of an Underground Storage Tank Site, dated September 15, 1989, that was submitted to SCDHS. After receiving comments from SCDHS on the work plan, E&E prepared a revised Work Plan for the Characterization and Remediation of the Royal Tallow and Soap Company Site dated December 13, 1989 (1989 E&E Work Plan). SCDHS approved the 1989 E&E Work Plan in a letter sent to Darling dated December 26, 1989. Pursuant to the work plan, E&E installed five groundwater monitoring wells and

conducted soil and groundwater sampling. Upon completion of the work, E&E prepared the Underground Storage Tank Site Characterization Report, dated August 14, 1990 (1990 E&E Report), which was received by SCDHS in September 1990. In an October 15, 1990 letter, SCDHS required Darling to conduct additional characterization activities. Pursuant to this request, E&E installed four additional groundwater monitoring wells to further delineate the areal extent of the contamination. E&E summarized the additional study results in the August 1991 Supplemental Site Characterization Report. The report concluded that gasoline and related compounds in the soil were generally found at shallow depth in the saturated zone at low concentrations.

E&E continued to conduct quarterly groundwater sampling, and results showed exceedences of levels of BTEX[2] compounds in some wells located downgradient of the former UST area. In response to these findings, by letter dated August 25, 1992, SCDHS requested that Darling submit a workplan for soil and groundwater remediation at the site. Darling engaged Dames & Moore (D&M) to conduct a feasibility study (FS) to address the remediation needed at the Site. Darling submitted the Feasibility Study Report for the Royal Tallow and Soap Company (1993 D&M FS) to SCDHS on February 8, 1993. The report recommended in-situ biodegradation as the preferred remedy for contaminated groundwater, pending the outcome of treatability studies. In the 1993 D&M FS, the high levels of total dissolved solids in groundwater at the Site were highlighted as an indication that the source would not be appropriate for domestic or municipal use, and furthermore, that the presence of elevated levels of gasoline contaminants upgradient of the UST area should be factored into the cleanup standard. On June 15, 1995, Delta Environmental Consultants (Delta), acting on behalf of Darling, submitted a request to the Regional Board to designate groundwater at the site a non-attainment zone, which would allow

[2] BTEX compounds are associated with petroleum compounds and include benzene, toluene, ethyl benzene, and xylenes.

for alternative cleanup standards because of factors that render the groundwater supply unsuitable as a future drinking water source.[3]

On September 5, 1995, Darling submitted a Workplan for Risk-Based Corrective Action (RBCA) Report that provided a plan to evaluate whether site conditions would pose risks to human health or the environment.[4] SCDHS approved the proposed workplan for RBCA in a November 17, 1995 letter. The Regional Board approved the RBCA Report by letter dated May 8, 1996.

Pursuant to the Regional Board-approved RBCA Report, on July 12, 1996, Darling requested approval from SCDHS to install a groundwater monitoring well and conduct soil and groundwater sampling activities to determine the extent of residual petroleum constituents beneath the eastern portion of the site. In February 1997, Delta requested approval from SCDHS to change from quarterly to semi-annual reporting.

In a March 6, 1997 letter, Delta requested approval to destroy four monitoring wells. By a March 11, 1997 letter reply, SCDHS approved the abandonment of the four wells with submittal of an abbreviated workplan with site operating procedures for the well closures. In the March 11, 1997 letter SCDHS also stated that:

> ...no further remedial action will be needed at this site if after two years of semi-annual monitoring there is no evidence of adverse pollutant migration. At the end of the two year monitoring period, the site will be evaluated for closure.

---

[3] The Regional Board issued a memorandum on October 21, 1994 on Implementation of Ground Water Non-Attainment Areas. According to the memorandum, non-attainment areas are "limited ground water pollution zones where concentrations are above water quality objectives." The Regional Board may designate such areas, or zones, in recognition that "in some cases cleanup to levels which comply with all water quality objectives may not be technologically or economically achievable within a reasonable period of time."

[4] Risk-based corrective action is a process in which remedy decisions are made about sites contaminated by releases according to the *actual* risk the site poses to human health and the environment. The evaluation is site-specific, as each site has different potential routes of exposure to releases. This approach to site clean-up can allow for less stringent clean-up requirements than may be allowed by strict application of established clean-up criteria. In this case, the regulatory agencies agreed that RBCA was appropriate at the Darling facility, allowing Darling to meet regulatory requirements without engaging in active groundwater remediation.

After a period of continued monitoring, Delta submitted a request to SCDHS for a site closure determination by letter dated March 30, 2000. In a letter dated April 20, 2000, SCDHS requested "further discussion and evaluation on this site due to potential fire hazard and possible construction worker exposure to benzene." SCDHS requested "more information on the development of the property, so that a realistic assessment of risks can be made." SCDHS cited concern that elevated levels of benzene resulting from UST releases may be present in soil at depths that would pose a risk to workers excavating trenches for utilities or other purposes. In response, Delta proposed additional soil sampling to address SCDHS concerns.

In response to SCDHS concerns, Darling retained MFG, Inc. (MFG) to conduct soil remediation in the area of the UST releases. On October 25, 2000, MFG submitted a workplan to SCDHS to excavate contaminated soils identified in an investigation conducted by Delta in May and June 2000 for soils located in the former location of the UST excavation. The workplan proposed excavation of impacted soil to risk-based screening levels (established by the Regional Board in a September 20, 2000 memorandum) and on-site enhanced bioremediation of the excavated soil. After successful treatment of the soil, the treated soil would be used as engineered backfill for the excavation. SCDHS approved the workplan by letter dated October 30, 2000.

During 2001, Darling retained IHI Environmental to conduct a site Hazardous Materials Survey which was documented in a report dated February 1, 2002. The survey was required because demolition of two building structures at the site was needed to facilitate the excavation of impacted soil. During this time, MFG completed the soil excavation work and submitted the Soil Remediation Report to SCDHS on October 31, 2002. The report documented the removal of 2,390 cubic yards of soils, demolition of two building structures, and decommissioning of a monitoring well (to facilitate excavation). SCDHS reviewed the report and Darling's request for a no further action determination, and, again, required a period of additional confirmatory groundwater monitoring.

On May 22, 2003, MFG submitted the results of the additional groundwater monitoring activities to SCDHS and requested a no further action determination again. SCDHS replied July 15, 2003, by concurring with the recommendation for no further action and agreeing to begin process of site closure with the Regional Board. Upon completion of well destruction activities required by the Regional Board, Darling received a July 30, 2004 letter from SCDHS for final completion of remedial actions for the underground storage tanks and a determination "that no further action related to the petroleum release(s) at the site is required."

## III. Bases for Opinions

A. Darling fulfilled its remedial obligations pursuant to Section 4.7 of the Sale Agreement with the issuance of the March 11, 1997 letter from SCDHS.

Section 4.7 of the Sale Agreement sets forth various requirements for determining the completion of remedial work at the Site. Among those requirements are that the remediation work:

> ...has been accepted and approved by the Supervising Consultant and all Public Agencies ... as having been completed in the manner required by the remediation work plan approved by the Public Agencies...

And,

> ...the Remediation Work shall be deemed to be complete even if Purchaser must maintain monitoring wells after the completion and acceptance of the balance of the Remediation Work.

I understand that a Supervising Consultant, as defined by the Sale Agreement, was not designated for the Site. Facts that are relevant to my analysis include the involvement and oversight of appropriate regulatory agencies at the Site, and the extent to which the regulatory agencies required investigation and remedial action at the Site.

[redacted] SCDHS has jurisdiction over tank closure programs, so oversight of the UST releases at the Site was conducted by SCDHS as the lead agency, with Regional Board involvement focused on impacted groundwater and corrective action at the Site. Acting under the direction of SCDHS and the Regional Board, Darling undertook several actions to address UST releases at the Site, including conducting investigations, a feasibility study, and implementing a risk-based corrective action program.

SCDHS issued its March 11,1997 letter to Darling after completion of work pursuant to the RBCA Report, including groundwater monitoring. SCDHS based its conditional no further action determination upon both the information it received from Darling and the information provided to the Regional Board. The provision in the March 11, 1997 letter for two years of continued groundwater monitoring is consistent with the Sale Agreement Section 4.7 allowance for the maintenance of monitoring wells after completion of remedial work. Based upon the above information, and the role of SCDHS as the lead agency, the March 11, 1997 letter meets the Sale Agreement Section 4.7 requirement that remedial actions be "completed in the manner required by the remediation work plan approved by the Public Agencies" and the letter is consistent with the Sale Agreement provision that remedial work "shall be deemed to be complete even if Purchaser must maintain monitoring wells."

The fact that SCDHS later required Darling to conduct additional investigation and remediation of soils in the UST area does not affect my opinion that the conditions in Section 4.7 of the Sale Agreement were fulfilled with the March 11, 1997 letter. Typically, the process of site clean-up occurs in multiple phases. First, remedial work is conducted pursuant to agency requirements. Next, the regulatory agency issues a letter acknowledging the completion of remedial action and requires a period of

monitoring. After completion of monitoring, the regulatory agency may agree to proceed with site closure. At the time the March 11, 1997 letter was issued, work at the Darling facility was in the post-remedial action monitoring phase of the process, and this was the phase of the process required by Section 4.7 of the Sale Agreement, not site closure.

Eventually, site closure was achieved and documented in the July 30, 2004 letter from SCDHS as described above. In my opinion, site closure was not required by Section 4.7 of the Sale Agreement.

In conclusion, it is my opinion that Darling fulfilled its remedial obligations pursuant to Section 4.7 of the Sale Agreement with the issuance of the March 11, 1997 letter from SCDHS.

B. The 1990 E&E Report meets the requirement for a Tank Report as described by Section 4.4.1 of the Sale Agreement.

Section 4.4.1 of the Sale Agreement refers to the fact that Darling had engaged E&E to "prepare an environmental investigation of the Tanks and the soils, surface water and groundwater in proximity thereto," and that "the results of the environmental investigation of the Tanks shall hereinafter be referred to as the 'Tank Report.'"

Prior to the date of the Sale Agreement, Darling retained E&E to investigate the UST releases at the Site, and E&E prepared the draft work plan for the investigation dated September 15, 1989. This document is referenced in Section 4.3 of the Sale Agreement on Delivery of Existing Studies. As described above, E&E revised the September 1989 work plan based upon SCDHS feedback and prepared the final 1989 E&E Work Plan dated December 13, 1989, which was approved by SCDHS. The work plan called for conducting a soil gas survey, installation of monitoring wells, performing hydrogeologic studies, and sampling and analysis of groundwater samples. The site investigation work conducted by E&E was subjected to regular

oversight by SCDHS to ensure that it met the requirements of the approved 1989 E&E Work Plan and that adjustments to the work scope were made as needed.

Based upon my review of the 1990 E&E Report and the 1989 E&E Work Plan, and based upon the knowledge that the work was conducted under SCDHS oversight, it is my opinion that the 1990 E&E Report fulfilled the requirements set forth in the 1989 E&E Work Plan and fulfilled the requirement for a Tank Report per Section 4.4.1 of the Sale Agreement.

C. The 1993 D&M FS contains the same information on site conditions as the 1990 E&E Report and is more comprehensive.

As stated above, SCDHS continued to provide oversight of site investigation activities at the Darling facility and to request modification of the scope of the investigation as needed. After submittal of the 1990 E&E Report, SCDHS required Darling to conduct additional characterization work to further define the extent of contamination, and, as a result, E&E installed additional groundwater monitoring wells, conducted monitoring, and issued the additional study results in the August 1991 Supplemental Site Characterization Report. Darling retained D&M in response to SCDHS's request for remedial action at the Site.

The 1993 D&M FS not only incorporates the results of prior site investigations, including the information presented in the 1990 E&E Report and subsequent Supplemental Site Characterization Report in 1991, it also provides an evaluation of proposed remedial alternatives.

Based upon my review of the 1993 D&M FS, it is my opinion that this document contains the same information that was provided in the 1990 E&E Report and that the 1993 D&M FS is more comprehensive.

ALEXAN PARK CENTRAL
APARTMENT COMPLEX

W-9

SANITARY SEWER MANHOLE

STORM DRAIN

FORMER NORTHWESTERN PACIFIC
RAILROAD RIGHT-OF-WAY

RESIDENCE

GARAGE

ABANDONED
FUEL PIPELINE

FORMER
TALLOW ASTs

GATE

EXTENT OF
SOIL REMEDIATION
EXCAVATION (MFG-2002)

W-2

W-6

SHED

OLD
OFFICE

OFFICE

RAMP

ASBESTOS
WRAPPED PIPE

RENDERING
PLANT

BOILER ROOM

STORAGE
BUILDING

AUTO/TRUCK
STORAGE GARAGE

DEBRIS
PILE

UNDERGROUND
CISTERNS
WITH SLUDGE

ASBESTOS
CEMENT PIPE
(IHI-2001)

ASBESTOS
ROOFING
MATERIAL

PROPERTY LINE

W-10

W-8

GREASE CONTAINERS

W-5

ASBESTOS
WRAPPED
BOILERS

BARN

EXPLANATION:

- W-6 — LOCATION AND DESIGNATION OF DECOMMISSIONED MONITORING WELL
- PROPERTY LINE
- FENCE
- AST — ABOVEGROUND STORAGE TANK

NOTE:

1. LOCATIONS ARE APPROXIMATE

N

0 60

SITE PLAN

Darling International, Inc.
2592 Lakeville Highway
Petaluma, California

| | | |
|---|---|---|
| Project No. 030070 | By: M. Lee | Figure 2 |
| Date: 11/08/06 | Checked: CBW | |

MFG, Inc.
consulting scientists and engineers

# APPENDIX G

# OTHER SUPPORTING DOCUMENTATION

*Prepared for*

Mr. Marty Skoff
Skoff Trucking
P.O. Box 658
Petaluma, CA 94952

# REPORT OF EXCAVATION AND MONITORING WELL INSTALLATION

## 1 CASA GRANDE ROAD

## PETALUMA, CALIFORNIA

***EBA Project No. 99-723(8)***

**FEBRUARY 2007**

*Prepared by*

Paul Nelson, P.G.
Project Geologist

PROFESSIONAL GEOLOGIST
PAUL E. NELSON
No. 8242
STATE OF CALIFORNIA

*Supervised by*

Mike Delmanowski, C.E.G., C.Hg.
Senior Hydrogeologist

EBA ENGINEERING

825 Sonoma Avenue, Suite C Santa Rosa, CA 95404 (707) 544-0784 FAX (707) 544-0866



*Printed on Recycled Paper*

# TABLE OF CONTENTS

**SECTION** **PAGE**


**1.0 INTRODUCTION** ..... 1

**2.0 BACKGROUND** ..... 1
2.1 Project Site Location and Description ..... 1
2.2 Project Site Hydrogeology ..... 1
2.3 Project Site History ..... 1

**3.0 FIELD INVESTIGATION** ..... 4
3.1 Monitoring Well Abandonment ..... 4
3.2 Soil Characterization ..... 4
3.3 Excavation Activities ..... 4
3.4 Monitoring Well Installation ..... 5
3.4.1 Drilling and Soil Sample Collection ..... 5
3.4.2 Monitoring Well Construction ..... 6
3.4.3 Equipment Decontamination ..... 6
3.4.4 Monitoring Well Development ..... 6
3.4.5 Monitoring Well Survey ..... 6
3.5 Groundwater Monitoring and Sampling ..... 7
3.5 Analytical Testing ..... 7

**4.0 FINDINGS** ..... 8
4.1 Geology and Hydrogeology ..... 8
4.2 Analytical Results ..... 8

**5.0 CONCLUSIONS** ..... 9

**6.0 RECOMMENDATIONS** ..... 12

**7.0 LIMITATIONS** ..... 12

**8.0 REFERENCES** ..... 12


**LIST OF APPENDICES**


**APPENDIX A – FIGURES**
**APPENDIX B – TABLES**
**APPENDIX C – SOIL BORING LOGS**
**APPENDIX D – WELL DEVELOPMENT LOGS AND FIELD DATA SHEETS**
**APPENDIX E – COMPACTION TEST RESULTS FOR EXCAVATION BACKFILL**
**APPENDIX F – SOIL AND GROUNDWATER DISPOSAL DOCUMENTATION**
**APPENDIX G – CERTIFIED ANALYTICAL REPORTS**

# 1.0 INTRODUCTION

Skoff Trucking (Client) contracted with EBA Engineering (EBA) to prepare this Report of Excavation and Monitoring Well Installation (Report) for the site located at 1 Casa Grande Road in Petaluma, California, hereinafter referred to as the "project site" (Figure 1, Appendix A). The purpose of this Report is to provide details of soil excavation and monitoring well installation activities that were implemented to remove petroleum hydrocarbon impacted soil and monitor the effects of the excavation on groundwater contaminant concentrations in the vicinity of an underground storage tank (UST) formerly located at the project site. The work was conducted as a corrective action measure in accordance with the July 28, 2004 *Feasibility Study and Corrective Action Plan* (FS/CAP [EBA, 2004]). The proposed scope of work detailed in the FS/CAP was approved by the County of Sonoma Department of Health Services – Environmental Health Division (CSDHS – EHD) in a letter dated November 15, 2004.

# 2.0 BACKGROUND

## 2.1 Project Site Location and Description

The project site is located on the northwestern side of Casa Grande Road in Petaluma, California (Figure 1, Appendix A). The project site is trapezoidal in shape and relatively flat with numerous outbuildings, including an old scalehouse, maintenance shop, office, and shed (Figure 2, Appendix A). The project site is bounded to the east by Casa Grande Road, to the south by Northwest Pacific Railroad property, and to the north and west by commercial properties. The ground elevation of the project site is approximately 8 feet above mean sea level (MSL). The project site was purchased by Mr. Gerald Skoff in the early 1970's and has operated as a trucking facility since that time.

## 2.2 Project Site Hydrogeology

Quaternary alluvial fan deposits consisting of fine-grained sands, silts, and clays underlie the project site. The shallow alluvial materials are likely underlain by early Holocene intertidal peaty muds (fine grained clays) that are prominent to the south. Underlying these shallow sediments is the Petaluma, Wilson Grove, and/or Franciscan Formations. The northwest trending Tolay fault is located approximately 3 miles east of the project site.

## 2.3 Project Site History

Previous site characterization and excavation activities have encompassed three locations in proximity of the maintenance shop, office and shed (Figure 2, Appendix A). These areas were identified in the FS/CAP as Excavations A, B, and C. Excavation A was located immediately to the north of the maintenance shop. Excavation B, in turn, was located northwest of the maintenance shop. Excavation C was located in the vicinity of the office and shed. Further details regarding the respective scopes of work associated with these excavations are presented in the following subsections.

**Excavation A**

It is EBA's understanding that prior to 1990, one 500-gallon UST and one 1,000-gallon waste oil UST were removed from Excavation A. This was followed by the installation of five monitoring wells (MW-1 through MW-5) between October 1990 and June 1991 by Great Pacific Associates (GPA), formerly Reay Environmental Services. The monitoring wells were installed for the purpose of evaluating potential groundwater impacts in proximity of Excavation A (GPA, 1991). Findings from the monitoring well installation revealed low concentrations of petroleum hydrocarbon constituents.

**Excavation B**

In 1994, it is EBA's understanding that two 1,000-gallon gasoline USTs were removed from Excavation B. No documentation regarding the removal activities is currently available. This was later followed by the removal of three additional USTs from Excavation B on November 27, 1998 under the direct supervision of EBA. The USTs, which were 12,000 gallons in size, were removed by John's Excavating of Santa Rosa, California, in the presence of Mr. Donald Zedrich, Environmental Resource Council representative, and Ms. Katie Hassler of the City of Petaluma Fire Department. Soil samples were collected from the sidewalls of the excavation, and a groundwater grab sample was collected from the excavation at a depth of approximately four feet below ground surface (BGS). Laboratory analytical results from the collected soil samples indicated that concentrations of Total Petroleum Hydrocarbons as gasoline (TPH-g) and Total Petroleum Hydrocarbons as diesel (TPH-d) ranged from below the laboratory Practical Quantitation Limits (PQLs) to 10 milligrams per kilogram (mg/kg) and 300 mg/kg, respectively. It should be noted that trace amounts of methyl tert-butyl ether (MtBE) were also detected in the soil samples. Further information from the 1998 UST removal activities can be found in EBA's January 1999 *Letter Report – Removal of Underground Storage Tanks* (EBA, 1999a).

**Excavation C**

On October 27, 1999, EBA personnel supervised the removal of two USTs by John's Excavating near the administration office and shed. The presence of these USTs was discovered during the installation of a subsurface telecommunications cable. The USTs were 500 gallons and 1,000 gallons in capacity and were reportedly used for the storage of gasoline. Following the removal of all liquids and confirmation that the USTs were inert, they were removed under supervision of the City of Petaluma Fire Marshall.

Following the removal of the USTs, one soil sample was obtained from beneath the fill end of the 500-gallon UST and two soil samples were collected from beneath the 1,000-gallon UST. The soil sample collected from beneath the 500-gallon UST did not contain concentrations of any constituents analyzed at levels at or above laboratory PQLs. The analytical results for the two soil samples obtained from beneath the 1,000-gallon UST, in turn, indicated concentrations of TPH-g at 240 and 500 mg/kg and total xylenes at 1.7 and 5.7 mg/kg. All remaining petroleum hydrocarbon constituents were below the laboratory PQLs.

**Additional Work**

On April 18, 2000, EBA submitted a *Quarterly Monitoring Report and Sensitive Receptor Survey* (SRS) for the project site (EBA, 2000a). Findings in this report included the presence of a water supply well immediately south of the project site. This water supply well was sampled in December 1999 and contained detectable levels of TPH-g (64 micrograms per liter [µg/L]) and

toluene (0.60 µg/L). On May 24, 2001, EBA personnel oversaw the abandonment of the water supply well by Weeks Drilling and Pump. The well casing was perforated at one foot increments to a total depth of 117 feet BGS. The well casing was then pressure grouted to grade.

In a letter dated September 28, 2000, the CSDHS-EHD requested further investigation in the areas of Excavations B and C. A *Subsurface Investigation Work Plan* for further investigation was prepared by EBA in December 2000 (EBA, 2000b). Following approval of the Work Plan by the CSDHS-EHD in a letter dated January 3, 2001, EBA supervised the drilling of eight soil borings (EBA-1 through EBA-8) in the vicinity of Excavations B and C (see Figure 2, Appendix A). Soil borings EBA-1 and EBA-2 were subsequently converted into monitoring wells MW-6 and MW-7, respectively. Analytical results from these activities indicated that additional characterization was needed in the areas of Excavations B and C. Further information on the 2001 investigation can be found in EBA's *Soil and Groundwater Investigation* report dated July 2001 (EBA, 2001a).

At the request of the CSDHS-EHD, EBA prepared a *Work Plan Addendum* dated November 21, 2001 (EBA, 2001b) that described further investigative procedures, including eight additional soil borings (EBA-9 through EBA-16). The Work Plan was implemented in April 2002 when EBA supervised Clear Heart Drilling (Clear Heart) of Santa Rosa, California in the advancement of EBA-9 through EBA-14 in the vicinity of Excavation C and EBA-14 through EBA-16 in the vicinity of Excavation B. Analytical results from this investigation indicated that the extent of groundwater impacts had been defined in the area of Excavation B, and in the downgradient direction from the former 1,000-gallon gasoline UST in Excavation C. However, analytical results indicated elevated levels of petroleum hydrocarbon impacts in groundwater in the upgradient direction from this gasoline UST. In a letter dated June 11, 2002, the CSDHS-EHD requested a Work Plan to identify any potential sources of groundwater impacts in the upgradient direction and to monitor the plume in the upgradient and downgradient directions from the former 1,000-gallon UST associated with Excavation C.

In response to CSDHS-EHD request, a *Work Plan for Additional Soil and Groundwater Investigation* was prepared and submitted in July 2002 (EBA, 2002). This Work Plan included a geophysical survey component to identify potential upgradient sources (i.e., unidentified USTs) of the observed soil and groundwater impacts. The Work Plan was approved by the CSDHS-EHD in a letter dated October 3, 2002. The geophysical portion of the Work Plan was implemented in February 2003. An 8,000 square foot area was explored using magnetometer and ground penetrating radar techniques. Whereas the results of the geophysical survey identified anomalies, there was no conclusive evidence to indicate the presence of additional unidentified USTs in the area of the geophysical investigation (EBA, 2003).

In a letter dated October 20, 2003, the CSDHS-EHD requested that a FS/CAP be prepared for the project site. In response to this request, EBA prepared and submitted an FS/CAP for regulatory approval on July 28, 2004 (EBA, 2004). Included in the FS/CAP was a presentation of the estimated soil and groundwater contaminant mass, an evaluation of the effectiveness of previous remedial activities, and a technical evaluation of various treatment methodologies. As part of the evaluation of technically viable treatment methodologies, the estimated future contaminant mass removal rates, estimated duration of remediation, a full assessment of possible impacts, and associated capital and operations and maintenance (O&M) costs was presented. The CSDHS-

EHD approved the FS/CAP in a letter dated November 15, 2004.

Quarterly monitoring and sampling have been ongoing since 1999. In general, findings from this monitoring have revealed groundwater flow directions consistently to the south, in the direction of the San Francisco Bay. In regards to groundwater quality, residual concentrations of petroleum hydrocarbon constituents have been detected in MW-3, MW-6 and MW-7. Please refer to Tables 1 through 4, Appendix B, for tabulated analytical results and groundwater elevations from past investigations and groundwater monitoring events.

## 3.0 FIELD INVESTIGATION

The scope of work detailed below was conducted in accordance with the approved FS/CAP. In general, the scope of work included the destruction of four monitoring wells, the excavation of petroleum hydrocarbon impacted soil in the vicinity of Excavation C, and the installation of three monitoring wells in the vicinity of the excavation. Prior to field activities, EBA obtained a grading permit from the City of Petaluma and drilling permits from the CSDHS-EHD. Additionally, Underground Service Alert (USA) was notified prior to the implementation of work.

### 3.1 Monitoring Well Abandonment

On June 26, 2006, EBA personnel supervised the abandonment of four monitoring wells (MW-1, MW-2, MW-4 and MW-6) at the project site by Gregg Drilling and Testing of Martinez, California. Monitoring wells MW-1 and MW-2 were destroyed by over-drilling the casing and annulus materials with 10-inch diameter hollow stem augers, whereas MW-4 and MW-6 were destroyed using 8-inch diameter hollow-stem augers. The over-drilled monitoring wells were then backfilled to grade with cement grout. The materials generated during the well abandonment activities were containerized and are currently stored on-site in properly labeled DOT-17H 55-gallon drums pending chemical characterization and subsequent disposal.

### 3.2 Soil Characterization

Prior to implementing the proposed excavation activities, waste characterization soil sampling was performed on June 26, 2006 in order to pre-profile the soil to be excavated for disposal at the Keller Canyon Landfill located in Pittsburg, California. In this regard, EBA supervised Gregg Drilling and Testing in the advancement of one direct push soil boring (SB-1) at the location shown in Figures 2 and 3, Appendix A. A composite soil sample (COMP@4',6',8',10') was collected from SB-1 between the depths of four and ten feet BGS. The analytical results were forwarded to Allied Waste Industries Inc. (Allied), owner and operator of Keller Canyon Landfill, in order to obtain disposal authorization. Analytical results from SB-1 and the corresponding Certified Analytical Report (CAR) are presented in Table 5, (Appendix B) and Appendix G-1, respectively. The soil boring log for SB-1 is enclosed in Appendix C.

### 3.3 Excavation Activities

On July 5 and 6, 2006, EBA supervised John's Excavating of Santa Rosa, California in the

excavation of petroleum hydrocarbon impacted soil from the southeastern portion of the project site in the vicinity of Excavation C (see Figures 2 and 3, Appendix A). The excavation limits measured approximately 50 feet by 34 feet by 13 feet deep. During the excavation activities, field screening using a MiniRae 2000® photoionization detector (PID) and visual inspection provided the primary basis for identifying petroleum hydrocarbon impacts. Confirmation soil samples were collected from the excavation sidewalls and bottom when observation and field screening procedures indicated that the excavation limits had been achieved. Soil samples were also collected where limits of the excavation were dictated by site constraints (i.e., maintenance shop or property line). One soil sample was collected for approximately every 250 square feet of surface area on the bottom and sidewalls of the excavation to confirm the removal of impacted soil. Additionally, an initial soil sample (Initial-1@8') was collected to document the removal of petroleum hydrocarbon impacted soil. All soil samples were collected in 2-inch diameter by 6-inch long stainless steel tubes. The sample containers were capped, labeled, and placed under refrigerated conditions pending transport under chain-of-custody procedures to Alpha Analytical Laboratories, Inc. (Alpha), a State-certified analytical laboratory located in Ukiah, California, for chemical analysis. Please refer to Figure 3, Appendix A for the soil sample locations and identifications. Analytical results from the confirmation soil sampling and the corresponding CAR are presented in Table 5, (Appendix B) and Appendix G-2, respectively.

Upon completion of the excavation activities, the excavation was backfilled to within 12 inches below grade with clean import fill. The backfill material was compacted to a minimum 90 percent relative compaction. Compaction test results are presented in Appendix E. The excavated area was capped with gravel and/or asphalt to match the surrounding surface grades.

Approximately 990 tons (700 to 800 cubic yards) of impacted soil was removed as part of the excavation activities. This material was either temporarily stockpiled on-site (on and covered with plastic sheeting) or directly loaded into trucks and hauled under manifest to Keller Canyon Landfill. Soil disposal documentation is presented in Appendix F. In addition, approximately 5,500 gallons of water was pumped from the excavation pit during excavation activities and was temporarily stored in an aboveground storage tank. This water was subsequently disposed to the sanitary sewer on August 1, 2006, under permit from the City of Petaluma. Tabulated analytical results and disposal documentation for this water are included in Table 6, (Appendix B) and Appendix F, respectively. The corresponding CAR documenting the analytical testing of this water is enclosed in Appendix G-3.

### 3.4 Monitoring Well Installation

On August 8, 2006, EBA supervised Clear Heart (a licensed C-57 well driller) during the installation of MW-10 through MW-12 at the locations shown on Figure 3, Appendix A. The following subsections detail the monitoring well installation and sampling procedures.

#### 3.4.1 Drilling and Soil Sample Collection

The monitoring wells were installed using a rotary auger drill rig equipped with 8-inch diameter hollow-stem augers. Soil samples were collected in 2-inch diameter by 6-inch long brass tubes at 5-foot intervals. Soil samples were screened in the field for the presence of volatile organic compounds (VOCs) using a MiniRae 2000® PID. Soil samples selected for analytical purposes

were retained in the 2-inch diameter by 6-inch long brass tubes and sealed, capped, labeled, and placed under refrigerated conditions pending transport under chain-of-custody procedures to Alpha for chemical analysis. The collected soil samples were logged in accordance with the Unified Soil Classification System (USCS). The soil cuttings that were generated as part of the monitoring well installation activities is currently stored on-site in properly labeled DOT-17H 55-gallon drums pending chemical characterization and subsequent disposal.

### 3.4.2 Monitoring Well Construction

The monitoring wells were constructed of 2-inch diameter, Schedule 40 polyvinyl chloride (PVC) casing with a 0.010-inch machine-slotted screen. Monitoring wells MW-10, MW-11, and MW-12 were completed to depths of 18, 16, and 16 feet BGS, respectively. Monitoring well MW-10 was constructed with a screen interval from eight to 18 feet BGS, whereas MW-11 and MW-12 were each constructed with screen intervals from six to 16 feet BGS. When the desired boring depth was attained, the PVC casing and screen were lowered to the base of the borehole through the inside of the hollow-stem auger. A filter pack consisting of #2/12 sand was slowly poured around the well casing to approximately one foot above the upper extent of the screen interval. A 2-foot-thick section of bentonite was added above the filter pack interval. The remaining portion of annular space was backfilled with cement grout to approximately six inches below grade. The tops of the well casings were completed below grade inside sealed traffic rated well boxes and secured by locking caps. The tops of the well boxes were completed approximately one inch above project site grade. Please refer to Appendix C for copies of soil boring logs and associated monitoring well construction details.

### 3.4.3 Equipment Decontamination

The drill augers, tools, and sampling equipment were cleaned before advancing each soil boring to minimize the possibility of cross contamination. The equipment was steam cleaned with a power sprayer at high temperature and/or washed with a tri-sodium phosphate (TSP) solution and rinsed with potable water. Water generated during the decontamination activities was collected and is currently stored on-site in properly labeled DOT-17H 55-gallon drums pending chemical characterization and subsequent disposal.

### 3.4.4 Monitoring Well Development

On August 14, 2006, EBA personnel developed MW-10 through MW-12 with a surge block and bailers to remove residual silts and clays that remained from the drilling process and to improve the hydraulic communication between the filter pack and the natural formation. Groundwater quality parameters pH, electrical conductivity, and temperature were monitored during the development process. The groundwater that was purged during well development was collected and placed in properly labeled DOT 17H 55-gallon drums and left on-site pending disposal. The well development logs are included in Appendix D.

### 3.4.5 Monitoring Well Survey

On August 16, 2006, the locations and top of casing (TOC) elevations of MW-10 through MW-12 were surveyed to mean sea level by a licensed surveyor. The corresponding data will be

uploaded to the State of California's Geotracker website in accordance with Assembly Bill 2886 (AB2886).

### 3.5 Groundwater Monitoring and Sampling

On August 16, 2006, EBA personnel collected groundwater samples and recorded depth to groundwater from TOC measurements from MW-3 and MW-7 through MW-12. Monitoring well MW-5 was inaccessible during this sampling event. The depth to groundwater from TOC measurements, which were used to calculate groundwater flow direction and hydraulic gradient, were conducted using an electronic sounder.

Prior to sampling, the monitoring wells were purged of standing water to aid in collecting groundwater samples that are representative of formation water. Monitoring wells MW-8 and MW-9 were also monitored for dissolved oxygen (DO) and oxidation-reduction potential (ORP) prior to the purging process. Field data sheets detailing the monitoring of groundwater pH, electrical conductivity and temperature during well purging are included in Appendix D. The field data sheets for MW-8 and MW-9 also include DO and ORP measurements. Each monitoring well was purged until the water quality parameters had stabilized and a minimum of three well volumes was removed. Purge water generated as part of the sampling activities was retained and is stored on-site in properly labeled 55-gallon DOT 17H drums pending disposal.

Groundwater samples were collected from each monitoring well using a single sample disposable bailer fitted with a bottom-emptying device to minimize water degassing. Groundwater samples collected from the monitoring wells were transferred into properly labeled, laboratory supplied sterile sample containers. The groundwater samples were logged on a chain-of-custody form and placed under refrigerated conditions pending transport to Alpha for chemical testing.

### 3.6 Analytical Testing

The soil samples collected from SB-1 and the excavation were analyzed for TPH-g and TPH-d using EPA Methods 8015GRO and 8015DRO, respectively. The soil samples were also analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) and MtBE using EPA Method 8260B, and total lead using EPA Method 6010.

Groundwater samples collected during the August 16, 2006 sampling event were analyzed for TPH-g and TPH-d using EPA Methods 80260GRO and 8015 DRO, respectively, as well as for BTEX and MtBE using EPA Method 8260B. Due to their proximity to a sewer line at the project site, groundwater samples collected from MW-10 through MW-12 were also analyzed for nitrates using EPA Method 300.0 as a condition of the CSDHS-EHD monitoring well installation permit. Finally, groundwater samples collected from MW-8 and MW-9 were also analyzed for total dissolved solids (TDS) using EPA Method 160.1 for the purpose of determining the usability of the aquifer as a drinking water source and to help determine an appropriate groundwater cleanup goal.

# 4.0 FINDINGS

## 4.1 Geology and Hydrogeology

The geology encountered during this investigation generally consisted of a mixture of clay, clayey sand, gravelly sand and sandy clays in the upper 10 feet BGS, underlain by clayey and gravelly sands. First encountered groundwater was observed during the monitoring well installations at approximately 6.5 to 13 feet BGS, with static groundwater levels in MW-10 through MW-12 measured to be between 1.8 and 2.2 feet BGS.

The groundwater flow direction at the time of the August 16, 2006 sampling event was calculated to be approximately South 51° West with a hydraulic gradient ranging from approximately 0.002 to 0.004 foot/foot. A Potentiometric Surface Map illustrating these conditions is presented as Figure 4 (Appendix A). Table 3, Appendix B, in turn, presents monitoring well construction specifications and historical groundwater elevations.

## 4.2 Analytical Results

Tabulated summaries of the soil and groundwater sample analytical results are presented in Tables 4 through 6 enclosed in Appendix B. The corresponding CARs, including chain-of-custody records, quality assurance/quality control (QA/QC) documentation, and laboratory PQLs, are enclosed in Appendices G-1 through G-5. Pertinent findings associated with the laboratory testing are summarized below.

**Soil**

- The initial soil sample (Initial-1@8') collected to document the removal of petroleum hydrocarbon impacted soil revealed the presence of TPH-g, TPH-d, ethylbenzene, xylenes and total lead at concentrations of 360, 40, 1.9, 3.9 and 17 mg/kg, respectively.

- Analytical results of the excavation sidewall soil samples indicated the presence of TPH-g and TPH-d at concentrations ranging from 10 to 960 mg/kg and 2.2 to 200 mg/kg, respectively. Please note that several of the TPH-d detections were flagged by the laboratory as closely resembling kerosene. Ethylbenzene and total xylenes were detected in sidewall soil samples at concentrations ranging from 1.1 to 7.1 mg/kg and 4.1 to 18 mg/kg, respectively.

- Analytical results of the soil samples collected from the bottom of the excavation indicated low levels of TPH-g ranging from 2.2 to 2.4 mg/kg. In addition, benzene was detected in bottom soil sample Bottom-S@12' at a concentration of 0.045 mg/kg, whereas MtBE was detected in bottom soil sample Bottom-W @13' at a concentration of 0.045 mg/kg.

- Analytical results of the soil samples collected during monitoring well installation activities indicate that concentrations of TPH-g and TPH-d were present in the MW-11 soil sample (MW-11@9') at concentrations of 35 and 53 mg/kg, respectively. TPH-d was also detected in the soil sample collected from MW-12 (MW-12@8.5') at a concentration

of 1.6 mg/kg. Both of these TPH-d detections were flagged in the CAR as being indicative of "hydrocarbons lower in molecular weight than diesel". With respect to the VOC components, benzene, ethylbenzene and total xylenes were detected in the MW-11@9' soil sample at concentrations of 0.43, 3.6 and 4.2 mg/kg, respectively.

- PID readings that were measured during the monitoring well installation activities indicate the presence of volatile organic vapors up to 1,382 parts per million (PPM) in soil samples collected from MW-11 and MW-12 at depths between seven and eight feet BGS. The PID readings of soil samples collected from MW-10, in turn, did not indicate the presence of volatile organic vapors above 0.0 PPM.

- Total lead was detected in the various excavation and monitoring well installation soil samples at concentrations ranging from 5.1 to 19 mg/kg.

**Groundwater**

- The analytical results for the groundwater that was pumped from the excavation pit and subsequently containerized did not indicate the presence of any petroleum hydrocarbon constituents analyzed above their respective PQLs.

- TPH-g and TPH-d were detected in the groundwater sample collected from MW-11 at concentrations of 2,300 and 300 micrograms per liter (µg/L), respectively. BTEX constituents were also detected in the groundwater sample collected from MW-11 at concentrations of 180, 2.5, 35 and 63 µg/L, respectively.

- No petroleum hydrocarbons were detected in the groundwater samples collected from MW-10 and MW-12.

- Nitrate was detected in the groundwater samples collected from MW-10 through MW-12 at concentrations ranging from 2.3 to 18 milligrams per liter (mg/L). TDS was measured in the groundwater samples collected from MW-8 and MW-9 at concentrations of 960 and 1,000 mg/L, respectively.

- The groundwater chemistry characteristics in the remaining monitoring wells were generally consistent with historical trends, with petroleum hydrocarbon detections being limited to MW-3 (MtBE) and MW-7 (MtBE and TPH-d). Both of these monitoring wells are located in proximity of the former Excavation B.

## 5.0 CONCLUSIONS

**Geology and Hydrogeology**

As previously noted, the geology encountered during this investigation generally consisted of a mixture of clay, clayey sand, gravelly sand and sandy clays in the upper 10 feet BGS, underlain by clayey and gravelly sands. A notable coarse grained unit was observed between six and 16

feet BGS in MW-10 through MW-12. First encountered groundwater was observed in this coarse grained unit. The subsequent rise in groundwater elevations from first encountered (6.5 to 13 feet BGS) after well completion (1.8 to 2.2 feet BGS) suggests that semi-confining groundwater conditions may exist beneath project site.

It should be noted that the PID readings of soil samples collected from MW-11 and MW-12 (1,382 and 210 PPM, respectively) were measured at the 7- to 8-foot BGS depths. The lithology recorded from these depths corresponds to a sandy clay and clayey sand, respectively. PID readings measured at the depths of 12 to 13 feet BGS indicated 0.0 PPM of volatile organic vapors. These data, combined with the analytical data from soil samples collected from MW-11 and MW-12, appear to indicate that the lithology in the approximate 7- to 12-foot BGS depth interval represents the zone of primary impact and transport.

**Analytical Results – Soil**

Analytical results indicate that residual concentrations of TPH-g, TPH-d, BTEX and MtBE remain in soil at the project site at concentrations that exceed the San Francisco Regional Water Quality Control Board (SFRWQCB) Environmental Screening Levels (ESLs). Please note that the majority of the detections that exceed the ESLs occur in excavation sidewall samples at the project site constraints (i.e., property and building boundaries). Soil sample concentrations that exceed the ESLs for TPH-g, TPH-d, BTEX, and MtBE are presented below in Table A.

## TABLE A

**SFRWQCB ENVIRONMENTAL SCREENING LEVELS AND SOIL SAMPLE CONCENTRATIONS**

| Constituent | ESL (mg/kg) | SOIL SAMPLE NUMBERS[A] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *2* | *4* | *5* | *6* | *8* | *9* | *12* | *16* |
| *TPH-g* | *100* | 2.2 | **220** | **630** | <1.0 | 57 | **960** | **110** | 35 |
| *TPH-d* | *100* | <1.0 | 42 | 48 | <1.0 | **200** | **170** | 30 | 53 |
| *Benzene* | *0.044* | **0.045** | <0.17 | <0.87 | <0.0050 | <0.17 | <1.7 | <0.17 | **0.43** |
| *Toluene* | *2.9* | <0.0050 | <0.17 | <0.87 | <0.0050 | <0.17 | <1.7 | <0.17 | <0.17 |
| *Ethylbenzene* | *3.3* | 0.013 | 1.1 | **4.7** | <0.0050 | **4.3** | **7.1** | <0.17 | **3.6** |
| *Xylenes* | *2.3* | 0.0074 | **4.1** | **10** | <0.0050 | **9.4** | **18** | <0.17 | **4.2** |
| *MtBE* | *0.023* | <0.0050 | <0.17 | <0.87 | **0.045** | <0.17 | <1.7 | <0.17 | <0.17 |

Notes:
SFRWQCB = San Francisco Regional Water Quality Control Board.
ESL = Environmental Screening Level.
mg/kg = Milligrams per kilogram.
TPH-g = Total Petroleum Hydrocarbons as gasoline.
TPH-d = Total Petroleum Hydrocarbons as diesel.
MtBE = Methyl tert-Butyl Ether.
Results in bold exceed applicable ESLs.
All soil sample concentrations reported in milligrams per kilogram.
[A]: Denotes sample numbering in Figure 3, Appendix A and Table 3, Appendix B.

Soil Sample Numbers 2 and 6 correspond to bottom samples that were collected from the south and west portions of the excavation, respectively. The low concentrations of benzene in Soil Sample Number 2 and MtBE in Soil Sample Number 6 represent the only two excavation bottom sample results that exceed the ESLs. The remaining excavation soil samples presented in Table

A, with the exception of Soil Sample Number 16, correspond to sidewall samples that were collected from the limits of the excavation imposed by project site constraints. Soil Sample Number 16 corresponds to a soil sample that was collected during the installation of MW-11 at a depth of 9 feet BGS (MW-11@9'). The remaining nine soil samples collected during excavation and monitoring well installation activities indicated analytical results that were either below the laboratory PQLs or low concentrations of petroleum hydrocarbon constituents below the ESLs. It should be noted that the concentrations of lead detected in the soil samples collected during this investigation were all well below the ESL of 150 mg/kg.

A contaminant mass removal estimate was performed for the excavation activities described herein for the purpose of comparing the mass estimate (700 pounds) presented in the FS/CAP for the area of Excavation C. The estimate for this investigation used an average concentration of 460 mg/kg for the approximate 990 tons of soil removed as part of the excavation activities. The average concentration corresponds to the concentration of TPH-g detected in the composite soil sample collected from SB-1. The corresponding result of this estimate indicates that approximately 910 pounds of petroleum hydrocarbons were removed from the excavation, which represents a significant mass from a remedial perspective.

**Analytical Results – Groundwater**

Analytical results from the August 16, 2006 sampling event indicate that petroleum hydrocarbon constituents were not detected in the groundwater samples collected from MW-10 and MW-12. Analytical results of groundwater samples collected from MW-11, in turn, indicated concentrations of TPH-g, TPH-d and BTEX consistent with the former monitoring well MW-6, which was located approximately 18 feet towards the west. The TPH results from MW-11 are above the SFRWQCB ESLs of 100 µg/L. The benzene and ethylbenzene concentrations, in turn, are above the ESLs of 1 and 20 µg/L, respectively. In regards to the nitrate component, the concentrations detected in groundwater samples collected from MW-10 through MW-12 do not exceed the Primary Maximum Contaminant Level (PMCL) of 45 mg/L as outlined in California Code of Regulations, Title 22, Article 4, Section 64431. The Nitrate concentrations in MW-10 through MW-12 do not appear to be elevated and will continue to be analyzed in these monitoring wells on a biannual basis as a condition of the monitoring well installation permit.

Petroleum hydrocarbon concentrations, or absence thereof, in groundwater samples collected from MW-3 and MW-7 through MW-9 are generally consistent with past sampling events, with TPH-d in MW-7 (680 µg/L) being the only constituent above the corresponding ESL (100 µg/L).

The TDS results reported in MW-8 (960 mg/L) and MW-9 (1,000 mg/L) were at or below the Secondary Upper MCL of 1,000 mg/L as outlined in California Code of Regulations, Title 22, Article 16, Section 64449. As previously outlined in Section 3.6 of this Report, TDS was analyzed for the purpose of determining the appropriate groundwater ESL application (i.e., viable source of drinking water versus not a viable source of drinking water) in order to establish groundwater cleanup goals. Given the borderline TDS results as compared to the Secondary Upper MCL, this determination is inconclusive at this time. However, in light of the elevated nature of the petroleum hydrocarbon concentrations present in MW-11, some degree of corrective action may be required regardless of which ESL criteria is applied.

The analytical results from MW-10 through MW-12, as well as MW-3 and MW-7 through MW-9, indicate that the extent of petroleum hydrocarbon impacts in groundwater are defined as a whole towards the north, south and west at the project site. Conversely, further characterization

is necessary east of Excavation C (i.e., MW-11) to verify the extent of petroleum hydrocarbon impacts in this direction.

## 6.0 RECOMMENDATIONS

Based on the analytical results from the field work presented herein, as well as the conclusions and recommendations detailed in the FS/CAP, EBA recommends the following;

- Install two additional monitoring wells east of MW-11 to further define the extent of groundwater impacts in this direction. The two new monitoring wells should be constructed with the additional intent of possible future use as dual-phase extraction wells and/or observation wells. Analysis of soil samples that are collected during the installation of the proposed monitoring wells should also include physical properties (i.e., permeability, total organic carbon, etc.) to assist in evaluating future corrective action measures.

- Monitor petroleum hydrocarbon concentrations in groundwater for one year with testing of additional constituents in selected monitoring wells. Constituents added to the sampling schedule would include DO, ORP, dissolved iron and manganese, sulfate, and nitrate. Data collection and analysis of these parameters should be sufficient to determine whether aerobic or anaerobic conditions exist. Furthermore, comparisons will be made of these constituents between monitoring wells with detectable concentrations of petroleum hydrocarbons and those without to determine if passive bioremediation processes are occurring.

## 7.0 LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice at the place and time this investigation was performed. This warranty is in lieu of all other warranties, either expressed or implied. This report was prepared solely for the purpose of evaluating applicable remedial technologies based on environmental conditions of the soil and groundwater to hydrocarbons previously detected at the site. No soil engineering or geotechnical references are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of investigation. This report has been prepared solely for the Client and any reliance on this report by third parties shall be at such party's sole risk.

## 8.0 REFERENCES

EBA Engineering, *Letter Report – Removal of Underground Storage Tanks, Skoff Trucking, 1 Casa Grande Avenue, Petaluma, California*, January 10, 1999a.

EBA Engineering, *Quarterly Monitoring Report and Sensitive Receptor Survey, Skoff Trucking, 1 Casa Grande Avenue, Petaluma, California*, April 18, 2000a.

EBA Engineering, *Subsurface Investigation Workplan, Skoff Trucking, 1 Casa Grande Road, Petaluma, California*, December 11, 2000b.

EBA Engineering, *Soil and Groundwater Investigation, Skoff Trucking Facility, 1 Casa Grande Road, Petaluma, California*, July 16, 2001a.

EBA Engineering, *Work Plan Addendum for Soil and Groundwater Investigation, Skoff Trucking Facility, 1 Casa Grande Road, Petaluma, California*, November 21, 2001b.

EBA Engineering, *Work Plan for Additional Soil and Groundwater Investigation, Skoff Trucking Facility, 1 Casa Grande Road, Petaluma, California*, July 2002.

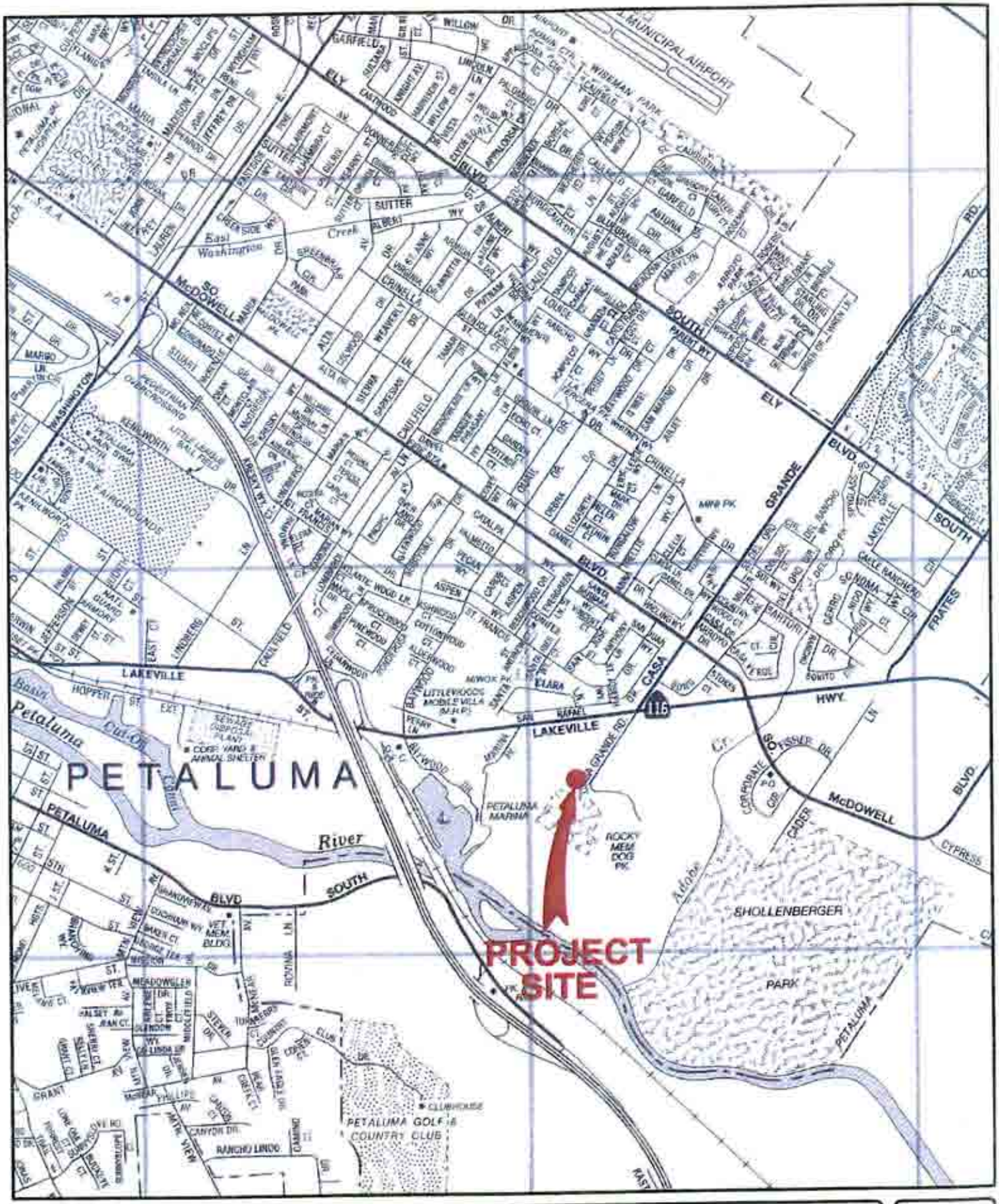
EBA Engineering, *Feasibility Study/Corrective Action Plan, Skoff Trucking Facility, 1 Casa Grande Road, Petaluma, California*, July 28, 2004.

Great Pacific Associates, *Results of Second Groundwater Investigation at Skoff Trucking Company, 1 Casa Grande Road, Petaluma, California*, September 20, 1991

NORCAL Geophysical Consultants, Inc., *Geophysical Survey-UST Search, 1 Casa Grande Road, Petaluma, California.* March 6, 2003.

# APPENDIX A

# FIGURES



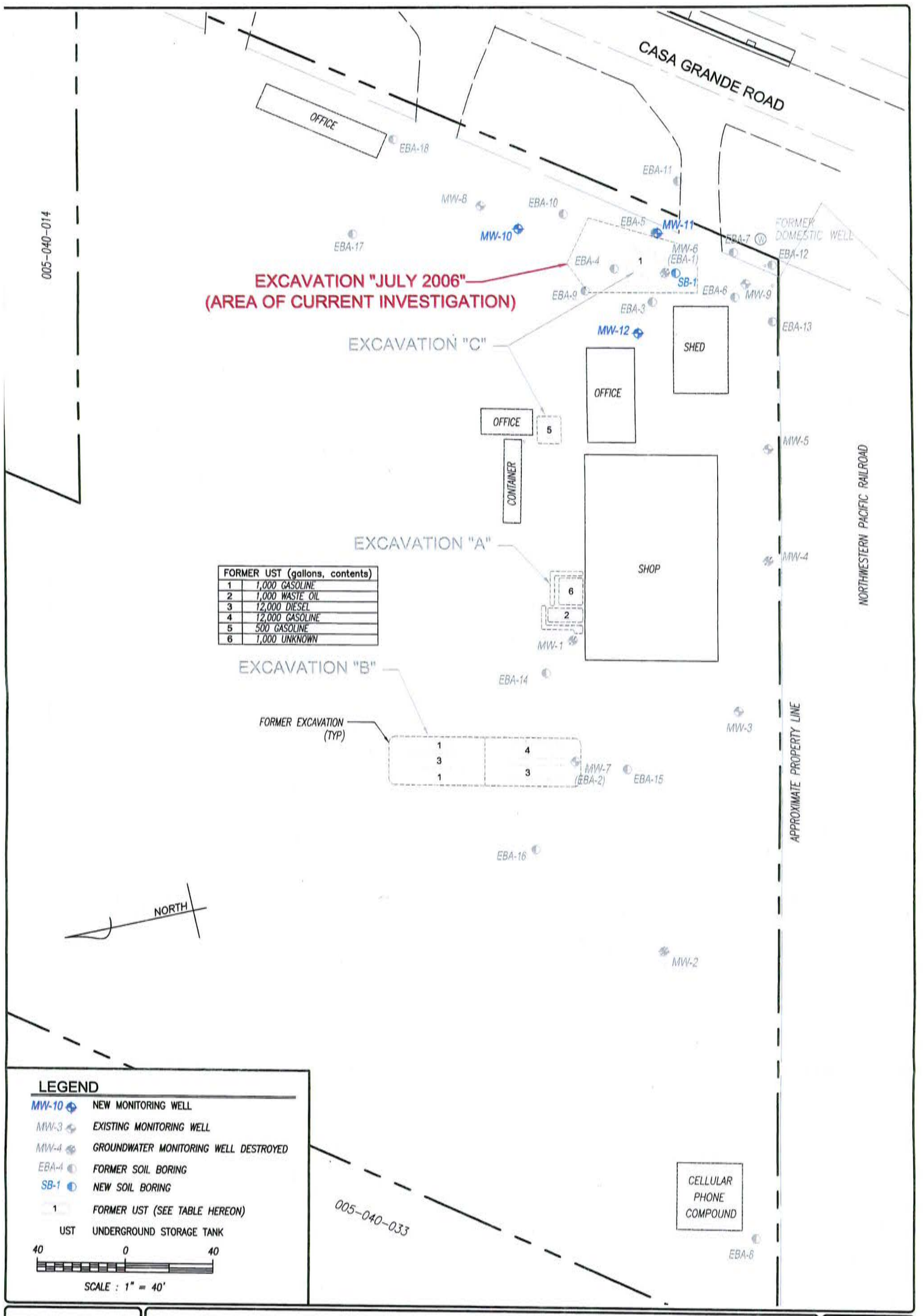

EBA

# VICINITY MAP

SKOFF TRUCKING
1 CASA GRANDE ROAD
PETALUMA, CALIFORNIA

FIGURE
1

99-723




| FORMER UST (gallons, contents) | |
|---|---|
| 1 | 1,000 GASOLINE |
| 2 | 1,000 WASTE OIL |
| 3 | 12,000 DIESEL |
| 4 | 12,000 GASOLINE |
| 5 | 500 GASOLINE |
| 6 | 1,000 UNKNOWN |

## LEGEND

- MW-10 — NEW MONITORING WELL
- MW-3 — EXISTING MONITORING WELL
- MW-4 — GROUNDWATER MONITORING WELL DESTROYED
- EBA-4 — FORMER SOIL BORING
- SB-1 — NEW SOIL BORING
- 1 — FORMER UST (SEE TABLE HEREON)
- UST — UNDERGROUND STORAGE TANK

40 0 40

SCALE : 1" = 40'

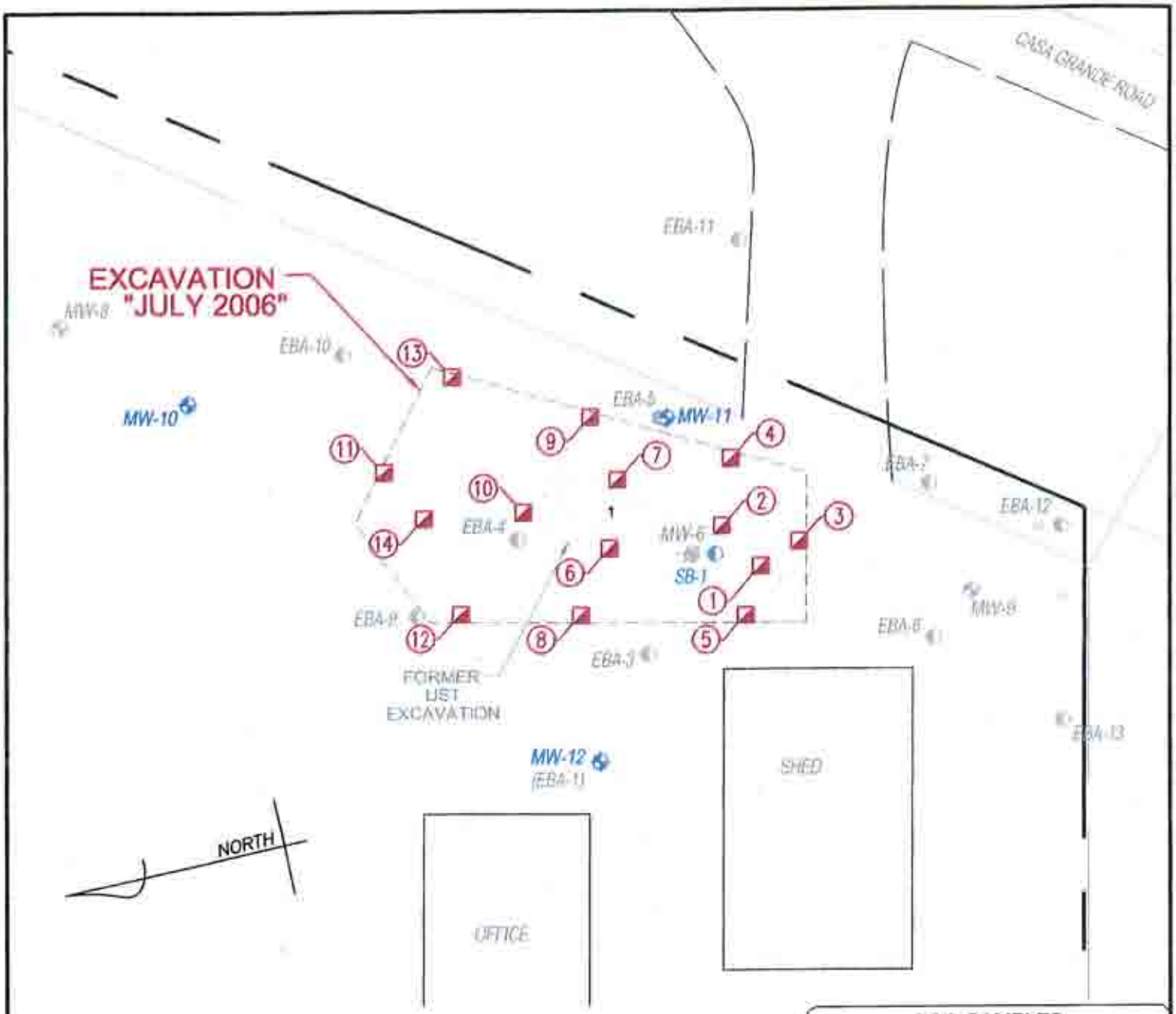
EBA

# SITE MAP

SKOFF TRUCKING
1 CASA GRANDE ROAD
PETALUMA, CALIFORNIA

FIGURE
2
FEB 2007
99-723

)\99-723\site map 2006 Figures 2-3.DWG, Figure 2, 2/2/2007 10:36:04 AM




## LEGEND

| | |
|---|---|
| MW-3 | NEW MONITORING WELL |
| MW-3 | EXISTING MONITORING WELL |
| MW-4 | GROUNDWATER MONITORING WELL DESTROYED |
| EBA-4 | FORMER SOIL BORING |
| SB-1 | NEW SOIL BORING |
| 1 | FORMER UST (SEE TABLE) |
| UST | UNDERGROUND STORAGE TANK |
| 10 | SOIL SAMPLE (SEE TABLE) |

20 0 20

SCALE : 1" = 20'

| SOIL SAMPLES | |
|---|---|
| 1. | INITIAL-1 @ 8' |
| 2. | BOTTOM-S @ 12' |
| 3. | SIDEWALL-S @ 10' |
| 4. | SIDEWALL-SE @ 9' |
| 5. | SIDEWALL-SW @ 10' |
| 6. | BOTTOM-W @ 13' |
| 7. | BOTTOM-E @ 13' |
| 8. | SIDEWALL-NW @ 10' |
| 9. | SIDEWALL-NE @ 10' |
| 10. | BOTTOM-N @ 13' |
| 11. | SIDEWALL-N @ 10' |
| 12. | SIDEWALL-NW2 @ 10' |
| 13. | SIDEWALL-NE2 @ 10' |
| 14. | BOTTOM-N2 @ 13' |

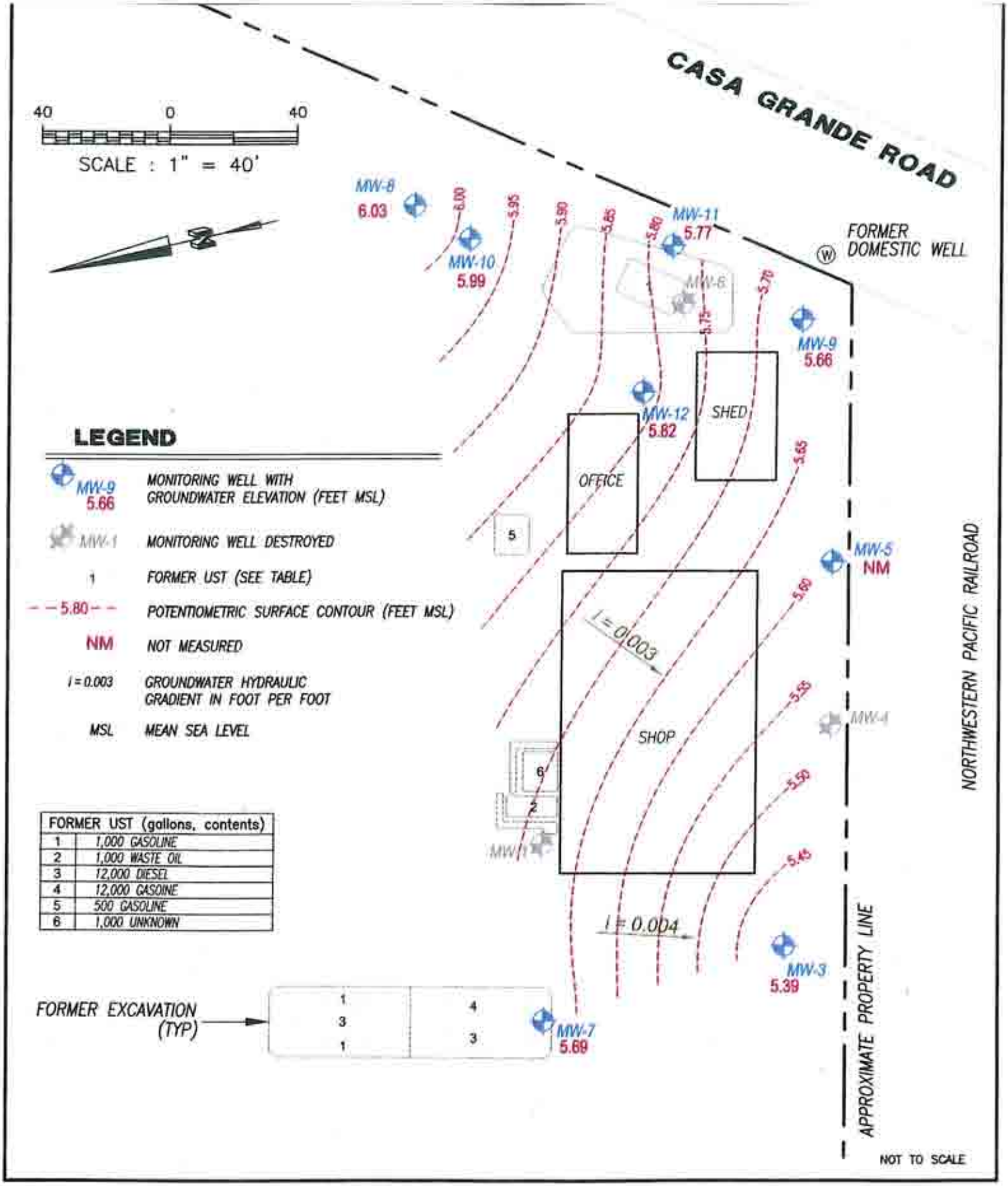
EBA

# CONFIRMATION SOIL SAMPLE LOCATION MAP

SKOFF TRUCKING
1 CASA GRANDE ROAD
PETALUMA, CALIFORNIA

FIGURE
3
99-723

Q:\99-723\site maps 2006 Figures 2-3.DWG, Figure 3, 2/2/2007 10:36:16 AM




# POTENTIOMETRIC SURFACE MAP
## AUGUST 16, 2006

SKOFF TRUCKING
1 CASA GRANDE ROAD
PETALUMA, CALIFORNIA

FIGURE
4

O:\99-725\PSV 2006.2WC PSV 8-16-06 2/1/2007 3:40:09 PM

January 8, 2014

Ms. Darcy Bering
County of Sonoma Department of Health Services
Environmental Health Division
625 Fifth Street
Santa Rosa, CA 95404

**RE: REPORT OF SOIL VAPOR INVESTIGATION**
**SKOFF TRUCKING**
**1 CASA GRANDE ROAD, PETALUMA, CALIFORNIA**
***EBA Project No. 99-723 (50)***
***CSDHS-EHD CASE # 2147***

Dear Ms. Bering:

EBA Engineering (EBA) has prepared this *Report of Soil Vapor Investigation* (Report) for the site located at 1 Casa Grande Road in Petaluma, California, referred to herein as the "project site" (Figure 1, Appendix A). The work presented in this Report was proposed in EBA's *Soil Vapor Investigation Work Plan* (Work Plan) dated November 7, 2013 and approved by the County of Sonoma Department of Health Services – Environmental Health Division (CSDHS-EHD) in a letter dated November 19, 2013.

The proposed work scope was conducted in general accordance with the State Water Resource Control Board's (SWRCB's) *Low Threat Underground Storage Tank Case Closure Policy* (LTCP; SWRCB, 2012) and California Department of Toxic Substances Control/California Environmental Protection Agency's (DTSC/CalEPA's) *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC/CalEPA, 2011) and *Advisory – Active Soil Gas Investigations* (DTSC/CalEPA, 2012).

## SOIL VAPOR PROBE INSTALLATION AND SAMPLING

On December 5, 2013 EBA installed two soil vapor probes (SV-1 and SV-2) at the locations shown on Figure 2, Appendix A. These locations were chosen to characterize soil vapor conditions adjacent to an existing building in an area of impacted soil and groundwater.

As proposed in the Work Plan, soil vapor probe SV-1 was installed to the depth recommended by the LCTP (i.e., five feet below ground surface [BGS]), and SV-2 was installed to a depth of 2.5 feet BGS.

Please refer to the following table (Table A) for the soil vapor probe construction details.

**TABLE A - SOIL VAPOR PROBE CONSTRUCTION DETAILS**

| Probe ID | Approximate Borehole Diameter (Inches) | Total Depth of Probe (Inches BGS) | Sand Interval (Inches BGS) | Dry Bentonite Interval (Inches BGS) | Bentonite Grout Interval (Inches BGS) |
|---|---|---|---|---|---|
| SV-1 | 4 | 60 | 48.0 - 60.0 | 42.0 - 48.0 | 0.0 - 42.0 |
| SV-2 | 4 | 30 | 22.0 - 30.0 | 16.0 - 22.0 | 0.0 - 16.0 |

BGS = Below Ground Surface

Installation of the vapor probes was accomplished using hand-auger drilling techniques. The soils encountered during the hand auger drilling consisted of fill to approximately 1.5 to two feet BGS underlain by clay to five feet BGS, the maximum depth explored. Each soil vapor probe was constructed with a stainless steel vapor tip connected to ¼ inch-diameter Teflon®-type tubing. The vapor tip was enclosed within the sand interval presented above in Table A. The probe annulus was sealed using non-shrink cement grout and the sampling end of the tubing was equipped with a recessed compression fitting and protected by a cover plate assembly.

On December 6, 2013, an attempt was made to collect a soil vapor sample from SV-1. During the purging procedure, water immediately entered the tubing upon application of vacuum to the probe. Consequently, EBA collected a soil vapor sample from SV-2.

SV-2 was sampled according to the procedures and components described in the following bulleted list:

- To facilitate sampling, the recessed compression fitting was connected directly to a sample train provided by K Prime, Inc., (K Prime), a State-certified air testing laboratory located in Santa Rosa, California. The sample train consisted of a ball valve, particulate filter, a 125 milliliter per minute (ml/min) flow regulator, a pressure/vacuum gauge, a 1-liter Summa® canister (sample Summa®), and a 6-liter Summa® canister (purge Summa®). The sample train components utilized Swagelok®-type stainless steel compression fittings. An individual clean sample train was used at the SV-2 sample point.

- With the ball valve and the sample Summa® canister closed, integrity testing of the sample train was performed by opening and closing the purge Summa® canister in order to place the sample train under vacuum, then the vacuum was monitored for a 10-minute period to verify that it remained constant. This procedure was employed to confirm that the sample train held a vacuum (not leak) and was suitable for sampling.

- The soil vapor probe was purged before sampling by removing two liters of existing air to ensure the soil vapor being sampled was representative of the investigative area. The purge event was accomplished using the purge Summa® canister.

- The entire sample train was then placed under a protective clear shroud, along with a second 1-liter Summa® canister (leak Summa®) equipped with a 125-ml/min flow regulator, to facilitate leak testing.

- Sampling was initiated by opening the sample Summa® and leak Summa® at the same time. During sampling, the sample train was exposed to a leak check compound to facilitate leak testing by spraying 1,1,1,1-tetrafluoroethane (TFA) propellant intermittently into the shroud. The leak Summa® canister thus recorded the concentrations within the shroud over the entire duration of the test in order to correlate any concentrations of TFA potentially found in the sample Summa® canister.

- When the vacuum gauge indicated that approximately zero inches of mercury (Hg) (vacuum) remained in the sample Summa® canister, both the sample and leak Summa® canisters were closed, removed, capped and labeled. The sample start and end times were recorded in the field notes included in Appendix B.

- The soil vapor samples were transported under Chain-of-Custody (C-O-C) procedures to K Prime for the chemical analyses performed as part of this investigation.

## SOIL SAMPLE COLLECTION

To address the LTCP requirement to characterize the "bioattenuation zone" at the project site, two soil samples were collected from the SV-1 borehole for chemical analysis. Soil samples were collected at depths of 2.5 and five feet BGS. The soil samples were collected in 2-inch diameter by 6-inch long stainless steel sleeves, sealed, capped, labeled, and placed under refrigerated conditions pending transport under C-O-C procedures to K Prime for chemical analysis. Soil samples collected for the analysis of volatile organic compounds were prepared in accordance with EPA Method 5035.

## ANALYTICAL METHODS

The soil vapor samples collected as part of this investigation were analyzed for the following:

- Benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl-tert butyl ether (MtBE) and naphthalene using EPA Method TO 15;

- Total volatile hydrocarbons as hexane (TVH-hexane) and TFA using EPA Method TO 3; and,

- Oxygen using ASTM D 1946.

The soil samples collected as part of this investigation were analyzed for the following:

- BTEX and naphthalene using EPA Method 5035/8260; and

- Gasoline Range Organics and Diesel Range Organics using EPA Method 8015B.

## ANALYTICAL RESULTS

***Soil Vapor***

No petroleum hydrocarbon constituents were detected at or above the laboratory reporting limits (RLs) in the soil vapor sample collected from SV-2. Oxygen was measured in the soil vapor sample at 17.5 percent by volume. The leak check compound, TFA, was detected in the leak Summa® at a concentration of 1,070 parts per million by volume. TFA was not detected in the sample Summa® at, or above, the RL.

***Soil***

The soil sample analytical results indicated a detection of DRO at a concentration of 25.3 milligrams per kilogram (mg/kg) in the sample SV-1-5. Please note that the laboratory flagged this detection as having heavier hydrocarbons contributing to the diesel range quantitation. No other petroleum hydrocarbons were detected in the soil samples at or above the RLs.

## DISCUSSION AND CONCLUSIONS

The following points are presented as discussion related to the LTCP's criteria for the determination of the bioattenuation zone at the project site:

- The *LCTP* establishes threshold soil vapor concentrations based on whether or not a bioattenuation zone exists at a given site. In general, the threshold soil vapor concentrations of petroleum hydrocarbons are 1,000 times higher at a site with a bioattenuation zone, as compared to a site without a bioattenuation zone. The presence of a bioattenuation zone is established, among other factors, using the following criteria:
    - Vertical distance between groundwater table and ground surface;
    - Total petroleum hydrocarbon (GRO and DRO) concentrations in soil in the upper five feet BGS;
    - Benzene concentration in groundwater; and
    - Oxygen concentrations in soil vapor at five feet BGS.

- Given the benzene concentration and depth to groundwater data collected as part of previous subsurface investigations at the project site, it appears that the following parameters should be met in order to determine the presence of a bioattenuation zone at the project site:
    - The vertical distance between the groundwater table and the ground surface must be at least five feet; and
    - The oxygen concentration in soil vapor at a depth of five feet BGS must be above four percent by volume.

As noted previously, a soil vapor sample could not be collected at five feet BGS due to the presence of water in the soil vapor probe during purging activities. Given the semi-confined nature of the aquifer at the project site, it is unknown if the water encountered is groundwater or pore water from

the surrounding fine grained soils during probe installation and sampling. Therefore, it cannot be determined whether the LTCP requirement for five feet between ground surface and groundwater has been satisfied.

With regard to the oxygen concentration in soil vapor at five feet BGS, soil vapor could not be sampled at this depth. At 2.5 BGS, however, oxygen was present at a concentration above four percent. Furthermore, although TFA was not detected in this sample, SV-2 was constructed just beneath a 1.5-foot thick fill layer, which may account for the 17.5 percent oxygen level.

Based on the conditions presented above, it is unclear whether a bioattenuation zone exists at the project site. Nevertheless, given the low GRO and DRO concentrations detected in shallow soil, and the nondetectable petroleum hydrocarbon concentrations detected in soil vapor at 2.5 feet BGS, it appears that the residual petroleum hydrocarbons at the project site represent a low risk for vapor intrusion.

It should also be noted that given the age of the release and that approximately 1,000 tons of petroleum hydrocarbon source soil was removed during the July, 2006 excavation (EBA, 2006), the soil vapor conditions documented during this investigation are not expected to get worse with time (i.e., increase in petroleum hydrocarbon vapor concentrations).

## RECOMMENDATIONS

As a result of this investigation, EBA recommends that the project site be considered for no further action. Because of the documented petroleum hydrocarbon impacts to both soil and groundwater, EBA further recommends that a Soil and Groundwater Management Plan (SGMP) be prepared for the project site for use and reference during any future construction activities. The SGMP would specify the proper handling and disposal procedures for petroleum hydrocarbon impacted soil and groundwater in the event that the project site is redeveloped in the future. The SGMP would be retained in CSDHS-EHD, Petaluma Fire Department and other applicable agency files.

## LIMITATIONS

This Report was prepared in accordance with generally accepted standards of environmental geological practice at the place and time this investigation was performed. This warranty is in lieu of all other warranties, either expressed or implied. This investigation was conducted solely for the purpose of evaluating environmental conditions of the soil and soil vapor with respect to petroleum hydrocarbons previously detected at the site. No soil engineering or geotechnical references are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of investigation. This report has been prepared solely for the Client and any reliance on this report by third parties shall be at such party's sole risk.

## CLOSING

If you have any questions regarding this Report, please contact EBA at (707) 544-0784.

Sincerely,
**EBA ENGINEERING**

Paul Nelson, P.G.
Project Geologist




## APPENDICES

Appendix A – Figures
Appendix B – Tabulated Analytical Results and Field Data Sheet
Appendix C – Certified Analytical Reports

## REFERENCES

DTSC/CalEPA, *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air,* October 2011.

DTSC/CalEPA, *Advisory – Active Soil Gas Investigations,* April 2012.

EBA Engineering, *Report of Excavation and Monitoring Well Installation, Skoff Trucking Facility, 1 Casa Grande Road, Petaluma, California,* February 2007a.

EBA Engineering, *Soil Vapor Investigation Work Plan, Skoff Trucking Facility, 1 Casa Grande Road, Petaluma, California,* November 2013.

State Water Resource Control Board, *Low Threat Underground Storage Tank Case Closure,* Resolution Number 2012-0016 dated August 17, 2012

cc: Skoff Trucking - P.O. Box 750996, Petaluma, CA 94975

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Rita Scardaci, PHN, MPH – Director
Ellen Bauer, PhD, MPP – Division Director

# Notice of Pending Action
## on
## Leaking Underground Storage Tank Site

*Date:* February 19, 2014
*Site Address:* 1 Casa Grande Road, Petaluma, CA
*LOP #:* 00002147
*Regional Board #:* 49-0161

The referenced site is under the oversight of the Department of Health Services (DHS), Environmental Health and Safety Section (EHS), Local Oversight Program (LOP) for investigation and cleanup of a petroleum release from underground storage tank(s). Pursuant to California Code of Regulations Title 23, Division 3, Chapter 16, Article 11, Section 2728, the State Water Resources Control Board's Low-Threat Underground Storage Tank Case Closure Policy and Department policy, public participation notice is hereby made of the following pending action on the referenced site:

**Site Closure**

This Department intends to close the investigation and cleanup of the referenced site, which was entered into the LOP in 1988, upon State Regional Board closure concurrence.

The above noted action may be taken after 60 days of the date of this notice unless this Department receives significant comments or new information is presented regarding this site giving cause to not proceed. You are advised to contact the site caseworker noted below of any reason or reasons the action noted above should not be taken. This Department will review the merits of all comments received within 60 days of this notification and take measures to halt or modify the proposed action if warranted.

Detailed information regarding the subject site can be found on the Geotracker website, a State Database at http://geotracker.waterboards.ca.gov/

Also, Sonoma County DHS, EHS maintains a file of all documents submitted for this site. The file can be reviewed at the EHS office, 625 5th Street, Santa Rosa, from 7:30 a.m. to 4:30 p.m. Monday through Friday. Appointments are recommended and can be arranged by calling 707-565-6565.

Notification is made by Darcy Bering (caseworker)

Telephone: (707) 565-6571

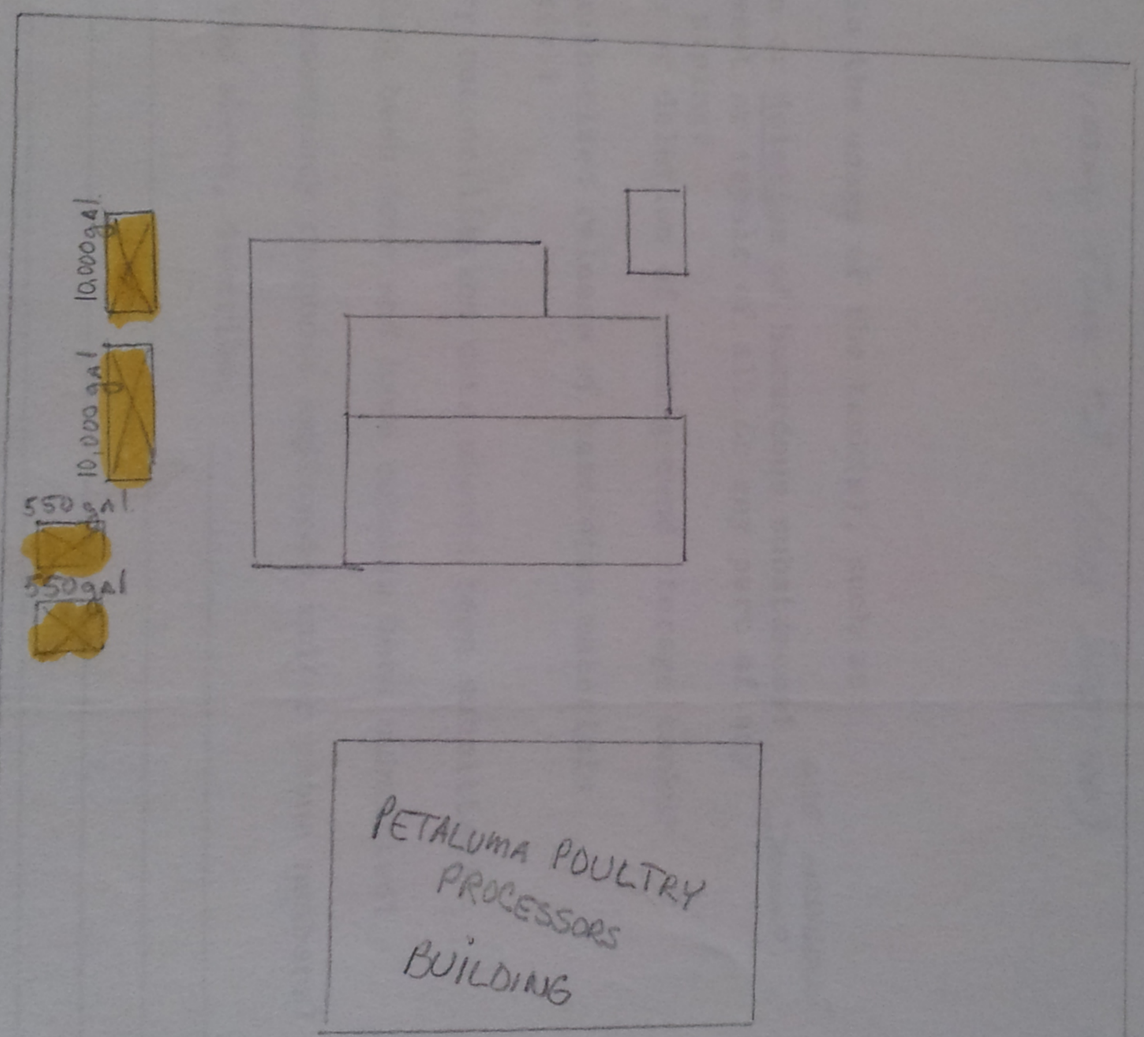
c: San Francisco Bay Regional Water Control Board
State Water Resources Control Board Cleanup Fund
Sonoma County Permit and Resource Management Department (Well & Septic)
Sonoma County Water Agency
City of Petaluma (Building, Utilities, and CUPA)
Adjacent/effected Property Owners
Responsible Party
Consultant

# PLOT PLAN

PETALUMA POULTRY PROCESSORS

2700 LAKEVILLE HWY
PETALUMA, CA. 94952

- 10,000 gallon - diesel
- 10,000 gallon - gas
- 550 gallon - gas
- 3,000 gallon - gas




HWY 137

# UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

EMERGENCY ☐ YES ☑ NO

HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? ☐ YES ☑ NO

REPORT DATE 0M 6M 0D 8D 8Y 9Y

CASE #

FOR LOCAL AGENCY USE ONLY
I HEREBY CERTIFY THAT I AM A DESIGNATED GOVERNMENT EMPLOYEE AND THAT I HAVE REPORTED THIS INFORMATION TO LOCAL OFFICIALS PURSUANT TO SECTION 25180.7 OF THE HEALTH AND SAFTY CODE.

SIGNED J. M. Lewin DATE 6/30/89

## REPORTED BY

NAME OF INDIVIDUAL FILING REPORT: JACK VERMEER

PHONE: (707) 527-2714

SIGNATURE: Jack Vermeer

REPRESENTING ☐ OWNER/OPERATOR ☐ REGIONAL BOARD ☑ LOCAL AGENCY ☐ OTHER

COMPANY OR AGENCY NAME: Sonoma County Health

ADDRESS: 2435 Professional Dr (STREET) Santa Rosa (CITY) Ca. (STATE) 95403 (ZIP)

## RESPONSIBLE PARTY

NAME: DAN SHAMISKY ☐ UNKNOWN

CONTACT PERSON

PHONE: (707) 763-1904

ADDRESS: P.O. Box 2628 (STREET) Petaluma (CITY) CA (STATE) 94953 (ZIP)

## SITE LOCATION

FACILITY NAME (IF APPLICABLE): Petaluma Poultry Producers

OPERATOR

PHONE: (707) 762-3411

ADDRESS: 2700 Lakeville Hwy (STREET) Petaluma, CA (CITY) Sonoma (COUNTY) 94952 (ZIP)

CROSS STREET

TYPE OF AREA ☑ COMMERCIAL ☐ INDUSTRIAL ☐ RURAL ☐ RESIDENTIAL ☐ OTHER

TYPE OF BUSINESS ☐ RETAIL FUEL STATION ☐ FARM ☑ OTHER

## IMPLEMENTING AGENCIES

LOCAL AGENCY AGENCY NAME: Sonoma County Health

CONTACT PERSON

PHONE: (707) 527-2714

REGIONAL BOARD: North San Francisco Bay

PHONE: (415) 464-4223

## SUBSTANCES INVOLVED

| | NAME | QUANTITY LOST (GALLONS) |
|---|---|---|
| (1) | Gasoline | ☑ UNKNOWN |
| (2) | Diesel | ☑ UNKNOWN |

## DISCOVERY/ABATEMENT

DATE DISCOVERED: 0M 4M 0D 8D 8Y 8Y

HOW DISCOVERED ☐ INVENTORY CONTROL ☐ SUBSURFACE MONITORING ☐ NUISANCE CONDITIONS ☐ TANK TEST ☑ TANK REMOVAL ☐ OTHER

DATE DISCHARGE BEGAN: M M D D Y Y ☑ UNKNOWN

HAS DISCHARGE BEEN STOPPED? ☑ YES ☐ NO IF YES, DATE 0M 6M 2D 7D 8Y 8Y

METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY)
☐ REMOVE CONTENTS ☐ REPLACE TANK ☑ CLOSE TANK
☐ REPAIR TANK ☐ REPAIR PIPING ☐ CHANGE PROCEDURE
☐ OTHER

## SOURCE/CAUSE

SOURCE OF DISCHARGE: ☑ TANK LEAK ☐ UNKNOWN ☐ PIPING LEAK ☐ OTHER

TANKS ONLY/CAPACITY: 23500 GAL. AGE YRS ☐ UNKNOWN

MATERIAL: ☐ FIBERGLASS ☑ STEEL ☐ OTHER

CAUSE(S): ☐ OVERFILL ☐ RUPTURE/FAILURE ☐ CORROSION ☐ UNKNOWN ☐ SPILL ☐ OTHER

## CASE TYPE

CHECK ONE ONLY
☑ UNDETERMINED ☐ SOIL ONLY ☐ GROUNDWATER ☐ DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)

## CURRENT STATUS

CHECK ONE ONLY
☑ SITE INVESTIGATION IN PROGRESS (DEFINING EXTENT OF PROBLEM) ☐ CLEANUP IN PROGRESS ☐ SIGNED OFF (CLEANUP COMPLETED OR UNNECESSARY)
☐ NO ACTION TAKEN ☐ POST CLEANUP MONITORING IN PROGRESS ☐ NO FUNDS AVAILABLE TO PROCEED ☐ EVALUATING CLEANUP ALTERNATIVES

## REMEDIAL ACTION

CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS)
☐ CAP SITE (CD) ☐ EXCAVATE & DISPOSE (ED) ☐ REMOVE FREE PRODUCT (FP) ☐ ENHANCED BIO DEGRADATION (IT)
☐ CONTAINMENT BARRIER (CB) ☑ EXCAVATE & TREAT (ET) ☐ PUMP & TREAT GROUNDWATER (GT) ☐ REPLACE SUPPLY (RS)
☐ TREATMENT AT HOOKUP (HU) ☐ NO ACTION REQUIRED (NA) ☐ OTHER (OT)

## COMMENTS

PROPOSITION 65 COMPLIANCE
The relevant information in this document has been reported in compliance with Proposition 65.
Signed Designated Employee
Sonoma Co. Health Agency, Department
BOS 6-8-89

HSC 05 (4/87)

# APPENDIX H

# QUALIFICATIONS

## Elizabeth Scudero – Project Manager, Due Diligence

BA – Environmental Studies, University of California, Santa Cruz

Ms. Scudero provides project management to ensure ASTM compliance and satisfaction of client requirements for Phase I Environmental Assessments, Environmental Transaction Screens, Regulatory Database Review, and Historical Records Review.

Project experience for Ms. Scudero includes:

- Phase I Environmental Site Assessments (PHI ESA)
- Environmental Transaction Screens (ETS)
- Regulatory Database Review
- Historical Records Review

In addition, prior to joining the environmental consulting industry, Ms. Scudero spent four years studying a diverse range of environmental disciplines including: restoration ecology, political ecology, environmental policy, agriculture and sustainable agriculture, environmental economics, environmental justice, and geography.

## Steve G. Kovach –Due Diligence Manager, Northern California Region

B.A. - Botany, Miami University (Ohio)
Minor – Conservation and the Environment

Certified OSHA 40-Hour Hazardous Waste Operations and Emergency Response

Mr. Kovach has spent over eleven years working in a broad range of environmental and engineering disciplines including: engineering and environmental due diligence services, industrial air, water, and wastewater permit compliance and monitoring, hazardous waste management and disposal, electrical utilities projects, environmental engineering projects, and wetland ecology research. Mr. Kovach has worked closely with regulatory agencies including the US Environmental Protection Agency, Department of Toxic Substance Control, California Water Resources Control Board, California Integrated Waste Management Board, Bay Area Air Quality Management District, East Bay Municipal Utilities District, and the United States Department of Energy.

Currently, Mr. Kovach is the Due Diligence Department Manager, Northern California Region for AEI, specializing in environmental due diligence services. As a senior member of AEI, Mr. Kovach provides staff supervision and senior review expertise to ensure ASTM compliance and satisfaction of client requirements for environmental assessments. AEI's review process provides for customization of reports to client needs, as well as strict conformance to ASTM standards. Additionally, Mr. Kovach provides senior project management to ensure ASTM compliance and satisfaction of client requirements for Phase I Environmental Site Assessments, Transaction Screens, and other related environmental assessments performed throughout California, Arizona, Nevada, Oregon, and Washington.

# APPENDIX G

# OTHER SUPPORTING DOCUMENTATION

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Rita Scardaci, PHN, MPH – Director
Ellen Bauer, PhD, MPP – Division Director

May 30, 2014

Mr. Marty Skoff
Skoff Trucking
1 Casa Grande Road
Petaluma, CA 94952

Re: 1 Casa Grande Road, Petaluma, CA
Site #00002147, SFBRWQCB #49-0161

Dear Mr. Skoff:

This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release at the site is required.

Claims for reimbursement of corrective action costs submitted to the Underground Storage Tank Cleanup Fund more than 365 days after the date of this letter or issuance or activation of the Fund's Letter of Commitment, whichever occurs later, will not be reimbursed unless one of the following exceptions applies:

- Claims are submitted pursuant to Section 25299.57, subdivision (k) (reopened UST case); or
- Submission within the timeframe was beyond the claimant's reasonable control, ongoing work is required for closure that will result in the submission of claims beyond that time period, or that under the circumstances of the case, it would be unreasonable or inequitable to impose the 365-day time period.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

CHRISTINE SOSKO, REHS
Director of Environmental Health

# Case Closure Summary

## Leaking Underground Fuel Storage Tank Program

**I. Agency Information** **Date: February 19, 2014**

| | | | |
|---|---|---|---|
| Agency name: | Sonoma County Dept. Health Services | Address: | 625 Fifth Street |
| City/State/Zip: | Santa Rosa, CA 95404 | Phone: | (707) 565-6565 |
| Responsible staff person: Darcy Bering | | Title: | Environmental Health Specialist |

**II. Case Information**

Site facility name: Skoff Trucking

Site facility address: 1 Casa Grande Road, Petaluma, CA 94952

| RB LUSTIS # 49-0161 | SWEEPS # NA | LOP #00002147 | URF filing date:10/2/89 & 10/27/99 | Local # NA |
|---|---|---|---|---|
| Responsible party | | Address | | Phone number |
| Skoff Trucking Attn: Marty Skoff | | 1 Casa Grande Rd., Petaluma, CA 94952 | | |

| Tank # | Size in gal. | Contents | Closed-in-place/removed? | Date |
|---|---|---|---|---|
| 1 | 1000 | Waste Oil | Removed | 12/86 |
| 2 | 1000 | Unknown | Removed | 5/24/90 |
| 3&4 | 1000 | Gasoline | Removed | 10/20/92 |
| 5,6&7 | 12000 | Diesel | Removed | 12/4/98 |
| 8 | 12000 | Regular Unleaded | Removed | 12/4/98 |
| 9 | 1000 | Gasoline | Removed | 10/27/99 |
| 10 | 500 | Gasoline | Removed | 10/27/99 |

**III. Release and Site Characterization Information**

Cause and type of release: unknown

| | | |
|---|---|---|
| Site characterization complete? Yes | | Date approved by oversight agency: 1/16/14 |
| MW installed? Yes | Number: 17 includes rem wells | Proper screened interval: Yes, typically 5'-15', 6'-16, 3'-13' |
| Highest GW depth BGS: 0 | Lowest depth: 5.17' | Flow direction: typically southerly |

Most sensitive current use: Domestic and Municipal Supply

| | |
|---|---|
| Are drinking water wells affected? Yes. See Comments | Aquifer name: Petaluma Valley (2-1) |
| Is surface water affected? No | Nearest SW name: Petaluma River approx. 1500' southwest. |

Off-site beneficial use impacts (addresses/locations): None

| | |
|---|---|
| Report(s) on file? Yes | Where is report(s) filed: Sonoma County Department of Health Services |

Treatment and Disposal of Affected Material

| Material | Amount (include units) | Action (treatment or disposal w/ destination) | Date |
|---|---|---|---|
| Tank | a) 2 b) 3&4 c)9&10 | a) destroyed by prop owner under fire dept oversight b) to Erickson, Richmond c) To West Coast Metals, Windsor<br>RP unable to locate records, declaration on file* | a) 5/1990 b)10/2092 c)10/27/90 |
| Piping | unknown | | |
| Tank Rinsate | 1250 Gallons | To Alviso Independent Oil, Alviso | 10/27/99 |
| Soil | a)72 yards, b)900 tons<br>c)3 tons | a)Vasco Rd., Landfill, b) Keller Canyon, c) Hay Rd., Landfill<br>RP unable to locate records, declaration on file* | a)8/17/91, b)7/5-7/8/06, c) 12/18/13 |
| Groundwater | 1320 & 5500 gals | To Petaluma Sanitary Sewer under permit | 5/21/02 & 8/1/06 |
| Barrels | 8 drums | Instrat, Davis. RP unable to locate records, declaration on file* | 12/5/13 |

## Case Closure Summary

**III. Release and Site Characterization Information (continued)** **Site Address: 1 Casa Grande Rd., Petaluma, CA 94952**

| Maximum Documented Contaminant Concentrations — Before and After Cleanup | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Contaminant | Soil (ppm) | | Water (ppm) | | Contaminant | Soil (ppm) | | Water (ppm) | |
| | Before | After | Before | After | | Before | After | Before | After |
| TPH (gas) | 1300 | 960 | 29 | 2.53 | Xylene | 18 | 18 | 1.8 | .0157 |
| TPH (diesel) | 300 | 200 | 8.8 | .269 | Ethylbenzene | 12 | 7.1 | .620 | .0382 |
| Benzene | .45 | .45 | 2.3 | .118 | Oil & grease | 56 | NS | .010 | NS |
| Toluene | .39 | <.17 | .065 | <.005 | Lead | 19 | 19 | NS | <.050 |
| Other | | | | | MTBE | .045 | .045 | 1.7 | <.005 |

Comments (depth of remediation, etc.): NS = Not Sampled or Analyzed for.

Excavation in July 2006 was 50'x34'x13'deep. A DPE pilot test occurred from 6/17-6/20/08.

Soil and water before are the highest values and may be from grab groundwater samples.

Other fuel oxygenates all ND in groundwater. Lead scavengers ND in groundwater.

**IV. Closure**

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes

Does corrective action protect public health for current land use? Yes

Site management requirements: Contingency planning is required for worker safety and waste disposal if excavating in area(s) of residual contamination. The Building Department has been notified. Newly proposed water supply wells may require siting and design by a qualified professional engineer or geologist. Sonoma County Permit and Resource Mgmt. Dept. has been notified.

A Soil and Groundwater Management Plan dated 2/14/14 is on file and on Geotracker.

Should corrective action be reviewed if land use changes? Yes

| Monitoring wells decommissioned? Yes | Number decommissioned: 4 | Number retained: 13 |
|---|---|---|

List enforcement actions taken: None

List enforcement actions rescinded: Not Applicable

**V. Local Agency Representative Data**

| Name: Leslye Choate | Title: Supervising Environmental Health Specialist |
|---|---|
| Signature: Leslye Choate | Date: 2-19-14 |

**VI. RWQCB Notification**

| Date submitted to RB: Feb. 24, 2014 | RB Response: Concur with closure recommendation | |
|---|---|---|
| RWQCB staff name: John Jang (John Jang) | Title: WRCE | Date: March 6, 2014 |

**VII. Additional Comments, Data, etc.**

Monitoring wells will be destroyed under permit of this Department prior to site closure.

Water supply well adjacent to the property reported 64 ppb TPHg and .6 ppb Toluene in a one time sample in Dec 1999. The well was destroyed under permit on 5/24/11.

The site meets the Low Threat Closure Policy as follows: General Media Criteria are all met. Groundwater Specific Criteria is met by criteria **1**. Vapor Intrusion to Indoor Air Criteria is met by **2b**. Direct Contact and Outdoor Air Exposure is met by **3a**.

* Declaration is on file indicating no knowledge of improper disposal and that a diligent search was conducted for documentation.

November 7, 2013

Ms. Darcy Bering
County of Sonoma Department of Health Services
Environmental Health Division
625 Fifth Street
Santa Rosa, CA 95401

**RE: THIRD QUARTER 2013 GROUNDWATER MONITORING AND SAMPLING REPORT**
**SKOFF TRUCKING**
**1 CASA GRANDE ROAD, PETALUMA, CALIFORNIA**
***EBA Project No. 99-723 (31133)***

Dear Ms. Bering:

Please find enclosed the Third Quarter 2013 Groundwater Monitoring and Sampling Report prepared by EBA Engineering (EBA) for the site located at 1 Casa Grande Road, Petaluma, California (Figure 1). Semi-annual groundwater monitoring events for this site are being conducted in accordance with the County of Sonoma Department of Health Services – Environmental Health Division (CSDHS – EHD) letter dated July 17, 2013.

## GROUNDWATER MONITORING AND SAMPLING

The groundwater monitoring activities for this quarter were performed by EBA personnel on August 15 and August 30, 2013. The scope of these activities included field monitoring, groundwater sampling, and laboratory testing. Further details regarding each of these tasks are summarized in the following subsections.

### ***Field Monitoring***

Field monitoring activities included measuring the depth to groundwater from top-of-casing (TOC) in on-site monitoring wells MW-3, MW-8 through MW-14, and dual phase extraction well DPE-1 in order to evaluate groundwater flow direction and hydraulic gradient. This was accomplished using an electronic water level sounder. Please note that MW-7 was inaccessible due to a truck parked on top of the monitoring well, and MW-5 was buried in soil and could not be located.

### *Groundwater Sampling*

Monitoring wells MW-9, MW-11, MW-13, and MW-14, as well as DPE-1 were sampled during this event. Prior to sample collection, the monitoring wells were purged of standing water to aid in the collection of a sample representative of formation water. The wells were purged until water quality parameters stabilized and a minimum of three well volumes were removed. Field data sheets detailing the monitoring of groundwater pH, electrical conductivity and temperature during well purging are enclosed in this report. Purge water generated by the sampling activities was either retained and is stored on-site in a properly labeled 55-gallon DOT 17H steel drums pending characterization and disposal, or was transported to EBA's warehouse, treated using granular activated carbon, and discharged to the City of Santa Rosa sanitary sewer under EBA's Industrial User Permit #SR-GW7010. Please note that during the August 15 sampling event, due to a mathematical error, an insufficient volume of water was purged from DPE-1 prior to sampling. For this reason, analytical results from this well on this date should not be considered as an accurate representation of groundwater conditions. DPE-1 was purged and sampled again on August 30.

The groundwater samples retained for chemical analysis were collected using single-sample disposable bailers equipped with bottom emptying devices to minimize water degassing. The collected groundwater samples were transferred into properly labeled, laboratory-supplied, sterile sample containers, logged on a Chain-of-Custody (C-O-C) form and placed under refrigerated conditions pending transport to K Prime, Inc. (K Prime), a California State-certified laboratory located in Santa Rosa, California, for chemical analytical testing. The Certified Analytical Reports (CAR) and corresponding C-O-C records are included in this report.

### *Laboratory Testing*

The groundwater samples were analyzed for Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using Environmental Protection Agency (EPA) Method 8015B; and benzene, toluene, ethylbenzene, total xylenes (BTEX), and the fuel oxygenate methyl tert-butyl ether (MtBE) using EPA Method 5030/8260.

## RESULTS AND FINDINGS

### *Groundwater Flow Direction and Gradient*

The groundwater flow direction at the time of this monitoring event was southeasterly with an average hydraulic gradient of approximately 0.004 feet/foot. Groundwater elevations are illustrated on the Potentiometric Surface Map (Figure 2) and summarized in Table 1.

### *Groundwater Sample Analytical Results*

Analytical results indicate that GRO was detected in the groundwater samples collected from MW-11 and DPE-1 at concentrations of 868 and 2,530 micrograms per liter (µg/L), respectively. DRO was detected in MW-11 and DPE-1 at concentrations of 164 and 269 µg/L respectively, and both detections were "flagged" by the analytical laboratory as being lighter hydrocarbons than

diesel. Benzene was detected in MW-11 and DPE-1 at concentrations of 37.2 and, 118 µg/L respectively. Ethylbenzene was detected in MW-11 and DPE-1 at concentrations of 6.65 and 38.2 µg/L, respectively. Xylenes were also detected in DPE-1 at the concentration 15.7 µg/L. No other analyzed constituents were detected at or above their respective reporting limits (RLs) in these wells. None of the analytes were detected in samples collected from MW-9, MW-13, and MW-14. Tabulated groundwater analytical results are presented in Table 2. Please refer to the CARs for quality assurance/quality control and C-O-C documentation.

Trend graphs depicting the concentrations of the constituents of potential concern (GRO and benzene) in MW-11 and DPE-1 over time are included as Graphs 1 and 2, respectively. The exponential trend lines were calculated from analytical data collected after the July 2006 excavation performed by EBA. Extrapolated trend lines for MW-11 estimate that GRO and benzene levels will both attenuate to the San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs, [100 and 1 µg/L for GRO and benzene, respectively]) in approximately 50 years. Please note that the $R^2$ values (0.0725 and 0.1171) for these predictions represent approximately a seven to twelve percent confidence, respectively. Extrapolated trend lines for DPE-1 estimate that GRO will attenuate to the ESL in approximately 29 years, and that benzene will attenuate to its ESL in approximately 15 years. Please note that the $R^2$ values for these predictions represent approximately a 44 and 60 percent confidence, respectively. These results appear to be more accurate than those estimated by the data from MW-11.

If you should have any questions regarding this report, please contact EBA at (707) 544-0784.

Sincerely,
**EBA ENGINEERING**

Bryan Groza
Staff Geologist

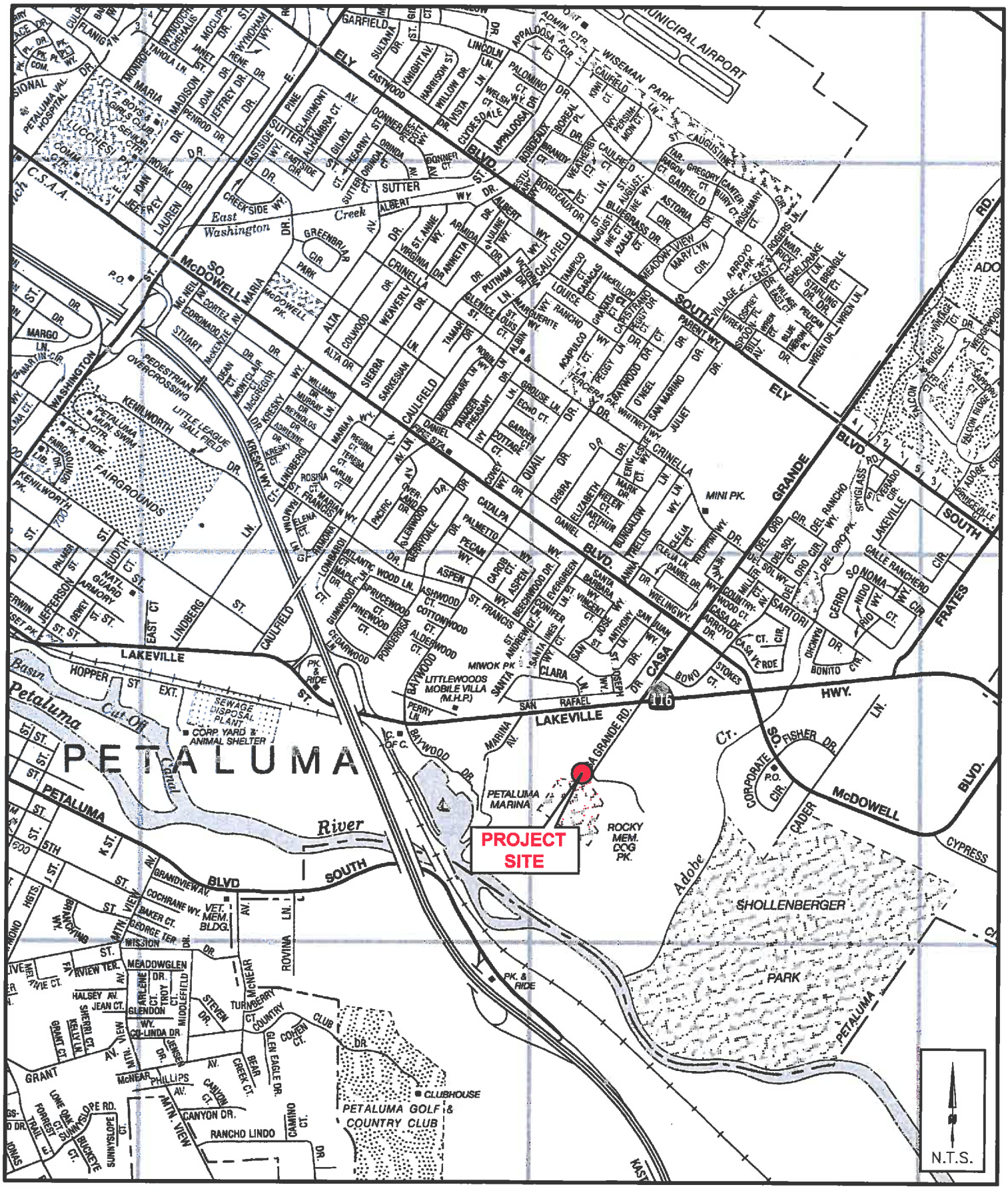
*Supervised by*

Paul Nelson, P.G.
Project Geologist




Attach: Figure 1: Location Map
Figure 2: Potentiometric Surface Map – August 15, 2013
Table 1: Monitoring Well Survey and Groundwater Elevation Data
Table 2: Groundwater Sample Analytical Results: GRO, DRO, BTEX, MtBE, Nitrates as $NO_3$ and Total Dissolved Solids
Graph 1: MW-11 GRO and Benzene Trend Graph
Graph 2: DPE-1 GRO and Benzene Trend Graph
Field Data Sheets
Certified Analytical Reports and Chain-of-Custody Records

cc: Skoff Trucking - P.O. Box 750996, Petaluma, CA 94975




EBA ENGINEERING
825 SONOMA AVENUE
SUITE C
SANTA ROSA, CA 95404
TEL: (707) 544-0784

# LOCATION MAP

SKOFF TRUCKING
1 CASA GRANDE ROAD
PETALUMA, CALIFORNIA

FIGURE
1
99-723

Q:\99-723\Location.DWG, Location Map, 8/21/2013 4:13:43 PM

## LEGEND

| | |
|---|---|
| MW-3 5.34 | MONITORING WELL WITH GROUNDWATER ELEVATION (MSL) |
| MW-1 | DESTROYED MONITORING WELL |
| | FORMER UST (SEE TABLE) |
| 6.00 | POTENTIOMETRIC SURFACE CONTOUR (FEET MSL) |
| NM | NOT MEASURED |
| UST | UNDERGROUND STORAGE TANK |
| MSL | MEAN SEA LEVEL |

| FORMER UST (GALLONS, CONTENTS) | |
|---|---|
| 1 | 1,000 GASOLINE |
| 2 | 1,000 WASTE OIL |
| 3 | 12,000 DIESEL |
| 4 | 12,000 GASOLINE |
| 5 | 500 GASOLINE |
| 6 | 1,000 UNKNOWN |

FORMER EXCAVATION (TYPICAL)

MW-7 NM

MW-1

MW-3 5.34

MW-4

MW-5 NM

MW-8 6.10

MW-10 6.04

MW-12 5.80

DPE-1 5.82

MW-6

MW-11 5.76

MW-13 5.67

MW-9 5.56

MW-14 5.57

6.10

6.05

6.00

5.95

5.90

5.85

5.80

5.75

5.70

5.65

5.60

5.55

SHOP

OFFICE

SHED

DRIVE

APPROXIMATE PROPERTY LINE

FORMER DOMESTIC WELL

CASA GRANDE ROAD

NORTHWESTERN PACIFIC RAILROAD

30 0 30

SCALE : 1" = 30'

# POTENTIOMETRIC SURFACE MAP
AUGUST 15, 2013
SKOFF TRUCKING
1 CASA GRANDE ROAD
PETALUMA, CALIFORNIA

FIGURE 2

99-723

EBA ENGINEERING
825 SONOMA AVENUE
SUITE C
SANTA ROSA, CA 95404
TEL: (707) 544-0784

Q:\99-723\PSM 2013.dwg, PSM 2013-08-15, 9/17/2013 4:30:11 PM

# TABLE 1
## MONITORING WELL SURVEY AND GROUNDWATER ELEVATION DATA
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Location | TOC Elevation (feet MSL) | Screened Interval (feet below TOC) | Date | Depth to Groundwater (feet below TOC) | Groundwater Elevation (feet MSL) |
|---|---|---|---|---|---|
| MW-1 | 7.96 | 5-15 | 11/5/1999 | 2.72 | 5.24 |
| | | | 1/26/2000 | 0.69 | 7.27 |
| | | | 2/15/2000 | 0.34 | 7.62 |
| | | | 3/28/2000 | 0.95 | 7.01 |
| | | | 5/9/2000 | 1.67 | 6.29 |
| | | | 6/6/2000 | 2.41 | 5.55 |
| | | | 7/24/2000 | 2.80 | 5.16 |
| | | | 8/23/2000 | 2.99 | 4.97 |
| | | | 11/1/2000 | 1.58 | 6.38 |
| | | | 2/8/2001 | 1.42 | 6.54 |
| | | | 6/19/2001 | 2.35 | 5.61 |
| | | | 10/3/2001 | 2.72 | 5.24 |
| | | | 1/16/2002 | 1.12 | 6.84 |
| | | | 4/9/2002 | 1.83 | 6.13 |
| | | | 7/25/2002 | 2.28 | 5.68 |
| | | | 10/21/2002 | 2.55 | 5.41 |
| | | | 1/21/2003 | 1.10 | 6.86 |
| | | | 4/23/2003 | 1.57 | 6.39 |
| | | | 7/23/2003 | 2.23 | 5.73 |
| | | | 10/30/2003 | 2.68 | 5.28 |
| | | | 1/28/2004 | 1.31 | 6.65 |
| | | | 4/20/2004 | 1.72 | 6.24 |
| | | | 7/15/2004 | 2.31 | 5.65 |
| | | | 10/6/2004 | 2.73 | 5.23 |
| | | | 1/6/2005 | 0.61 | 7.35 |
| | | | 4/13/2005 | NM | NM |
| | | | 7/20/2005 | NM | NM |
| | | | 10/19/2005 | NM | NM |
| | | | 1/19/2006 | NM | NM |
| | | | 4/17/2006 | NM | NM |
| | Monitoring well destroyed on June 26, 2006 | | | | |
| MW-2 | 7.00 | 8-18 | 11/5/1999 | 2.02 | 4.98 |
| | | | 1/26/2000 | 0.27 | 6.73 |
| | | | 2/15/2000 | - | TOC |
| | | | 3/28/2000 | 0.59 | 6.41 |
| | | | 5/9/2000 | 1.06 | 5.94 |
| | | | 6/6/2000 | 1.64 | 5.36 |
| | | | 7/24/2000 | 2.02 | 4.98 |
| | | | 8/23/2000 | 2.12 | 4.88 |
| | | | 11/1/2000 | NM | NM |
| | | | 2/8/2001 | 0.81 | 6.19 |
| | | | 6/19/2001 | 1.74 | 5.26 |
| | | | 10/3/2001 | 2.09 | 4.91 |
| | | | 1/16/2002 | 0.56 | 6.44 |
| | | | 4/9/2002 | 1.21 | 5.79 |
| | | | 7/25/2002 | 1.58 | 5.42 |
| | | | 10/21/2002 | 1.87 | 5.13 |
| | | | 1/21/2003 | 0.60 | 6.40 |
| | | | 4/23/2003 | 0.99 | 6.01 |
| | | | 7/23/2003 | 1.53 | 5.47 |
| | | | 10/30/2003 | 2.10 | 4.90 |
| | | | 1/28/2004 | 0.78 | 6.22 |
| | | | 4/20/2004 | 1.11 | 5.89 |
| | | | 7/15/2004 | 1.67 | 5.33 |
| | | | 10/6/2004 | 2.07 | 4.93 |
| | | | 1/6/2005 | 0.12 | 6.88 |
| | | | 4/13/2005 | NM | NM |
| | | | 7/20/2005 | NM | NM |
| | | | 10/19/2005 | NM | NM |
| | | | 1/19/2006 | NM | NM |
| | | | 4/17/2006 | NM | NM |
| | Monitoring well destroyed on June 26, 2006 | | | | |

# TABLE 1
## MONITORING WELL SURVEY AND GROUNDWATER ELEVATION DATA
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Location | TOC Elevation (feet MSL) | Screened Interval (feet below TOC) | Date | Depth to Groundwater (feet below TOC) | Groundwater Elevation (feet MSL) |
|---|---|---|---|---|---|
| MW-3 | 7.24 | 11-21 | 11/5/1999 | 2.30 | 4.94 |
| | | | 1/26/2000 | 0.46 | 6.78 |
| | | | 2/15/2000 | - | See TOC |
| | | | 3/28/2000 | 0.61 | 6.63 |
| | | | 5/9/2000 | 1.22 | 6.02 |
| | | | 6/6/2000 | 1.88 | 5.36 |
| | | | 7/24/2000 | 2.34 | 4.90 |
| | | | 8/23/2000 | 2.41 | 4.83 |
| | | | 11/1/2000 | 1.16 | 6.08 |
| | | | 2/8/2001 | 1.03 | 6.21 |
| | | | 6/19/2001 | 1.97 | 5.27 |
| | | | 10/3/2001 | 2.28 | 4.96 |
| | | | 1/16/2002 | 0.56 | 6.68 |
| | | | 4/9/2002 | 1.38 | 5.86 |
| | | | 7/25/2002 | 1.82 | 5.42 |
| | | | 10/21/2002 | 2.07 | 5.17 |
| | | | 1/21/2003 | 0.66 | 6.58 |
| | | | 4/23/2003 | 1.18 | 6.06 |
| | | | 7/23/2003 | 1.83 | 5.41 |
| | | | 10/30/2003 | 2.22 | 5.02 |
| | | | 1/28/2004 | 0.88 | 6.36 |
| | | | 4/20/2004 | 1.30 | 5.94 |
| | | | 7/15/2004 | 1.90 | 5.34 |
| | | | 10/6/2004 | 2.27 | 4.97 |
| | | | 1/6/2005 | NM | NM |
| | | | 4/13/2005 | 0.86 | 6.38 |
| | | | 7/20/2005 | 1.94 | 5.30 |
| | | | 10/19/2005 | 2.24 | 5.00 |
| | | | 1/19/2006 | 0.23 | 7.01 |
| | | | 4/17/2006 | 0.17 | 7.07 |
| | | | 8/16/2006 | 1.85 | 5.39 |
| | | | 11/30/2006 | 1.12 | 6.12 |
| | | | 3/29/2007 | 1.35 | 5.89 |
| | | | 6/27/2007 | 2.42 | 4.82 |
| | | | 9/26/2007 | 2.94 | 4.30 |
| | | | 12/12/2007 | 1.53 | 5.71 |
| | | | 3/20/2008 | 1.23 | 6.01 |
| | | | 6/30/2008 | 2.20 | 5.04 |
| | | | 9/4/2008 | 2.51 | 4.73 |
| | | | 3/27/2009 | 1.15 | 6.09 |
| | | | 3/19/2010 | 0.74 | 6.50 |
| | | | 9/23/2010 | 2.49 | 4.75 |
| | | | 3/28/2011 | - | See TOC |
| | | | 8/25/2011 | 1.91 | 5.33 |
| | | | 3/20/2012 | 0.41 [A] | 6.83 |
| | | | 8/15/2013 | 1.90 | 5.34 |
| MW-4 | 7.04 | 5-25 | 11/5/1999 | 2.36 | 4.68 |
| | | | 1/26/2000 | 0.48 | 6.56 |
| | | | 2/15/2000 | - | See TOC |
| | | | 3/28/2000 | 0.36 | 6.68 |
| | | | 5/9/2000 | 1.23 | 5.81 |
| | | | 6/6/2000 | 1.79 | 5.25 |
| | | | 7/24/2000 | 2.48 | 4.56 |
| | | | 8/23/2000 | 2.50 | 4.54 |
| | | | 11/1/2000 | 1.08 | 5.96 |
| | | | 2/8/2001 | 0.97 | 6.07 |
| | | | 6/19/2001 | 1.93 | 5.11 |
| | | | 10/3/2001 | 2.29 | 4.75 |
| | | | 1/16/2002 | 0.66 | 6.38 |
| | | | 4/9/2002 | 1.31 | 5.73 |
| | | | 7/25/2002 | 1.72 | 5.32 |
| | | | 10/21/2002 | 1.96 | 5.08 |
| | | | 1/21/2003 | 0.55 | 6.49 |
| | | | 4/23/2003 | 1.11 | 5.93 |
| | | | 7/23/2003 | 1.77 | 5.27 |
| | | | 10/30/2003 | 2.06 | 4.98 |
| | | | 1/28/2004 | 0.78 | 6.26 |
| | | | 4/20/2004 | 1.15 | 5.89 |
| | | | 7/15/2004 | 1.78 | 5.26 |
| | | | 10/6/2004 | 2.13 | 4.91 |
| | | | 1/6/2005 | - | See TOC |
| | | | 4/13/2005 | NM | NM |
| | | | 7/20/2005 | NM | NM |
| | | | 10/19/2005 | NM | NM |
| | | | 1/19/2006 | NM | NM |
| | | | 4/17/2006 | NM | NM |
| | Monitoring well destroyed on June 26, 2006 | | | | |

# TABLE 1
## MONITORING WELL SURVEY AND GROUNDWATER ELEVATION DATA
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Location | TOC Elevation (feet MSL) | Screened Interval (feet below TOC) | Date | Depth to Groundwater (feet below TOC) | Groundwater Elevation (feet MSL) |
|---|---|---|---|---|---|
| MW-5 | 7.53 | 5-25 | 11/5/1999 | 2.95 | 4.58 |
| | | | 1/26/2000 | 0.42 | 7.11 |
| | | | 2/15/2000 | 0.15 | 7.38 |
| | | | 3/28/2000 | 0.81 | 6.72 |
| | | | 5/9/2000 | 1.85 | 5.68 |
| | | | 6/6/2000 | 2.71 | 4.82 |
| | | | 7/24/2000 | 3.12 | 4.41 |
| | | | 8/23/2000 | 3.08 | 4.45 |
| | | | 11/1/2000 | 1.57 | 5.96 |
| | | | 2/8/2001 | 1.51 | 6.02 |
| | | | 6/19/2001 | 2.47 | 5.06 |
| | | | 10/3/2001 | 2.83 | 4.70 |
| | | | 1/16/2002 | 1.22 | 6.31 |
| | | | 4/9/2002 | 1.85 | 5.68 |
| | | | 7/25/2002 | 2.19 | 5.34 |
| | | | 10/21/2002 | 2.44 | 5.09 |
| | | | 1/21/2003 | 1.01 | 6.52 |
| | | | 4/23/2003 | 1.63 | 5.90 |
| | | | 7/23/2003 | 2.26 | 5.27 |
| | | | 10/30/2003 | 2.54 | 4.99 |
| | | | 1/28/2004 | 1.28 | 6.25 |
| | | | 4/20/2004 | 1.63 | 5.90 |
| | | | 7/15/2004 | 2.21 | 5.32 |
| | | | 10/6/2004 | 2.54 | 4.99 |
| | | | 1/6/2005 | 0.60 | 6.93 |
| | | | 4/13/2005 | 1.24 | 6.29 |
| | | | 7/20/2005 | 2.33 | 5.20 |
| | | | 10/19/2005 | 2.33 | 5.11 |
| | | | 1/19/2006 | 0.52 | 7.01 |
| | | | 4/17/2006 | 0.52 | 7.01 |
| | | | 8/16/2006 | NM | NM |
| | | | 11/30/2006 | 1.38 | 6.15 |
| | | | 3/29/2007 | 1.64 | 5.89 |
| | | | 6/27/2007 | 2.70 | 4.38 |
| | | | 9/26/2007 | 3.27 | 4.26 |
| | | | 12/12/2007 | 1.77 | 5.76 |
| | | | 3/20/2008 | 1.53 | 6.00 |
| | | | 6/30/2008 | NM | NM |
| | | | 9/4/2008 | NM | NM |
| | | | 3/27/2009 | 1.55 | 5.98 |
| | | | 3/19/2010 | 1.24 | 6.29 |
| | | | 9/23/2010 | 2.85 | 4.68 |
| | | | 3/28/2011 | 0.33 | 7.20 |
| | | | 8/25/2011 | 2.27 | 5.26 |
| | | | 3/20/2012 | 0.66 | 6.87 |
| | | | 8/15/2013 | NM | NM |
| MW-6 | 7.88 | 5-20 | 6/19/2001 | 2.50 | 5.38 |
| | | | 10/3/2001 | 2.92 | 4.96 |
| | | | 1/16/2002 | 1.30 | 6.58 |
| | | | 4/9/2002 | 1.96 | 5.92 |
| | | | 7/25/2002 | 2.28 | 5.6 |
| | | | 10/21/2002 | 2.57 | 5.31 |
| | | | 1/21/2003 | 1.17 | 6.71 |
| | | | 4/23/2003 | 1.72 | 6.16 |
| | | | 7/23/2003 | 2.24 | 5.64 |
| | | | 10/30/2003 | 2.61 | 5.27 |
| | | | 1/28/2004 | 1.41 | 6.47 |
| | | | 4/20/2004 | 1.74 | 6.14 |
| | | | 7/15/2004 | 2.27 | 5.61 |
| | | | 10/6/2004 | 2.63 | 5.25 |
| | | | 1/6/2005 | 0.68 | 7.20 |
| | | | 4/13/2005 | NM | NM |
| | | | 7/20/2005 | NM | NM |
| | | | 10/19/2005 | NM | NM |
| | | | 1/19/2006 | NM | NM |
| | | | 4/17/2006 | NM | NM |
| | Monitoring well destroyed on June 26, 2006 | | | | |

# TABLE 1
## MONITORING WELL SURVEY AND GROUNDWATER ELEVATION DATA
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Location | TOC Elevation (feet MSL) | Screened Interval (feet below TOC) | Date | Depth to Groundwater (feet below TOC) | Groundwater Elevation (feet MSL) |
|---|---|---|---|---|---|
| MW-7 | 7.69 | 3-13 | 6/19/2001 | 2.04 | 5.65 |
| | | | 10/3/2001 | 2.39 | 5.30 |
| | | | 1/16/2002 | 0.92 | 6.77 |
| | | | 4/9/2002 | 1.60 | 6.09 |
| | | | 7/25/2002 | 1.98 | 5.71 |
| | | | 10/21/2002 | 2.22 | 5.47 |
| | | | 1/21/2003 | 0.92 | 6.77 |
| | | | 4/23/2003 | 1.33 | 6.36 |
| | | | 7/23/2003 | 1.89 | 5.80 |
| | | | 10/30/2003 | 2.36 | 5.33 |
| | | | 1/28/2004 | 1.11 | 6.58 |
| | | | 4/20/2004 | 1.51 | 6.18 |
| | | | 7/15/2004 | 2.00 | 5.69 |
| | | | 10/6/2004 | 2.38 | 5.31 |
| | | | 1/6/2005 | 0.36 | 7.33 |
| | | | 4/13/2005 | 1.00 | 6.69 |
| | | | 7/20/2005 | 2.04 | 5.65 |
| | | | 10/19/2005 | 2.33 | 5.36 |
| | | | 1/19/2006 | 0.46 | 7.23 |
| | | | 4/17/2006 | 0.36 | 7.33 |
| | | | 8/16/2006 | 2.00 | 5.69 |
| | | | 11/30/2006 | 1.39 | 6.30 |
| | | | 3/29/2007 | 1.55 | 6.14 |
| | | | 6/27/2007 | 2.46 | 5.23 |
| | | | 9/26/2007 | 3.03 | 4.66 |
| | | | 12/12/2007 | 1.79 | 5.90 |
| | | | 3/20/2008 | 1.44 | 6.25 |
| | | | 6/30/2008 | 2.34 | 5.35 |
| | | | 9/4/2008 | 2.69 | 5.00 |
| | | | 3/27/2009 | 1.32 | 6.37 |
| | | | 3/19/2010 | NM | NM |
| | | | 9/23/2010 | 2.51 | 5.18 |
| | | | 3/28/2011 | 0.11 | 7.58 |
| | | | 8/25/2011 | 2.03 | 5.66 |
| | | | 3/20/2012 | NM | NM |
| | | | 8/15/2013 | NM | NM |
| MW-8 | 8.23 | 3-15 | 7/23/2003 | 2.26 | 5.97 |
| | | | 10/30/2003 | 2.68 | 5.55 |
| | | | 1/28/2004 | 1.52 | 6.71 |
| | | | 4/20/2004 | 1.71 | 6.52 |
| | | | 7/15/2004 | 2.31 | 5.92 |
| | | | 10/6/2004 | 2.70 | 5.53 |
| | | | 1/6/2005 | 0.44 | 7.79 |
| | | | 4/13/2005 | 1.13 | 7.10 |
| | | | 7/20/2005 | 1.94 | 6.29 |
| | | | 10/19/2005 | 2.36 | 5.87 |
| | | | 1/19/2006 | 0.48 | 7.75 |
| | | | 4/17/2006 | 0.50 | 7.73 |
| | | | 8/16/2006 | 2.20 | 6.03 |
| | | | 11/30/2006 | 1.53 | 6.70 |
| | | | 3/29/2007 | 1.80 | 6.43 |
| | | | 6/27/2007 | 2.75 | 5.48 |
| | | | 9/26/2007 | 3.39 | 4.84 |
| | | | 12/12/2007 | 2.00 | 6.23 |
| | | | 3/20/2008 | 1.71 | 6.52 |
| | | | 6/30/2008 | 2.50 | 5.73 |
| | | | 9/4/2008 | 3.10 | 5.13 |
| | | | 3/27/2009 | 1.64 | 6.59 |
| | | | 3/19/2010 | 1.26 | 6.97 |
| | | | 9/23/2010 | 2.85 | 5.38 |
| | | | 3/28/2011 | 0.25 | 7.98 |
| | | | 8/25/2011 | 2.25 | 5.98 |
| | | | 3/20/2012 | 0.66 | 7.57 |
| | | | 8/15/2013 | 2.13 | 6.10 |

# TABLE 1
## MONITORING WELL SURVEY AND GROUNDWATER ELEVATION DATA
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Location | TOC Elevation (feet MSL) | Screened Interval (feet below TOC) | Date | Depth to Groundwater (feet below TOC) | Groundwater Elevation (feet MSL) |
|---|---|---|---|---|---|
| MW-9 | 8.11 | 3-19.45 | 7/23/2003 | 2.71 | 5.40 |
| | | | 10/30/2003 | 3.00 | 5.11 |
| | | | 1/28/2004 | 0.94 | 7.17 |
| | | | 4/20/2004 | 2.20 | 5.91 |
| | | | 7/15/2004 | 2.70 | 5.41 |
| | | | 10/6/2004 | 3.01 | 5.10 |
| | | | 1/6/2005 | 1.21 | 6.90 |
| | | | 4/13/2005 | 1.80 | 6.31 |
| | | | 7/20/2005 | 2.81 | 5.30 |
| | | | 10/19/2005 | 2.77 | 5.34 |
| | | | 1/19/2006 | 1.08 | 7.03 |
| | | | 4/17/2006 | 1.15 | 6.96 |
| | | | 8/16/2006 | 2.45 | 5.66 |
| | | | 11/30/2006 | 1.93 | 6.18 |
| | | | 3/29/2007 | 2.15 | 5.96 |
| | | | 6/27/2007 | 3.11 | 5.00 |
| | | | 9/26/2007 | 3.76 | 4.35 |
| | | | 12/12/2007 | 2.31 | 5.80 |
| | 8.09 | | 3/20/2008 | 2.10 | 5.99 |
| | | | 6/30/2008 | 2.75 | 5.34 |
| | | | 9/4/2008 | 3.55 | 4.54 |
| | | | 3/27/2009 | 2.20 | 5.89 |
| | | | 3/19/2010 | NM | NM |
| | | | 9/23/2010 | 3.26 | 4.83 |
| | | | 3/28/2011 | 0.88 | 7.21 |
| | | | 8/25/2011 | 2.63 | 5.46 |
| | | | 3/20/2012 | 1.17 | 6.92 |
| | | | 8/15/2013 | 2.53 | 5.56 |
| MW-10 | 7.74 | 8-18 | 8/16/2006 | 1.75 | 5.99 |
| | | | 11/30/2006 | 1.25 | 6.49 |
| | | | 3/29/2007 | 1.33 | 6.41 |
| | | | 6/27/2007 | 2.26 | 5.48 |
| | | | 9/26/2007 | NM | NM |
| | | | 12/12/2007 | NM | NM |
| | 7.78 | | 3/20/2008 | 1.27 | 6.51 |
| | | | 6/30/2008 | 2.07 | 5.71 |
| | | | 9/4/2008 | 2.65 | 5.13 |
| | | | 3/27/2009 | 1.19 | 6.59 |
| | | | 3/19/2010 | 0.77 | 7.01 |
| | | | 9/23/2010 | 2.42 | 5.36 |
| | | | 3/28/2011 | - | TOC |
| | | | 8/25/2011 | 1.78 | 6.00 |
| | | | 3/20/2012 | 0.21 [A] | 7.57 |
| | | | 8/15/2013 | 1.74 | 6.04 |
| MW-11 | 7.85 | 6-16 | 8/16/2006 | 2.08 | 5.77 |
| | | | 11/30/2006 | 1.36 | 6.49 |
| | | | 3/29/2007 | 1.69 | 6.16 |
| | | | 6/27/2007 | 2.45 | 5.40 |
| | | | 9/26/2007 | 3.33 | 4.52 |
| | | | 12/12/2007 | 1.81 | 6.04 |
| | 7.88 | | 3/20/2008 | 1.60 | 6.28 |
| | | | 6/30/2008 | 2.35 | 5.53 |
| | | | 9/4/2008 | 3.10 | 4.78 |
| | | | 3/27/2009 | 1.59 | 6.29 |
| | | | 3/19/2010 | 1.33 | 6.55 |
| | | | 9/23/2010 | 2.85 | 5.03 |
| | | | 3/28/2011 | 0.11 | 7.77 |
| | | | 8/25/2011 | 2.20 | 5.68 |
| | | | 3/20/2012 | 0.49 [A] | 7.39 |
| | | | 8/15/2013 | 2.12 | 5.76 |
| MW-12 | 8.03 | 6-16 | 8/16/2006 | 2.21 | 5.82 |
| | | | 11/30/2006 | 1.54 | 6.49 |
| | | | 3/29/2007 | 1.82 | 6.21 |
| | | | 6/27/2007 | 2.80 | 5.23 |
| | | | 9/26/2007 | 3.43 | 4.60 |
| | | | 12/12/2007 | 1.97 | 6.06 |
| | 8.06 | | 3/20/2008 | 1.73 | 6.33 |
| | | | 6/30/2008 | 2.52 | 5.54 |
| | | | 9/4/2008 | 3.18 | 4.88 |
| | | | 3/27/2009 | 1.70 | 6.36 |
| | | | 3/19/2010 | 1.32 | 6.74 |
| | | | 9/23/2010 | 2.95 | 5.11 |
| | | | 3/28/2011 | 0.34 | 7.72 |
| | | | 8/25/2011 | 2.33 | 5.73 |
| | | | 3/20/2012 | 0.39 [A] | 7.67 |
| | | | 8/15/2013 | 2.26 | 5.80 |



EBA ENGINEERING

# TABLE 1
## MONITORING WELL SURVEY AND GROUNDWATER ELEVATION DATA
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Location | TOC Elevation (feet MSL) | Screened Interval (feet below TOC) | Date | Depth to Groundwater (feet below TOC) | Groundwater Elevation (feet MSL) |
|---|---|---|---|---|---|
| MW-13 | 8.52 | 6-18 | 6/27/2007 | 3.41 | 5.11 |
| | | | 9/26/2007 | 4.10 | 4.42 |
| | | | 12/12/2007 | 1.97 | 6.55 |
| | 8.54 | | 3/20/2008 | 2.31 | 6.23 |
| | | | 6/30/2008 | 2.91 | 5.63 |
| | | | 9/4/2008 | 3.93 | 4.61 |
| | | | 3/27/2009 | 2.41 | 6.13 |
| | | | 3/19/2010 | 2.21 | 6.33 |
| | | | 9/23/2010 | 3.59 | 4.95 |
| | | | 3/28/2011 | 1.46 | 7.08 |
| | | | 8/25/2011 | 2.95 | 5.59 |
| | | | 3/20/2012 | 1.68 | 6.86 |
| | | | 8/15/2013 | 2.87 | 5.67 |
| MW-14 | 9.50 | 6-18 | 6/27/2007 | 4.46 | 5.04 |
| | | | 9/26/2007 | 5.17 | 4.33 |
| | | | 12/12/2007 | 3.75 | 5.75 |
| | | | 3/20/2008 | 3.41 | 6.09 |
| | | | 6/30/2008 | 3.98 | 5.52 |
| | | | 9/4/2008 | 5.03 | 4.47 |
| | | | 3/27/2009 | 3.52 | 5.98 |
| | | | 3/19/2010 | 3.31 | 6.19 |
| | | | 9/23/2010 | 4.68 | 4.82 |
| | | | 3/28/2011 | 2.58 | 6.92 |
| | | | 8/25/2011 | 4.03 | 5.47 |
| | | | 3/20/2012 | 2.78 | 6.72 |
| | | | 8/15/2013 | 3.93 | 5.57 |
| DPE-1 | 7.86 | 6-15 | 3/20/2008 | 1.58 | 6.28 |
| | | | 6/30/2008 | 2.35 | 5.51 |
| | | | 9/4/2008 | 3.05 | 4.81 |
| | | | 3/27/2009 | 1.55 | 6.31 |
| | | | 3/19/2010 | 1.21 | 6.65 |
| | | | 9/23/2010 | 2.81 | 5.05 |
| | | | 3/28/2011 | NM | NM |
| | | | 8/25/2011 | 2.19 | 5.67 |
| | | | 3/20/2012 | NM | NM |
| | | | 8/15/2013 | 2.04 | 5.82 |

[A] = Depth to water approximate (water level too high to use electronic sounder)

TOC = Top of Casing.

MSL = Mean Sea Level.

NM = Not Measured.

# TABLE 2
## GROUNDWATER SAMPLE ANALYTICAL RESULTS
### GRO, DRO, BTEX, MtBE, Nitrates as $NO_3$ and Total Dissolved Solids
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Sample ID | Sample Date | GRO [F] (µg/L) | DRO [G] (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | MtBE (µg/L) | Nitrates (as $NO_3$) (mg/L) | Total Dissolved Solids (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 7/25/1991 | <50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NA |
| | 11/5/1999 | ND | 84 | ND | ND | ND | ND | ND | 6.6 | NA |
| | 2/15/2000 | ND | ND | ND | ND | ND | ND | ND | 9.0 | NA |
| | 5/9/2000 | ND | 72 | ND | ND | ND | ND | ND | 6.3 | NA |
| | 8/23/2000 | ND | 74 | ND | ND | ND | ND | ND | 9.6 | NA |
| | 11/1/2000 | ND | ND | ND | ND | ND | ND | ND | 2.8 | NA |
| | 2/8/2001 | ND | ND | ND | ND | ND | ND | ND | 13 | NA |
| | 6/19/2001 | ND | ND | ND | ND | ND | ND | ND | 1.0 | NA |
| | 10/3/2001 | <50 | <50 | <0.3 | <0.3 | <0.5 | <0.5 | <1 | 19 | NA |
| | 1/16/2002 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | 4/9/2002 | <50 | <50 | <0.3 | <0.3 | <0.5 | <0.5 | <1 | 3.0 | NA |
| | 7/25/2002 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/21/2002 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 19 | NA |
| | 1/21/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/23/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 3.3 | NA |
| | 7/23/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/30/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 21 | NA |
| | 1/28/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/20/2004 | <50 | <50 | <0.60 | <0.60 | <1.0 | <1.0 | <1.0 | 13 | NA |
| | 7/15/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2004 | <50 | <50 | <0.60 | <0.60 | <1.0 | <1.0 | <1.0 | 16 | NA |
| | 1/6/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/13/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/20/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/19/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 1/19/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/17/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | Well destroyed on June 26, 2006 | | | | | | | | | |
| MW-2 | 7/25/1991 | <50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NA |
| | 11/5/1999 | ND | ND | ND | ND | ND | ND | ND | 13 | NA |
| | 2/15/2000 | ND | ND | ND | ND | ND | ND | ND | 18 | NA |
| | 5/9/2000 | ND | ND | ND | ND | ND | ND | ND | 55 | NA |
| | 8/23/2000 | ND | ND | ND | ND | ND | ND | ND | 46 | NA |
| | 11/1/2000 | NS | NS | NS | NS | NS | NS | NS | NS | NA |
| | 2/8/2001 | ND | ND | ND | ND | ND | ND | ND | 45 | NA |
| | 6/19/2001 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/3/2001 | <50 | <50 | <0.3 | <0.3 | <0.5 | <0.5 | <1 | 53 | NA |
| | 1/16/2002 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | 4/9/2002 | <50 | <50 | <0.3 | <0.3 | <50 | <50 | <1 | 14 | NA |
| | 7/25/2002 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/21/2002 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 48 | NA |
| | 1/21/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/23/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 13 | NA |
| | 7/23/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/30/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 48 | NA |
| | 1/28/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/20/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 47 | NA |
| | 7/15/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 47 | NA |
| | 1/6/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/13/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/20/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/19/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 1/19/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/17/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | Well destroyed on June 26, 2006. | | | | | | | | | |

# TABLE 2
## GROUNDWATER SAMPLE ANALYTICAL RESULTS
### GRO, DRO, BTEX, MtBE, Nitrates as $NO_3$ and Total Dissolved Solids
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Sample ID | Sample Date | GRO [F] (µg/L) | DRO [G] (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | MtBE (µg/L) | Nitrates (as $NO_3$) (mg/L) | Total Dissolved Solids (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-3 | 7/25/1991 | 90 | 0.9 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NA |
| | 11/5/1999 | ND | 144 | ND | ND | ND | ND | 16 | 7.8 | NA |
| | 2/15/2000 | ND | 130 | ND | ND | ND | ND | 12 | 14 | NA |
| | 5/9/2000 | ND | ND | ND | ND | ND | ND | 8.3 | 40 | NA |
| | 8/23/2000 | ND | ND | ND | ND | ND | ND | 16 | 27 | NA |
| | 11/1/2000 | ND | ND | ND | ND | ND | ND | 20 | 7.2 | NA |
| | 2/8/2001 | ND | 63 | ND | ND | ND | ND | 9.5 | 29 | NA |
| | 6/19/2001 | ND | ND | ND | ND | ND | ND | 5.8 | 8.9 | NA |
| | 10/3/2001 | <50 | <50 | <0.3 | <0.3 | <0.5 | <0.5 | 10 | 30 | NA |
| | 1/16/2002 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | 4/9/2002 | <50 | 75 | <0.3 | <0.3 | <50 | <50 | 3.1 | 10 | NA |
| | 7/25/2002 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/21/2002 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 3.6 | 33 | NA |
| | 1/21/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/23/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 1.8 | 10 | NA |
| | 7/23/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/30/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 1.7 | 40 | NA |
| | 1/28/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/20/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 1.0 | 32 | NA |
| | 7/15/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 1.2 | 34 | NA |
| | 1/6/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/13/2005 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 1.2 | 29 | NA |
| | 7/20/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/19/2005 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 0.8 | 34 | NA |
| | 1/19/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/17/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/16/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 0.72 | NA | NA |
| | 11/30/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 0.58 | NA | NA |
| | 3/29/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | 0.71 | NA | NA |
| | 6/27/2007 | <50 | <63 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 9/26/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 12/12/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2008 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/23/2010 | <50 | NA | <0.500 | <0.500 | <0.500 | <0.500 | 0.630 | NA | NA |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | <50 | NA | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | NA | NA |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| MW-4 | 7/25/1991 | <50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NA |
| | 11/5/1999 | ND | ND | ND | ND | ND | ND | ND | 11 | NA |
| | 2/15/2000 | ND | ND | ND | ND | ND | ND | ND | 8.2 | NA |
| | 5/9/2000 | ND | ND | ND | ND | ND | ND | ND | 45 | NA |
| | 8/23/2000 | ND | ND | ND | ND | ND | ND | ND | 44 | NA |
| | 11/1/2000 | ND | ND | ND | ND | ND | ND | ND | 11 | NA |
| | 2/8/2001 | ND | ND | ND | ND | ND | ND | ND | 38 | NA |
| | 6/19/2001 | ND | ND | ND | ND | ND | ND | ND | 11 | NA |
| | 10/3/2001 | <50 | <50 | <0.3 | <0.3 | <0.5 | <0.5 | <1 | 41 | NA |
| | 1/16/2002 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | 4/9/2002 | <50 | <50 | <0.3 | <0.3 | <0.5 | <0.5 | <1 | 12 | NA |
| | 7/25/2002 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/21/2002 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 41 | NA |
| | 1/21/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/23/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 11 | NA |
| | 7/23/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/30/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 47 | NA |
| | 1/28/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/20/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 39 | NA |
| | 7/15/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 43 | NA |
| | 1/6/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/13/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/20/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/19/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 1/19/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/17/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | Well destroyed on June 26, 2006 | | | | | | | | | |

# TABLE 2
## GROUNDWATER SAMPLE ANALYTICAL RESULTS
### GRO, DRO, BTEX, MtBE, Nitrates as $NO_3$ and Total Dissolved Solids
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Sample ID | Sample Date | GRO [F] (µg/L) | DRO [G] (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | MtBE (µg/L) | Nitrates (as $NO_3$) (mg/L) | Total Dissolved Solids (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-5 | 7/25/1991 | <50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NA |
| | 11/5/1999 | ND | ND | ND | ND | ND | ND | ND | 7.4 | NA |
| | 2/15/2000 | ND | ND | ND | ND | ND | ND | ND | 12 | NA |
| | 5/9/2000 | ND | ND | ND | ND | ND | ND | ND | 27 | NA |
| | 8/23/2000 | ND | ND | ND | ND | ND | ND | ND | 35 | NA |
| | 11/1/2000 | ND | ND | ND | ND | ND | ND | ND | 6.6 | NA |
| | 2/8/2001 | ND | ND | ND | ND | ND | ND | ND | 21 | NA |
| | 6/19/2001 | ND | ND | ND | ND | ND | ND | ND | 5.8 | NA |
| | 10/3/2001 | <50 | <50 | <0.3 | <0.3 | <0.5 | <0.5 | <1 | 20 | NA |
| | 1/16/2002 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | 4/9/2002 | <50 | <50 | <0.3 | <0.3 | <0.5 | <0.5 | <1 | 5.2 | NA |
| | 7/25/2002 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/21/2002 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 18 | NA |
| | 1/21/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/23/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 4.8 | NA |
| | 7/23/2003 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/30/2003 | <50 | <50 | <0.60 | <0.60 | <1.0 | <1.0 | <1.0 | 17 | NA |
| | 1/28/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/20/2004 | <50 | <50 | <0.60 | <0.60 | <1.0 | <1.0 | <1.0 | 15 | NA |
| | 7/15/2004 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2004 | <50 | <50 | <0.60 | <0.60 | <1.0 | <1.0 | <1.0 | 15 | NA |
| | 1/6/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/13/2005 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 14 | NA |
| | 7/20/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/19/2005 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 14 | NA |
| | 1/19/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/17/2006 | <100 | <50 | <0.60 | <0.60 | <1.0 | <1.0 | <1.0 | 13 | NA |
| | 8/16/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/30/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | 760 |
| | 3/29/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 6/27/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 9/26/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 12/12/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/23/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| MW-6 | 6/19/2001 | 14,000 | 2,400 | 1,800 | 21 | 420 | 430 | ND | 2.4 | NA |
| | 10/3/2001 | 11,000 | 710 | 2,300 | <6.6 | 210 | 170 | <9 | 12 | NA |
| | 1/16/2002 | 5,700 | 430 | 1,300 | 10 | 190 | 85 | <0.5 | <0.2 | NA |
| | 4/9/2002 | 6,500 | 340 | 1,200 | ND | 180 | 60 | <87 | 2.4 | NA |
| | 7/25/2002 | 6,400 | 390 | 1,100 | <15 | 140 | 62 | <9 | 10 | NA |
| | 10/21/2002 | 5,900 | 230 | 810 | 12 | 110 | 70 | <9.0 | 12 | NA |
| | 1/21/2003 | 3,600 | 170 | 540 | 6.5 | 87 | 50 | <29 | 7.0 | NA |
| | 4/23/2003 | 4,200 | 320 | 790 | 6.3 | 80 | 51 | <5.4 | 1.6 | NA |
| | 7/23/2003 | 5,900 | 350 | 810 | 6.8 | 91 | 80 | <43 | 1.9 | NA |
| | 10/30/2003 | 4,900 | 550 | 1,100 | <30 | 110 | 100 | <50 | 14 | NA |
| | 1/28/2004 | 2,400 | 190 | 390 | <27 | <110 | <45 | <65 | 3.9 | NA |
| | 4/20/2004 | 3,200 | 280 | 570 | 6.4 | 76 | 56 | <10 | 5.8 | NA |
| | 7/15/2004 | 2,900 | 390 | 700 | 10 | 69 | 64 | <10 | 6.1 | NA |
| | 10/6/2004 | 3,000 | 400 | 880 | <15 | 60 | 37 | <25 | 6.7 | NA |
| | 1/6/2005 | 1,900 | 150 | 250 | 3.8 | 32 | 19 | <5.0 | 2.3 | NA |
| | 4/13/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/20/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/19/2005 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 1/19/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/17/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | Well destroyed on June 26, 2006 | | | | | | | | | |

# TABLE 2
## GROUNDWATER SAMPLE ANALYTICAL RESULTS
### GRO, DRO, BTEX, MtBE, Nitrates as $NO_3$ and Total Dissolved Solids
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

| Sample ID | Sample Date | GRO [F] (µg/L) | DRO [G] (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | MtBE (µg/L) | Nitrates (as $NO_3$) (mg/L) | Total Dissolved Solids (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-7 | 6/19/2001 | ND | 400 | ND | ND | ND | ND | 2.4 | ND | NA |
| | 10/3/2001 | <50 | 99 | <0.3 | <0.3 | <0.5 | <0.5 | 2.1 | 3.0 | NA |
| | 1/16/2002 | <50 | 270 | <0.3 | <0.3 | <0.5 | <0.5 | 2.2 | 1.9 | NA |
| | 4/9/2002 | <50 | 420 | <0.3 | <0.3 | <0.5 | <0.5 | 2.0 | <0.2 | NA |
| | 7/25/2002 | <50 | 190 | <0.3 | <0.3 | <0.5 | <0.5 | 2.1 | 3.6 | NA |
| | 10/21/2002 | <50 | 160 | <0.30 | <0.30 | <0.50 | <0.50 | 2.6 | 4.7 | NA |
| | 1/21/2003 | <50 | 70 | <0.30 | <0.30 | <0.50 | <0.50 | 2.0 | 4.7 | NA |
| | 4/23/2003 | <50 | 90 | <0.30 | <0.30 | <0.50 | <0.50 | 2.5 | <0.2 | NA |
| | 7/23/2003 | <50 | 120 | <0.30 | <0.30 | <0.50 | <0.50 | 2.3 | <0.2 | NA |
| | 10/30/2003 | <50 | 1,400 | <0.30 | <0.30 | <0.50 | <0.50 | 2.4 | 4.3 | NA |
| | 1/28/2004 | <50 | 180 | <0.30 | <0.30 | <0.50 | <0.50 | 4.4 | <1.0 | NA |
| | 4/20/2004 | <50 | 140 | <3.0 | <3.0 | <5.0 | <5.0 | <5.0 | <2.0 | NA |
| | 7/15/2004 | <50 | 530 | <0.30 | <0.30 | <0.50 | <0.50 | 2.5 | <1.0 | NA |
| | 10/6/2004 | <50 | 8,800 | <0.60 | <0.60 | <1.0 | <1.0 | 3.1 | <1.0 | NA |
| | 1/6/2005 | <500 | <50 | <3.0 | <3.0 | <5.0 | <5.0 | <5.0 | <1.0 | NA |
| | 4/13/2005 | <250 | 140 | <1.5 | <1.5 | <2.5 | <2.5 | 3.0 | <1.0 | NA |
| | 7/20/2005 | <50 | 410 | <0.30 | <0.30 | <0.50 | <0.50 | 2.6 | <1.0 | NA |
| | 10/19/2005 | <50 | 120 | <0.30 | <0.30 | <0.50 | <0.50 | 2.4 | <1.0 | NA |
| | 1/19/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4/17/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/16/2006 | <50 | 680 | <0.30 | <0.30 | <0.50 | <0.50 | 2.8 | NA | NS |
| | 11/30/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/29/2007 | <50 | 200 | <0.30 | <0.30 | <0.50 | <0.50 | 2.6 | NA | NA |
| | 6/27/2007 | <50 | 110 | <0.30 | <0.30 | <0.50 | <0.50 | 2.2 | NA | NA |
| | 9/26/2007 [*] | <50 | 200 | <0.30 | <0.30 | <0.50 | <0.50 | 4.0 | NA | NA |
| | 12/12/2007 | <50 | 59 | <0.30 | <0.30 | <0.50 | <0.50 | 3.6 | NA | NA |
| | 3/20/2008 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | <50 | 240 [E] | <0.30 | <0.30 | <0.50 | <0.50 | 3.2 | NA | NA |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/23/2010 | <50 | <50 | <0.500 | <0.500 | <0.500 | <0.500 | 4.04 | NA | NA |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | <50 | 74 | <0.500 | <0.500 | <0.500 | <0.500 | 1.91 | NA | NA |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| MW-8 | 7/23/2003 | <50 | <78 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 4.1 | NA |
| | 10/30/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 17.0 | NA |
| | 1/28/2004 | <50 | <53 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | <1.0 | NA |
| | 4/20/2004 | <50 | <50 | <6.0 | <6.0 | <10 | <10 | <10 | <2.0 | NA |
| | 7/15/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | <1.0 | NA |
| | 10/6/2004 | <50 | <50 | <0.60 | <0.60 | <1.0 | <1.0 | <1.0 | <1.0 | NA |
| | 1/6/2005 | <1000 | <50 | <6.0 | <6.0 | <10 | <10 | <10 | <1.0 | NA |
| | 4/13/2005 | <500 | <50 | <3.0 | <3.0 | <5.0 | <5.0 | <5.0 | <1.0 | NA |
| | 7/20/2005 | <1000 | <50 | <6.0 | <6.0 | <10 | <10 | <10 | <1.0 | NA |
| | 10/19/2005 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | <1.0 | NA |
| | 1/19/2006 | <500 | <50 | <3.0 | <3.0 | <5.0 | <5.0 | <5.0 | <1.0 | NA |
| | 4/17/2006 | <250 | <50 | <1.5 | <1.5 | <2.5 | <2.5 | <2.5 | <1.0 | NA |
| | 8/16/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | 960 |
| | 11/30/2006 | <500 | <50 | <3.0 | <3.0 | <5.0 | <5.0 | <5.0 | NA | 880 |
| | 3/29/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | <1.0 | NA |
| | 6/27/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | <1.0 | NA |
| | 9/26/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 12/12/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | <1.0 | NA |
| | 3/20/2008 | NA | NA | NA | NA | NA | NA | NA | <1.0 | NA |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/23/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | NS | NS | NS | NS | NS | NS | NS | NS | NS |

# TABLE 2
## GROUNDWATER SAMPLE ANALYTICAL RESULTS
### GRO, DRO, BTEX, MtBE, Nitrates as $NO_3$ and Total Dissolved Solids
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

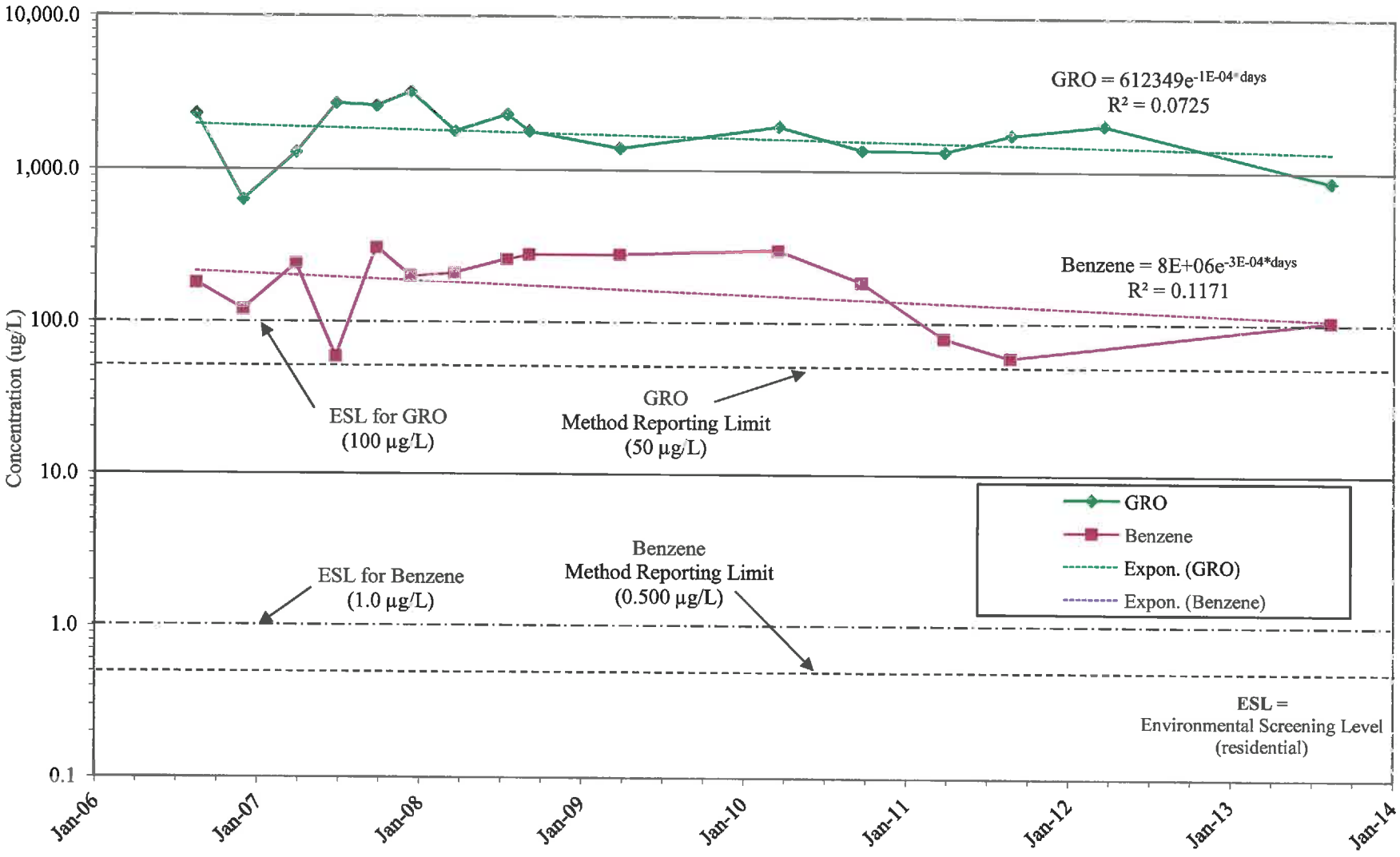
| Sample ID | Sample Date | GRO [1] (µg/L) | DRO[G] (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | MtBE (µg/L) | Nitrates (as $NO_3$) (mg/L) | Total Dissolved Solids (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-9 | 7/23/2003 | <50 | <88 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 4.4 | NA |
| | 10/30/2003 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 9.3 | NA |
| | 1/28/2004 | <50 | <52 | <0.30 | <0.30 | <0.50 | <0.50 | <1.0 | 17 | NA |
| | 4/20/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 18 | NA |
| | 7/15/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 14 | NA |
| | 10/6/2004 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 14 | NA |
| | 1/6/2005 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 16 | NA |
| | 4/13/2005 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 19 | NA |
| | 7/20/2005 | <50 | 50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 13 | NA |
| | 10/19/2005 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 10 | NA |
| | 1/19/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 14 | NA |
| | 4/17/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 17 | NA |
| | 8/16/2006 | <50 | <58 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | 1,000 |
| | 11/30/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | 1,000 |
| | 3/29/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 2,100[C] | NA |
| | 4/26/2007 | NA | NA | NA | NA | NA | NA | NA | 3.9 | NA |
| | 6/27/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 4.5 | NA |
| | 9/26/2007[E,S] | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 5.3 | NA |
| | 12/12/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 3.8 | NA |
| | 3/20/2008 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 1.5 | NA |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/23/2010 | <50 | NA | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | NA | NA |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | <50 | NA | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | NA | NA |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | <50 | <51 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | NA | NA |
| MW-10 | 8/16/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 2.3 | NA |
| | 11/30/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 3/29/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 6/27/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 9/26/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 12/12/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2008 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| MW-11 | 8/16/2006 | 2,300 | 300[A] | 180 | 2.5 | 35 | 63 | <0.50 | 4.9 | NA |
| | 11/30/2006 | 640 | 300[A] | 120 | <3.0 | 21 | 23 | <5.0 | NA | NA |
| | 3/29/2007 | 1,300 | 320[A] | 240 | <6.0 | 45 | 40 | <10 | <1.0 | NA |
| | 6/27/2007 | 2,700 | 270 | 59 | 2.2 | 43 | 32 | <2.5 | <1.0 | NA |
| | 9/26/2007 | 2,600 | 330[B] | 310 | <3.0 | 58 | 55 | <5.0 | <1.0 | NA |
| | 12/12/2007 | 3,200 | 360[B] | 200 | <6.0 | 93 | 81 | <10 | <1.0 | NA |
| | 3/20/2008 | 1,800 | 200[B] | 210 | <6.0 | 63 | 47 | <10 | <1.0 | NA |
| | 6/30/2008 | NA[D] | 1,200[B] | 260[D] | NA[D] | NA[D] | NA[D] | NA[D] | NA | NA |
| | 7/16/2008 | 2,300 | NA | 260 | 2.8 | 39 | 40 | <0.50 | NA | NA |
| | 9/4/2008 | 1,800 | NA | 280 | <3.0 | 37 | 26 | <5.0 | NA | NA |
| | 3/27/2009 | 1,400 | NA | 300 | 2.4 | 74 | 33 | <2.5 | NA | NA |
| | 3/19/2010 | 1,960 | NA | 185 | 1.91 | 71.1 | 36.2 | <1.00 | NA | NA |
| | 9/23/2010 | 1,380 | NA | 79.8 | <1.00 | 20.3 | 9.00 | <1.00 | NA | NA |
| | 3/28/2011 | 1,350 | NA | 59.5 | <1.00 | 22.3 | 8.32 | <1.00 | NA | NA |
| | 8/25/2011 | 1,740 | NA | 105 | 0.590 | 15.6 | 5.27 | <0.500 | NA | NA |
| | 3/20/2012 | 2,020 | NA | 48.0 | <2.50 | 25.8 | 6.70 | <2.50 | NA | NA |
| | 8/15/2013 | 868 | 164[A] | 37.2 | <5.00 | 6.65 | <5.00 | <5.00 | NA | NA |

# TABLE 2
## GROUNDWATER SAMPLE ANALYTICAL RESULTS
### GRO, DRO, BTEX, MtBE, Nitrates as $NO_3$ and Total Dissolved Solids
### Skoff Trucking
### 1 Casa Grande Road, Petaluma, California

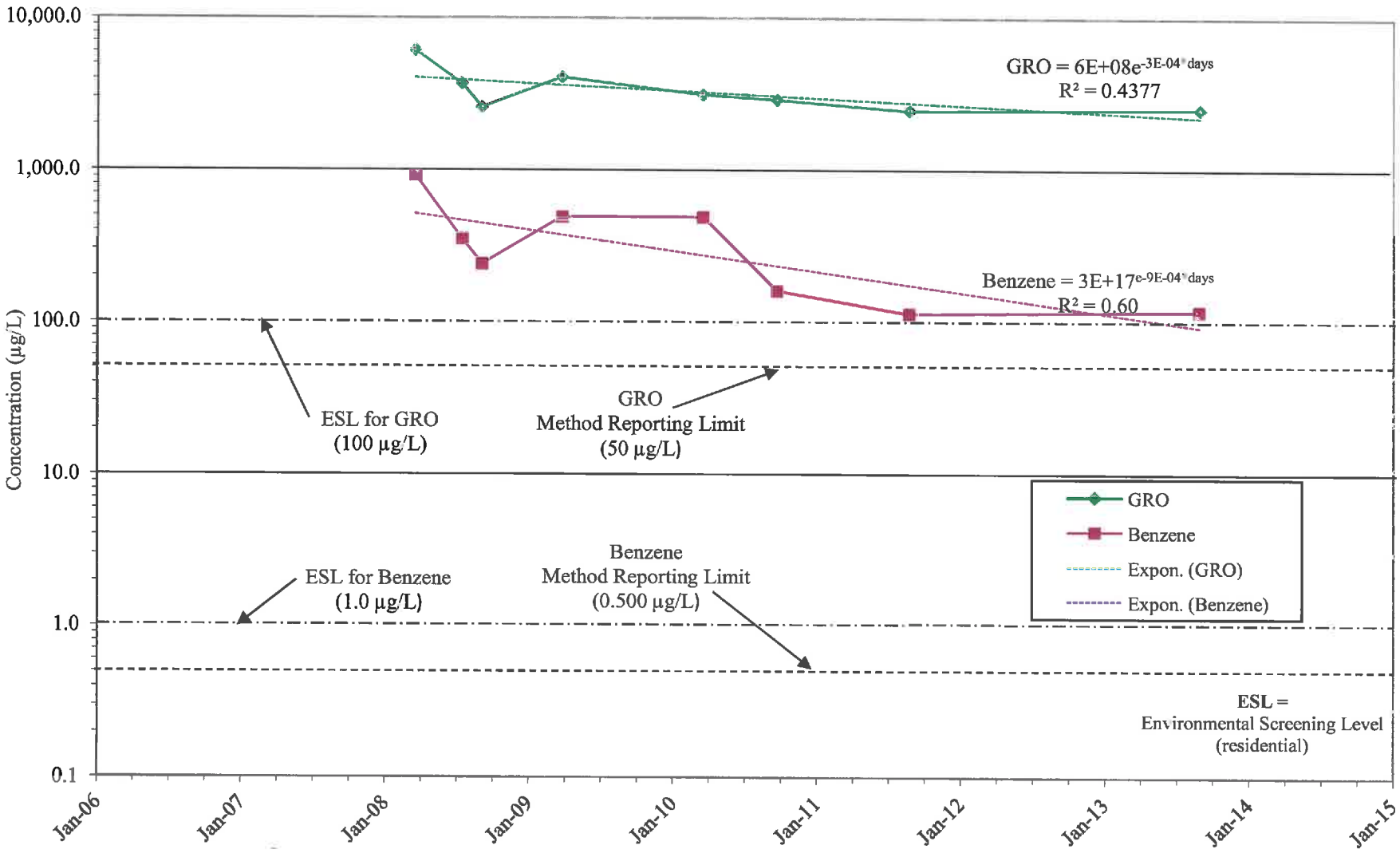
| Sample ID | Sample Date | GRO [F] (µg/L) | DRO [G] (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) | MtBE (µg/L) | Nitrates (as $NO_3$) (mg/L) | Total Dissolved Solids (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-12 | 8/16/2006 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 18 | NA |
| | 11/30/2006 | 73 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 3/29/2007 | 210 | 100[A] | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 6/27/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 9/26/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 12/12/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2008 | 69 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/23/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| MW-13 | 6/27/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 2.2 | NA |
| | 9/26/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 12/12/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 11 | NA |
| | 3/20/2008 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 11 | NA |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | <50 | NA | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NS | NS |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/23/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | <50 | <52 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | NA | NA |
| MW-14 | 6/27/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 9/26/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NA | NA |
| | 12/12/2007 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 12 | NA |
| | 3/20/2008 | <50 | <50 | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | 11 | NA |
| | 6/30/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/4/2008 | <50 | NA | <0.30 | <0.30 | <0.50 | <0.50 | <0.50 | NS | NS |
| | 3/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/19/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 9/23/2010 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2013 | <50 | <51 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | NA | NA |
| DPE-1 | 3/20/2008 | 6,100 | 600[B] | 910 | <15 | 180 | 150 | <25 | NA | NA |
| | 6/30/2008 | NA[D] | 1,300[B] | NA[D] | NA[D] | NA[D] | NA[D] | NA[D] | NA | NA |
| | 7/16/2008 | 3,700 | NA | 350 | 5.7 | 140 | 260 | <0.50 | NA | NA |
| | 9/4/2008 | 2,600 | 430[B] | 240 | 3.3 | <5.0 | 160 | <5.0 | NA | NA |
| | 3/27/2009 | 4,100 | NA | 490 | 5.9 | 280 | 280 | <0.50 | NA | NA |
| | 3/19/2010 | 3,140 | NA | 489 | 9.03 | 193 | 138 | <5.00 | NA | NA |
| | 9/23/2010 | 2,920 | NA | 160 | 2.29 | 83.8 | 61.58 | <1.00 | NA | NA |
| | 3/28/2011 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/25/2011 | 2,480 | NA | 114 | 1.60 | 40.3 | 28.5 | <1.00 | NA | NA |
| | 3/20/2012 | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/30/2013 | 2,530 | 269[A] | 118 | <2.50 | 38.2 | 15.7 | <2.50 | NA | NA |

GRO = Gasoline Range Organics.
DRO = Diesel Range Organics.
BTEX = Benzene, Toluene, Ethylbenzene and total Xylenes.
MtBE = Methyl tert-Butyl Ether.
mg/L = Milligrams per Liter.
µg/L = Micrograms per Liter.
NA = Not Analyzed.
ND = Not Detected above laboratory Pracitcal Quantitation Limits.
NS = Not Sampled.
A = Analysis of this sample indicates the presence of hydrocarbons lower in molecular weight than diesel.
B = Results in the diesel organics range are primarily due to the overlap from a gasoline range product.
C = Resampled on 4/26/2007 due to anomalously high results.
D = Not analyzed due to missed hold times.
E = The hydrocarbon resembles weathered diesel.
F = Historically Identified as "Total Petroleum Hydrocarbons as gasoline (TPH-g)."
G = Historically Identified as "Total Petroleum Hydrocarbons as diesel (TPH-d)."
* = 1.6 µg/L of Di-isopropyl Ether (DIPE) also detected.
** = 0.55 µg/L of Di-isopropyl Ether (DIPE) also detected.

**Graph 1**
**GRO and Benzene Concentrations in MW-11**



**Graph 2**
**GRO and Benzene Concentrations in DPE-1**



sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Rita Scardaci, PHN, MPH – Director
Ellen Bauer, PhD, MPP – Division Director

November 15, 2013

Ultramar Inc.
685 West Third
Hanford, CA 93230

Re: 2601 Lakeville Highway, Petaluma, Ca
Site #00001231, SFBRWQCB #49-0193

Dear Responsible Party:

This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release at the site is required.

Claims for reimbursement of corrective action costs submitted to the Underground Storage Tank Cleanup Fund more than 365 days after the date of this letter or issuance or activation of the Fund's Letter of Commitment, whichever occurs later, will not be reimbursed unless one of the following exceptions applies:

- Claims are submitted pursuant to Section 25299.57, subdivision (k) (reopened UST case); or
- Submission within the timeframe was beyond the claimant's reasonable control, ongoing work is required for closure that will result in the submission of claims beyond that time period, or that under the circumstances of the case, it would be unreasonable or inequitable to impose the 365-day time period.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

CHRISTINE SOSKO, REHS
Director of Environmental Health

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Rita Scardaci, PHN, MPH – Director
Ellen Bauer, PhD, MPP – Division Director

November 15, 2013

Dansk Investment Group, Inc.
Attn: Chuck Miller
6591 Collins Drive, Suite E-11
Moorpark, CA 93021

Re: 2601 Lakeville Highway, Petaluma, Ca
Site #00001231, SFBRWQCB #49-0193

Dear Mr. Miller:

This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release at the site is required.

Claims for reimbursement of corrective action costs submitted to the Underground Storage Tank Cleanup Fund more than 365 days after the date of this letter or issuance or activation of the Fund's Letter of Commitment, whichever occurs later, will not be reimbursed unless one of the following exceptions applies:

- Claims are submitted pursuant to Section 25299.57, subdivision (k) (reopened UST case); or
- Submission within the timeframe was beyond the claimant's reasonable control, ongoing work is required for closure that will result in the submission of claims beyond that time period, or that under the circumstances of the case, it would be unreasonable or inequitable to impose the 365-day time period.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

CHRISTINE SOSKO, REHS
Director of Environmental Health

sonoma county
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH DIVISION

Rita Scardaci, PHN, MPH – Director
Ellen Bauer, PhD, MPP – Division Director

November 15, 2013

Tesoro Petroleum Companies
Attn: Anastasia E. Duarte
345 South 344th Way, Suite 201
Auburn, WA 98001

Re: 2601 Lakeville Highway, Petaluma, Ca
Site #00001231, SFBRWQCB #49-0193

Dear Ms. Duarte:

This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release at the site is required.

Claims for reimbursement of corrective action costs submitted to the Underground Storage Tank Cleanup Fund more than 365 days after the date of this letter or issuance or activation of the Fund's Letter of Commitment, whichever occurs later, will not be reimbursed unless one of the following exceptions applies:

- Claims are submitted pursuant to Section 25299.57, subdivision (k) (reopened UST case); or
- Submission within the timeframe was beyond the claimant's reasonable control, ongoing work is required for closure that will result in the submission of claims beyond that time period, or that under the circumstances of the case, it would be unreasonable or inequitable to impose the 365-day time period.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

CHRISTINE SOSKO, REHS
Director of Environmental Health

# Case Closure Summary

## Leaking Underground Fuel Storage Tank Program

**I. Agency Information** **Date: May 9, 2013**

| | | | |
|---|---|---|---|
| Agency name: | Sonoma County Dept. Health Services | Address: | 625 Fifth Street |
| City/State/Zip: | Santa Rosa, CA 95404 | Phone: | (707) 565-6565 |
| Responsible staff person: | Darcy Bering | Title: | Environmental Health Specialist |

**II. Case Information**

Site facility name: Beacon #3703 (Former)

Site facility address: 2601 Lakeville Highway, Petaluma, CA 94952

| RB LUSTIS # 49-0193 | SWEEPS # NA | LOP #00001231 | URF filing date: 6/8/87 | Local # NA |
|---|---|---|---|---|

| Responsible party | Address | Phone number |
|---|---|---|
| Tesoro Petroleum Companies<br>Attn: Anastasia E. Duarte | 3450 South 344th Way, Suite 201, Auburn, WA 98001 | |
| USA Gasoline Corp (attn: Chuck Miller) | 6591 Collins Drive, Suite E-11, Moorpark, CA 93021 | |
| Ultramar Inc. | 685 West Third, Hanford, CA 93230 | |
| | | |

| Tank # | Size in gal. | Contents | Closed-in-place/removed? | Date |
|---|---|---|---|---|
| 1, 2 & 3 | 10,000 | Gasoline | Removed | 5/13/87 |
| 4 | 12,000 | Diesel | Removed | 5/13/87 |

**III. Release and Site Characterization Information**

Cause and type of release: Unknown

| | | |
|---|---|---|
| Site characterization complete? Yes | | Date approved by oversight agency: 5/9/2013 |
| MW installed? Yes | Number: 17 (includes rem wells) | Proper screened interval: Yes (5'-30', 9'-24, 10'-25', 11'-26') |
| Highest GW depth BGS: 2.35' | Lowest depth: 17.31' | Flow direction: south, southeast |

Most sensitive current use: Domestic and Municipal supply

| | |
|---|---|
| Are drinking water wells affected? No | Aquifer name: Petaluma Valley (2-1) |
| Is surface water affected? No | Nearest SW name: Adobe Creek approx. 1100' southeast |

Off-site beneficial use impacts (addresses/locations): None

| | |
|---|---|
| Report(s) on file? Yes | Where is report(s) filed: Sonoma County Department of Health Services |

Treatment and Disposal of Affected Material

| Material | Amount (include units) | Action (treatment or disposal w/ destination) | Date |
|---|---|---|---|
| Tank | 4 | RP unable to locate records, declaration on file* | 5/87 |
| Piping | unknown | | |
| Free product | 7,865 | To Demenno Kardoon | 10/30-11/7/2012 |
| Soil | a) ~60 cubic yards, b) unknown* c) 1.272.5 tons, d) 531.5 | a)TPS , Richmond, b) aerated and taken to class 3 Sonoma County Landfill c) to Potrero Hills, Suisun, d) Hay Road Landfill, Vacaville | a) 2000, b) 6/1987 c&d)10/25-11/15/12 |
| Groundwater | 128,830 gallons | Discharged under permit to City of Petaluma sewer | 10/26-11/6/2012 |
| Purge Water | 17,052 gallons | Purge water to InStrat, Rio Vista, CA | 2004-2012 |
| Barrels | 0 | | |

# Case Closure Summary

**III. Release and Site Characterization Information (continued)** **Site Address: 2601 Lakeville Highway, Petaluma, CA 94952**

Maximum Documented Contaminant Concentrations — Before and After Cleanup

| Contaminant | Soil (ppm) | | Water (ppm) | | Contaminant | Soil (ppm) | | Water (ppm) | |
|---|---|---|---|---|---|---|---|---|---|
| | Before | After | Before | After | | Before | After | Before | After |
| TPH (gas) | 1000 | 1000 | 56 | .370 | Xylene | 391 | 24 | 6.0 | <.00050 |
| TPH (diesel) | 1600 | 1600 | 67 | .100 | Ethylbenzene | 26 | 9.1 | 14 | <.00050 |
| Benzene | 57 | .081 | 67 | .0055 | Oil & grease | NS | NS | NS | NS |
| Toluene | 120 | .0063 | 1.1 | <.00050 | Heavy metals | NS | NS | NS | NS |
| Other | | | | | MTBE | NS | .030 | 45 | .0071 |

Comments (depth of remediation, etc.): NS= Not Sampled. Before values are the highest reported.

Soil excavation during piping upgrade on 1/10/00. Approx. 60 cubic yards removed in a 10'x40'x 3-5' deep excavation

Ozone sparging occurred from 6/2/04 through 5/16/08.

High vacuum dual phase extraction occurred 12/6/99, 5/2 through10/30/00, 10/6/08 through10/9/08 and 9/30/10 through 12/9/10.

Second generation tanks removed in 2012 and approx 1,804 tons of soil and 128,830 gallons of water were removed.

An unauthorized release was not documented during the second generation tank removal and all contamination removed was attributed to the original release.

**IV. Closure**

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes

Does corrective action protect public health for current land use? Yes

Site management requirements: Contingency planning is required for worker safety and waste disposal if excavating in area(s) of residual contamination. The Building Department has been notified. Newly proposed water supply wells may require siting and design by a qualified professional engineer or geologist. Sonoma County Permit and Resource Mgmt. Dept. has been notified.

Should corrective action be reviewed if land use changes? Yes

| Monitoring wells decommissioned? Yes | Number decommissioned: 4 | Number retained: 13(includes rem) |
|---|---|---|

List enforcement actions taken: None

List enforcement actions rescinded: Not Applicable

**V. Local Agency Representative Data**

| Name: Leslye Choate | Title: Supervising Environmental Health Specialist |
|---|---|
| Signature: Leslye Choate | Date: 5-9-13 |

**VI. RWQCB Notification**

| Date submitted to RB: June 10, 2013 | RB Response: Concur with closure recommendation | |
|---|---|---|
| RWQCB staff name: John Jang (John Jang) | Title: WRCE | Date: June 13, 2013 |

**VII. Additional Comments, Data, etc.**

Monitoring wells will be destroyed under permit of this Department prior to site closure.

Site has conducted many remedial actions. Excavation, ozone sparging, and High Vacuum Dual Phased Extraction.

Removal of second generation of USTs in 2012 resulted in the additional excavation of 1.804 tons of soil and 128,830 gallons of gw.

Casa de Arroyo City well is approx 150' west of the site. It has been sampled on numerous occasions and the results have been ND

*Declaration is on file indicating no knowledge of improper disposal and that a diligent search was conducted for documentation.



**HORIZON ENVIRONMENTAL INC.**

Specialists in Site Assessment, Remedial Testing, Design and Operation

March 14, 2012

Ms. Darcy Bering
Sonoma County Environmental Health
625 5th Street
Santa Rosa, California 95404

**RE: Semi-Annual Groundwater Monitoring Report**
**Fourth Quarter 2011 and First Quarter 2012 Monitoring Events**
**Tesoro Site No. 67093**
**2601 Lakeville Highway, Petaluma, California SCDEH Site #00001231**

Ms. Bering:

Horizon Environmental Inc. (Horizon), on behalf of Tesoro Companies, Inc. (Tesoro), submits herein the referenced *Semi-Annual Groundwater Monitoring Report* dated March 14, 2012 for your review.

Please contact Horizon Environmental at (916) 939-2170, or Jeffrey Baker of Tesoro at (253) 896-8708, with any questions or concerns regarding this project. Thank you for your continued cooperation.

Sincerely,
**HORIZON ENVIRONMENTAL INC.**

Karen P. Liptak
Staff Geologist

Attachment

cc: Tesoro
John Jang, RWQCB – San Francisco Bay Region (electronic copy)

**HORIZON ENVIRONMENTAL INC.**

Specialists in Site Assessment, Remedial Testing, Design and Operation

March 14, 2012

Mr. Jeffrey Baker, P.E.
Tesoro Companies, Inc.
3450 South 344th Way, Suite 201
Auburn, WA 98001-5931

Subject: **Semi-Annual Groundwater Monitoring Report**
Fourth Quarter 2011 and First Quarter 2012 Monitoring Events
Tesoro Site No. 67093 SCEHD Site #00001231
2601 Lakeville Highway, Petaluma, California

Mr. Baker:

On behalf of Tesoro Environmental Resources Company (Tesoro), Horizon Environmental (Horizon) has prepared this report to document the results of fourth quarter 2011 and first quarter 2012 groundwater monitoring and remediation activities at the subject site (Site) in Petaluma, California (Figure 1).

## I. Executive Summary

Horizon conducted Fourth Quarter 2011 groundwater monitoring of extraction wells MW-1, RW-9 and RW-11 on October 19, 2011, and First Quarter 2012 groundwater monitoring of wells MW-1 through MW-8, RW-9, RW-10, RW-11, OS-6B and the Casa de Arroyo City backup water supply well on January 9 and 10, 2012. Dissolved TPHg, BTEX, and MTBE concentrations have decreased or remained stable for these constituents since the last remedial event performed in December 2010. Impacts above water quality objectives (WQOs) are limited to onsite monitoring wells, and the residual concentrations are continuing to attenuate.

Regression analyses performed utilizing well RW-9 concentration data indicate the attenuating concentrations should achieve WQOs beneath the Site in a reasonable amount of time (approximately ten years or less). Continued remedial actions are no longer economically feasible, and continuation of monitoring and corrective actions beyond 2012 is not warranted. Horizon recommends that a Low Risk - No Further Action Required (NFAR) closure status should be granted for the Site.

## II. Site Background

Site description and site background details are located in Appendix A. Locations of pertinent site features are shown on the Site Plan (Figure 2).

## III. Field Activities

Groundwater gauging and sampling activities were conducted by Horizon for fourth quarter 2011 on October 19, 2011, and for first quarter 2012 on January 9 and 10, 2012. Groundwater gauging and analytical data are summarized in Table 1. Field methods and procedures are described in detail in Appendix B.

## IV. Analytical Program

Groundwater samples were analyzed according to State requirements. Analytical methods and quality assurance / quality control procedures were conducted by the analytical laboratory according to applicable regulatory guidelines. Groundwater samples were analyzed for total petroleum hydrocarbons as diesel (TPHd) with Silica Gel cleanup by modified Environmental Protection Agency (EPA) Method 8015; and for total petroleum hydrocarbons as gasoline (TPHg); the volatile aromatics benzene, toluene, ethylbenzene, total xylenes (BTEX); and the five fuel oxygenates methyl tert-butyl ether (MTBE), diisopropyl ether (DIPE), ethyl-t-butyl ether (ETBE), tert-amyl methyl ether (TAME), and tert-butanol (TBA) by EPA Method 8260B. Analytical reports are contained in Appendix C.

## VI. Groundwater Monitoring Results

Groundwater level and analytical data are summarized in Table 1. Historical groundwater level and analytical data are summarized in Table 1A in Appendix D. The average depth-to-water (DTW) for wells MW-1 through RW-11 on January 9, 2012 was approximately 9.86 feet bsg. Water levels in wells MW-1 through RW-11 decreased (dropped) approximately 0.7-foot since being measured on October 19, 2011, when the average DTW for wells MW-1 through RW-11 was approximately 9.16 feet bsg. The average DTW for wells MW-1 through RW-11 on July 7, 2011 was approximately 8.31 bsg. Water levels in wells MW-1 through RW-11 decreased (dropped) approximately 2.8 feet since being measured on April 6, 2011. This pattern of rising groundwater levels in the winter and spring, then decreasing groundwater levels in the summer and autumn is typical for the Petaluma area, and observed in the historical groundwater levels measured since 1989 at the Site.

Groundwater elevation data was used to construct the Groundwater Elevation Contour Map as shown on Figure 2. Water-level data collected on January 9, 2012 indicated that the groundwater flow direction was toward the south-southeast beneath the Site area, as shown on the Groundwater Elevation Contour Map (Figure 2), at an average gradient of 0.03-foot/foot. This groundwater flow direction is consistent with historical groundwater monitoring events. Groundwater analytical summary and isoconcentration maps for the January 2012 data are shown on Figures 3, 4 and 5. Time-Trend Charts that show TPHd, TPHg, Benzene and MTBE

concentrations over time are shown for wells MW-1, RW-9 and RW-11 are shown on Figures 6, 7 and 8.

No concentrations of TPHd, TPHg, BTEX or the fuel oxygenates TBA, TAME, DIPE and ETBE were reported in the water sample collected from well OS-6B, which monitors a deeper water-bearing zone at depths of 79 to 84 feet bsg. A trace concentration of 1.6 parts per billion (ppb) of MTBE was reported in the water sample from well OS-6B; this concentration is well below the MTBE water quality objective (WQO) of 5.0 ppb. The last reported MTBE concentration from well OS-6B was a trace concentration of 0.60 ppb in July 7, 2011 and 0.80 ppb in April 2007. This data indicates that groundwater impacts above WQOs are limited to the uppermost water-bearing zone beneath the Site, and are isolated onsite in the central portion of the Site between the USTs and the west end of the southern dispenser island.

## VII. Conclusions

### Groundwater Monitoring

Dissolved TPHg, BTEX, and MTBE concentrations have decreased or remained stable for these constituents since the last remedial event performed in December 2010. Dissolved TPHg, BTEX, MTBE and TBA concentrations increased in extraction wells MW-1, RW-9 and RW-11 in January 2011, possibly as a result of desorbtion of gasoline constituents in the areas of these wells during the November and December 2010 HVDPE remedial event. The decreases in the dissolved concentrations observed since January 2011 reflect the post-remedial residual petroleum concentrations attenuating in the subsurface soils and groundwater beneath the Site. Impacts above WQOs are limited to onsite monitoring wells and are continuing to attenuate.

## VIII. Discussion and Recommendations

Dissolved concentrations of TPHg, Benzene, MTBE and TBA reported from well RW-9 exceed the listed SF Bay RWQCB Environmental Screening Levels (ESLs) in Table A (Shallow Soils and Groundwater is a Current or Potential Source of Drinking Water, May 2008). As shown in the Concentration vs. Time Graphs (Figures 6, 7 and 8), the dissolved concentrations of TPHg, BTEX, MTBE and TBA will continue to attenuate beneath the Site, and should achieve background levels in a reasonable amount of time as discussed below.

Analytical results of the January 2012 groundwater monitoring event indicate that the maximum dissolved concentrations of TPHg, Benzene, MTBE and TBA were collected from well RW-9. Therefore, in order to conservatively estimate the time at which the attenuating concentrations will meet WQOs beneath the Site, regression analyses were performed utilizing well RW-9 concentration data (Figures 9, 10, 11 and 12). The table below summarizes the results of the regression analyses:

| Constituent | Figure No. | Data range | Degradation rate (1/year) | Half-life (year) | Pearson coefficient ($R^2$) | WQO (ppb) | Est. time to WQO (years from 1Q12) |
|---|---|---|---|---|---|---|---|
| TPHg | 9 | 3Q08 to 1Q12 | 0.17 | 4.0 | 0.06 | 100 | 10 years |
| Benzene | 10 | | 0.53 | 1.3 | 0.21 | 1.0 | 5 years |
| MTBE | 11 | | 0.87 | 0.8 | 0.51 | 5.0 | 1½ years |
| TBA | 12 | | 0.37 | 1.9 | 0.26 | 12 | 8 years |

The regression analyses utilizing well RW-9 concentration data indicate the attenuating concentrations should achieve WQOs beneath the Site in a reasonable amount of time (approximately ten years or less). Dissolved impacts are limited to onsite monitoring wells and groundwater concentrations are very low for most constituents. Continued remedial actions are no longer economically feasible, and continuation of monitoring and corrective actions beyond 2012 is not warranted. Since dissolved concentrations of TPHg, Benzene and MTBE reported from wells MW-1, RW-9 and RW-11 have continued to decrease, Horizon recommends that a Low Risk - No Further Action Required (NFAR) closure status should be granted for the Site. After NFAR closure status is granted for the Site, the remaining monitoring, extraction and sparge wells will be destroyed by pressure-grouting or overdrilling methods, as per Sonoma County Department of Health Services - Environmental Health Division (SCEHD) guidelines.

The SCEHD has stated that the groundwater beneath the Site is a potential source of drinking water (SCEHD, May 27, 2008), as defined in the SF Bay RWQCB's Basin Plan (SF Bay RWQCB, 2007). Water from the City of Petaluma's local municipal water supply wells is typically "hard" and has high concentrations of total dissolved solids (TDS). The nearby Casa de Arroyo backup water supply well has a 62-foot deep sanitary seal, is screened from 89 to 149 feet bsg and from 209 to 229 feet bsg, is currently inactive, and is used only for emergency purposes. No concentrations of TPHg, BTEX or the fuel oxygenates MTBE and TBA have been detected in water samples collected since 2001 from the Casa de Arroyo well located to the east and cross-gradient of the Site.

The existing station, Tesoro No. 68186, is scheduled for "**re-tanking**" in late 2012, which will involve the removal and replacement of the USTs. Over-excavation of impacted soils may occur in areas to the southwest of the existing four USTs. Horizon will notify the SCEHD as the schedule is updated by Tesoro for the proposed re-tanking project later in 2012. Horizon is investigating local soil and water disposal options for the proposed re-tanking project.

If you have any questions, please contact Horizon at (916) 939-2170.

Sincerely,
**HORIZON ENVIRONMENTAL INC.**

Gary D. Barker
Senior Project Manager

for Brandon M. Schlegel
Project Geologist

Kenny B. Mateik
Professional Geologist, C.E.G. No. 1935

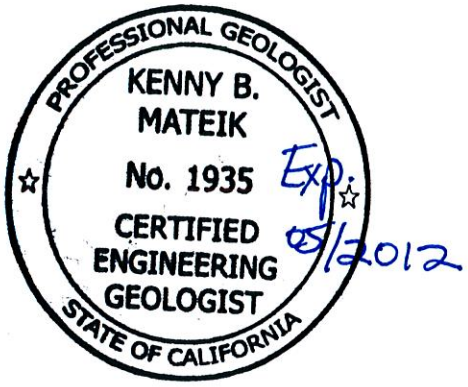



Table 1: Current Groundwater Monitoring Data

Figure 1: Site Vicinity Map
Figure 2: Site Plan/Groundwater Elevation Contour Map
Figure 3: Analytical Data Map
Figure 4: Benzene Isoconcentration Map
Figure 5: MTBE Isoconcentration Map
Figure 6: Time-Trend graphs for Well MW-1
Figure 7: Time-Trend graphs for Well RW-9
Figure 8: Time-Trend graphs for Well RW-11
Figure 9: RW-9 TPHg vs. Time Post-Remedial Regression Analysis Graph
Figure 10: RW-9 Benzene vs. Time Post-Remedial Regression Analysis Graph
Figure 11: RW-9 MTBE vs. Time Post-Remedial Regression Analysis Graph
Figure 12: RW-9 TBA vs. Time Post-Remedial Regression Analysis Graph

Attachments:
- Appendix A: Site Background
- Appendix B: Field Activities
  - Horizon Field Methods and Procedures
  - Horizon Monitoring Well Data Sheets
  - GeoTracker Electronic Data Deliverables
- Appendix C: Analytical Reports
- Appendix D: Historical Data
  - Table 1A: Historical Groundwater Monitoring Data
  - Table 2A: Ozone Sparging System Performance Data
  - Table 3A: Dissolved Oxygen and ORP Field Readings

c: Ms. Darcy Bering, Sonoma County Environmental Health SCEHD Site #00001231
Mr. John Jang, RWQCB – San Francisco Bay Region

# Table 1 - Current Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-1** | 04/06/11 | <50* | 280 | 5.5 | <0.50 | 5.6 | 0.69 | 9.1 | 15 | 19.95 | 7.51 | 12.44 | Slight odor / No sheen |
| 5' - 30' | 07/07/11 | <50* | 150 | 2.6 | <0.50 | 0.63 | <0.50 | 4.5 | 13 | | 8.63 | 11.32 | Slight odor / No sheen |
| screen | 10/19/11 | <50* | 67 | 0.87 | <0.50 | <0.50 | <0.50 | 1.6 | 5.3 | | 9.51 | 10.44 | Slight odor / No sheen |
| interval | 01/10/12 | <50* | 96 | 0.84 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 10.08 | 9.87 | Slight odor / No sheen |
| **MW-2** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | 19.87 | 7.73 | 12.14 | not sampled |
| 9' - 24' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.83 | 11.04 | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.63 | 10.24 | not sampled |
| interval | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.27 | 9.60 | No odor / No sheen |
| **MW-3** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | 19.92 | 7.93 | 11.99 | not sampled |
| 10' - 25' | 07/07/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.4 | <5.0 | | 9.10 | 10.82 | No odor / No sheen |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.90 | 10.02 | not sampled |
| interval | 01/10/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.7 | <5.0 | | 10.53 | 9.39 | No odor / No sheen |
| **MW-4** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | 19.22 | 6.12 | 13.10 | not sampled |
| 11' - 26' | 07/07/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.38 | 11.84 | No odor / No sheen |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.33 | 10.89 | not sampled |
| interval | 01/09/12 | <230*# | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.97 | 10.25 | No odor / No sheen |
| **MW-5** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | 18.47 | 5.21 | 13.26 | not sampled |
| 5' - 20' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.34 | 12.13 | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.37 | 11.10 | not sampled |
| interval | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.53 | 9.94 | No odor / No sheen |
| **MW-6** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | 17.36 | 5.60 | 11.76 | not sampled |
| 4' - 16.5' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.73 | 10.63 | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.41 | 9.95 | not sampled |
| interval | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.12 | 9.24 | No odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1 - Current Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-7** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | 16.69 | 7.21 | 9.48 | not sampled |
| 4' - 19' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.63 | 8.06 | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.33 | 7.36 | not sampled |
| interval | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.54 | <5.0 | | 10.03 | 6.66 | No odor / No sheen |
| **MW-8** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | 20.39 | 8.08 | 12.31 | not sampled |
| 5' - 20' | 07/07/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.93 | <5.0 | | 9.48 | 10.91 | No odor / No sheen |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.35 | 10.04 | not sampled |
| interval | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.81 | <5.0 | | 10.99 | 9.40 | No odor / No sheen |
| **RW-9** | 04/06/11 | <80* | 680 | 24 | 0.63 | 4.8 | 0.90 | 59 | 180 | 20.32 | 7.97 | 12.35 | Slight odor / No sheen |
| 4' - 19' | 07/07/11 | <50 * | 700 | 22 | 0.73 | <0.50 | <0.50 | 12 | 110 | | 9.18 | 11.14 | Slight odor / No sheen |
| screen | 10/19/11 | <80* | 330 | 5.6 | <0.50 | <0.50 | <0.50 | 9.2 | 84 | | 10.02 | 10.30 | Slight odor / No sheen |
| interval | 01/10/12 | <50 * | 370 | 5.5 | <0.50 | <0.50 | <0.50 | 7.1 | 820 | | 10.67 | 9.65 | Slight odor / No sheen |
| **RW-10** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | 20.24 | 7.11 | 13.13 | not sampled |
| 4' - 19' | 07/07/11 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.3 | <5.0 | | 8.43 | 11.81 | No odor / No sheen |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.38 | 10.86 | not sampled |
| interval | 01/10/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | <5.0 | | 10.06 | 10.18 | Slight odor / No sheen |
| **RW-11** | 04/06/11 | <50* | 55 | 3.5 | <0.50 | 3.3 | 0.56 | 3.3 | <5.0 | 19.79 | 7.65 | 12.14 | No odor / No sheen |
| 4' - 19' | 07/07/11 | 69*# | <50 | 1.5 | <0.50 | 1.2 | <0.50 | 2.7 | <5.0 | | 8.71 | 11.08 | Slight odor / No sheen |
| screen | 10/19/11 | 290*# | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.5 | <5.0 | | 9.57 | 10.22 | Slight odor / No sheen |
| interval | 01/10/12 | 100*# | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.9 | <5.0 | | 10.22 | 9.57 | Slight odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1 - Current Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OS-1** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | nm | nm | nc | not sampled |
| 20' - 23' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| interval | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| **OS-2** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | nm | nm | nc | not sampled |
| 19.5' - 22.5' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| interval | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| **OS-3** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | nm | nm | nc | not sampled |
| 20.5' - 23.5' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| interval | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| **OS-4** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | nm | nm | nc | not sampled |
| 20.5' - 23.5' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| interval | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| **OS-5** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | nm | nm | nc | not sampled |
| 21.5' - 24.5' | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| interval | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| **OS-6B** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | nm | 21.83 | nc | not sampled |
| 79' - 84' | 07/07/11 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.60 | <5.0 | | 27.85 | nc | No odor / No sheen |
| screen | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 28.58 | nc | not sampled |
| interval | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | <5.0 | | 28.75 | nc | No odor / No sheen |
| **Casa de Arroyo City Well** | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/09/12 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | nm | nc | No odor / No sheen |

Notes:

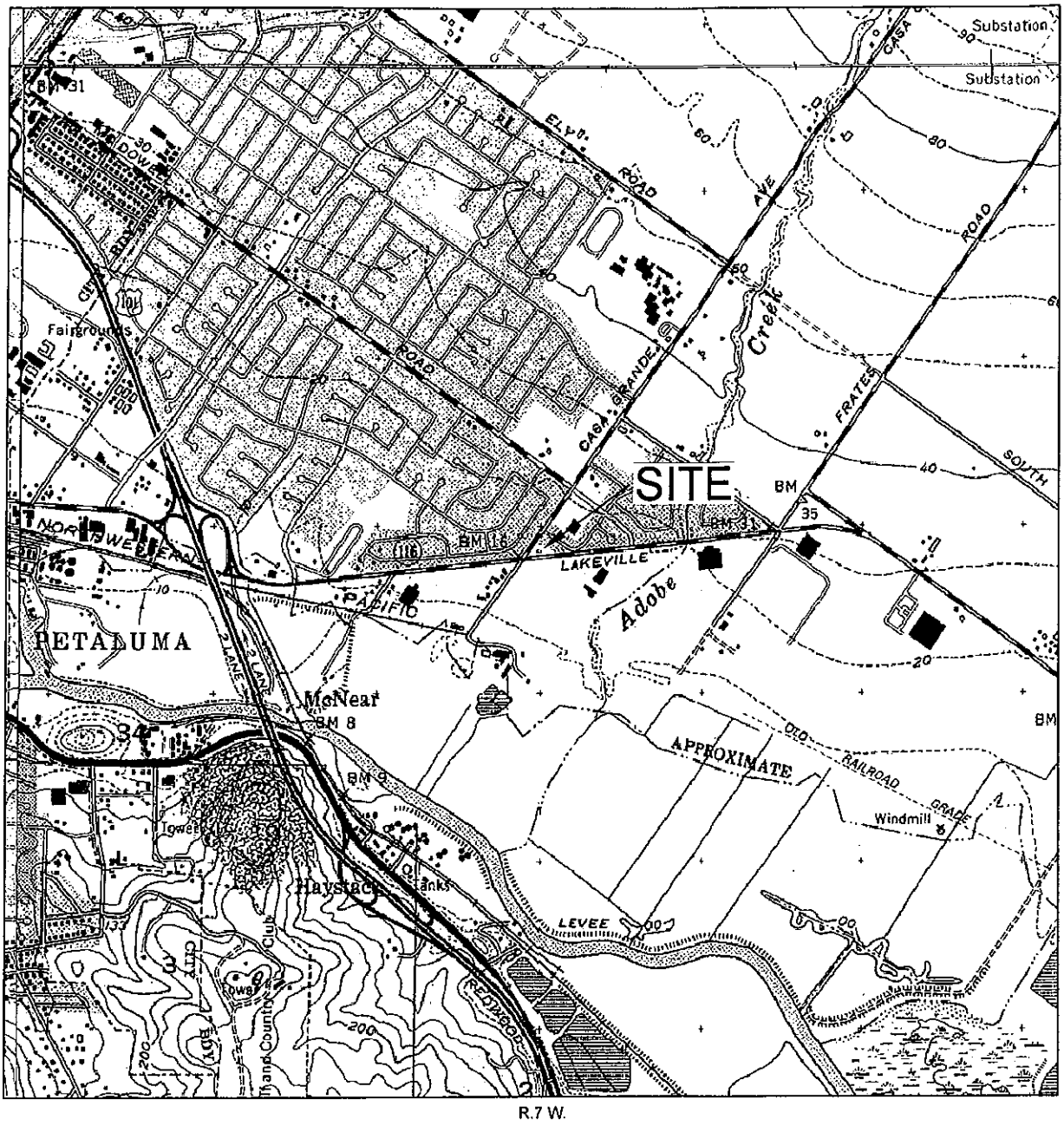
TPHd = total petroleum hydrocarbons as diesel
TPHg = total petroleum hydrocarbons as gasoline
B = benzene
T = toluene
E = ethylbenzene
X = xylenes
MTBE = methyl tertiary-butyl ether

\# = not typical diesel chromatographic pattern
J = may be biased slightly high
* = silica gel value reported
## = not typical gasoline chromatographic pattern
ppb = parts per billion
< = less than indicated detection level

GW = GroundWater
TOC = Top of Casing
Depths and Elevations recorded in feet
na = not analyzed
nm = not measured
ns = not sampled

Well casings resurveyed in April 2002 with Global Positioning System (GPS) coordinates.

SF Bay RWQCB ESLs: Table A Environmental Screening Levels for Groundwater when Groundwater is a Potential Source of Drinking Water with impacted soils less than or equal to 3 meters (approx. 10 feet) in depth




GENERAL NOTES:
BASE MAP FROM U.S.G.S.
PETALUMA RIVER, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980



QUADRANGLE LOCATION

0 2000 FT

SCALE 1:24,000

NORTH

HORIZON ENVIRONMENTAL INC.

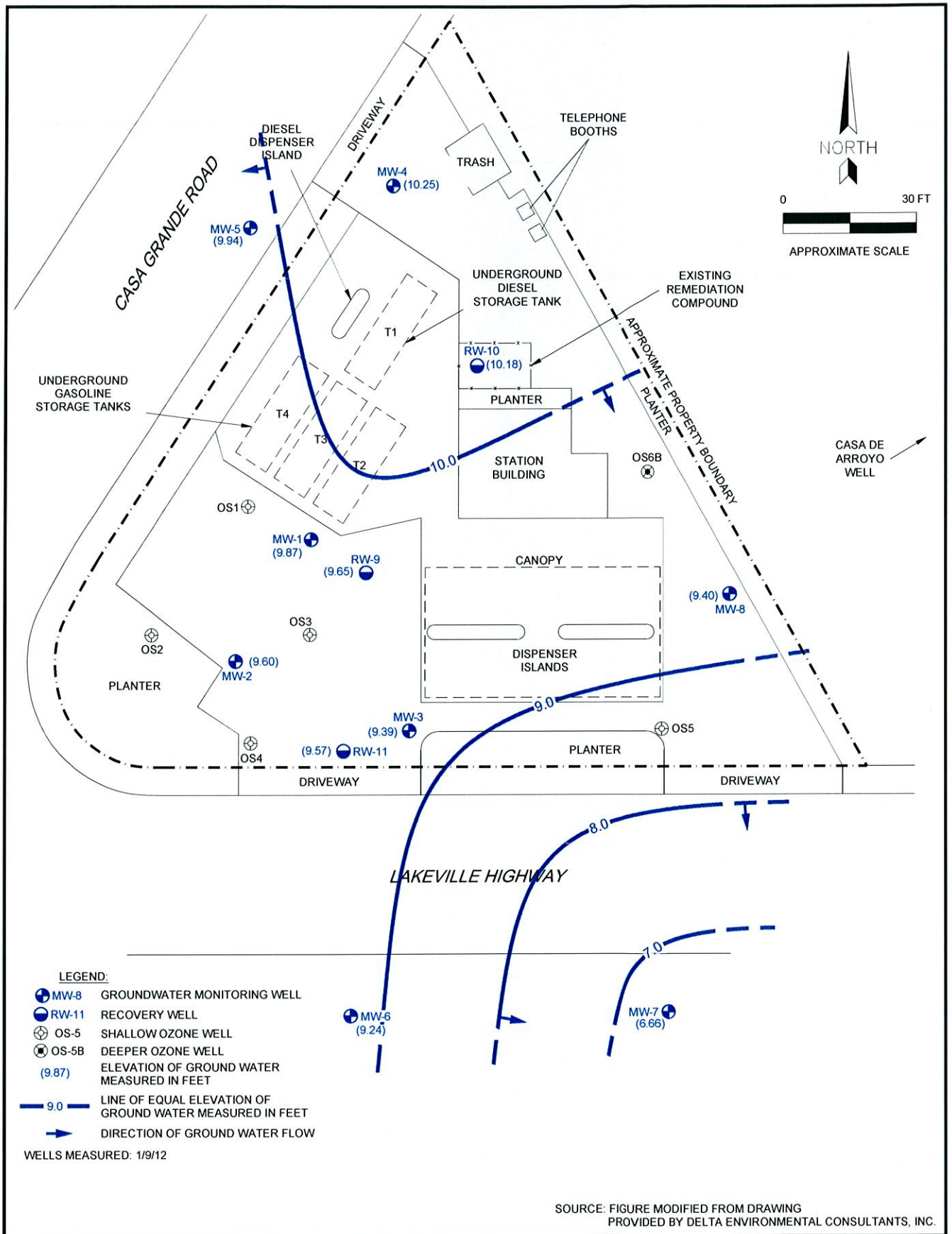
| | |
|---|---|
| Project Number: 34093.12 | Drawn By: M. LaCoste |
| Prepared By: K. Liptak | Date: 6/9/09 |
| Reviewed By: K. Mateik | Revised Date: |

SITE LOCATION MAP

TESORO SITE NO. 67093
2601 LAKEVILLE HIGHWAY
PETALUMA, CALIFORNIA

FIGURE

1




SOURCE: FIGURE MODIFIED FROM DRAWING PROVIDED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

HORIZON ENVIRONMENTAL INC.

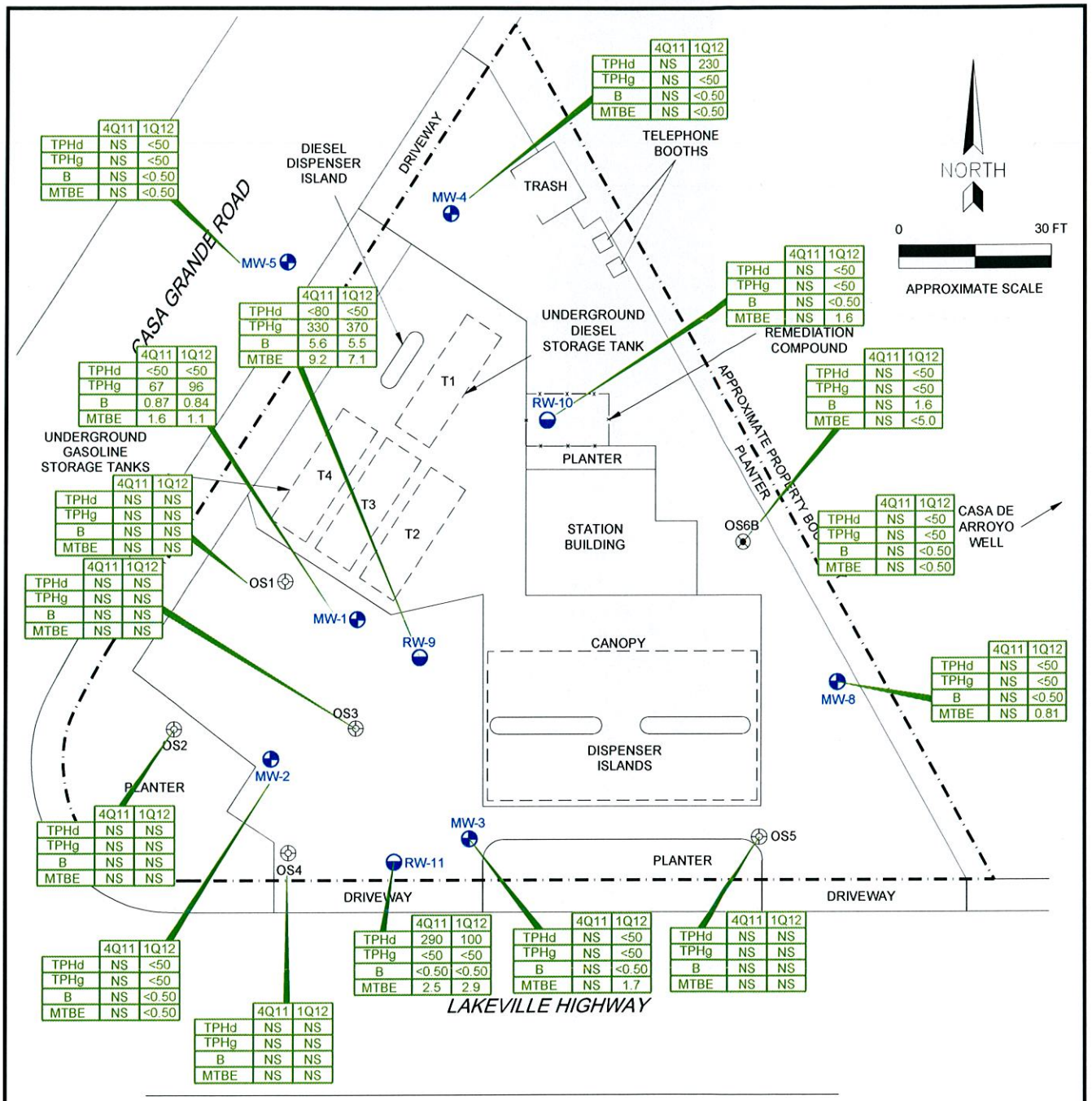
| | |
|---|---|
| Project Number: 34093.11 | Drawn By: M. LaCoste |
| Prepared By: K. Liptak | Date: 3/7/12 |
| Reviewed By: K. Mateik | Revised Date: |

# SITE PLAN/GROUNDWATER ELEVATION CONTOUR MAP

TESORO SITE NO. 67093
2601 LAKEVILLE HIGHWAY
PETALUMA, CALIFORNIA

FIGURE

2




HORIZON ENVIRONMENTAL INC.

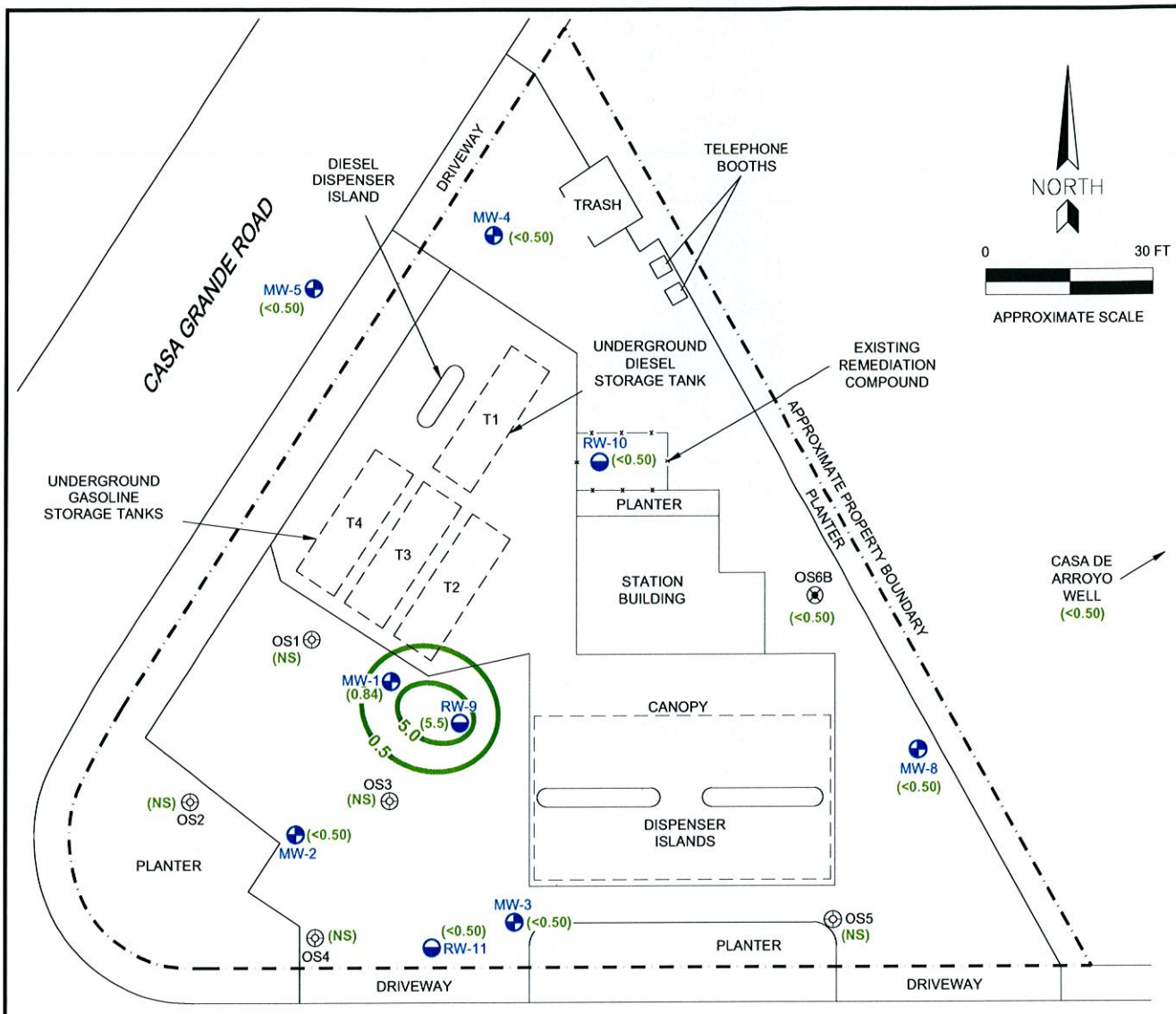
| | |
|---|---|
| Project Number: 34093.11 | Drawn By: M. LaCoste |
| Prepared By: K. Liptak | Date: 3/7/12 |
| Reviewed By: K. Mateik | Revised Date: |

# ANALYTICAL SUMMARY

TESORO SITE NO. 67093
2601 LAKEVILLE HIGHWAY
PETALUMA, CALIFORNIA

FIGURE

3




LEGEND:

- MW-8 GROUNDWATER MONITORING WELL
- RW-11 RECOVERY WELL
- OS-5 SHALLOW OZONE WELL
- OS-5B DEEPER OZONE WELL
- (5.5) BENZENE CONCENTRATIONS MEASURED IN PARTS PER BILLION (PPB)
- 5.0 LINE OF EQUAL CONCENTRATION OF BENZENE MEASURED IN PPB

WELLS SAMPLED: 1/9/12 & 1/10/12

MW-6 (<0.50)

MW-7 (<0.50)

SOURCE: FIGURE MODIFIED FROM DRAWING PROVIDED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

HORIZON ENVIRONMENTAL INC.

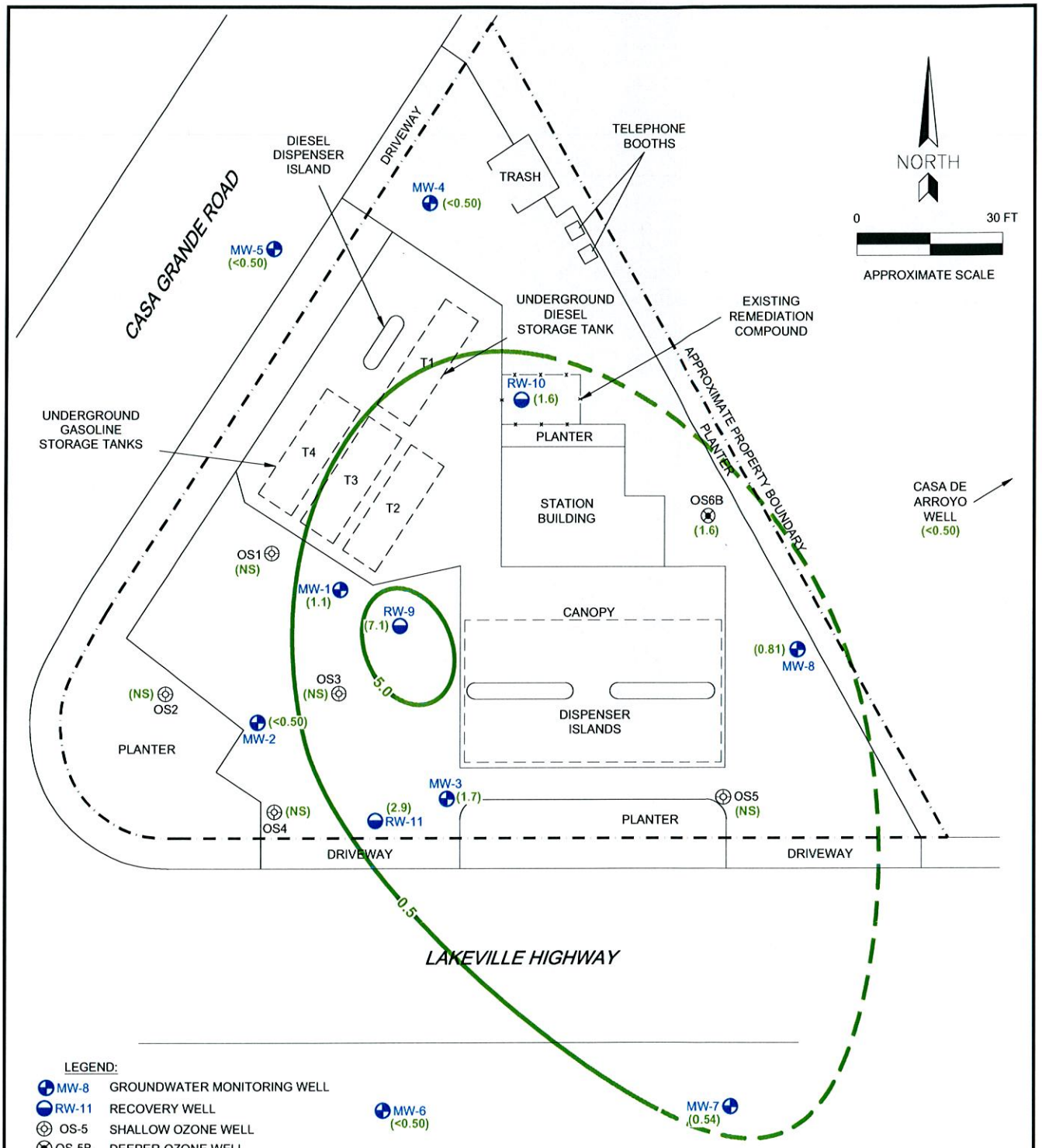
| | |
|---|---|
| Project Number: 34093.11 | Drawn By: M. LaCoste |
| Prepared By: K. Liptak | Date: 3/7/12 |
| Reviewed By: K. Mateik | Revised Date: |

BENZENE ISO-CONCENTRATION MAP

TESORO SITE NO. 67093
2601 LAKEVILLE HIGHWAY
PETALUMA, CALIFORNIA

FIGURE

4




LEGEND:

- MW-8 GROUNDWATER MONITORING WELL
- RW-11 RECOVERY WELL
- OS-5 SHALLOW OZONE WELL
- OS-5B DEEPER OZONE WELL
- (7.1) MTBE CONCENTRATIONS MEASURED IN PARTS PER BILLION (PPB)
- 5.0 LINE OF EQUAL CONCENTRATION OF MTBE MEASURED IN PPB

WELLS SAMPLED: 1/6/10 & 1/7/10

SOURCE: FIGURE MODIFIED FROM DRAWING PROVIDED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

HORIZON ENVIRONMENTAL INC.

| | |
|---|---|
| Project Number: **34093.11** | Drawn By: **M. LaCoste** |
| Prepared By: **K. Liptak** | Date: **3/7/12** |
| Reviewed By: **K. Mateik** | Revised Date: |

# MTBE ISO-CONCENTRATION MAP

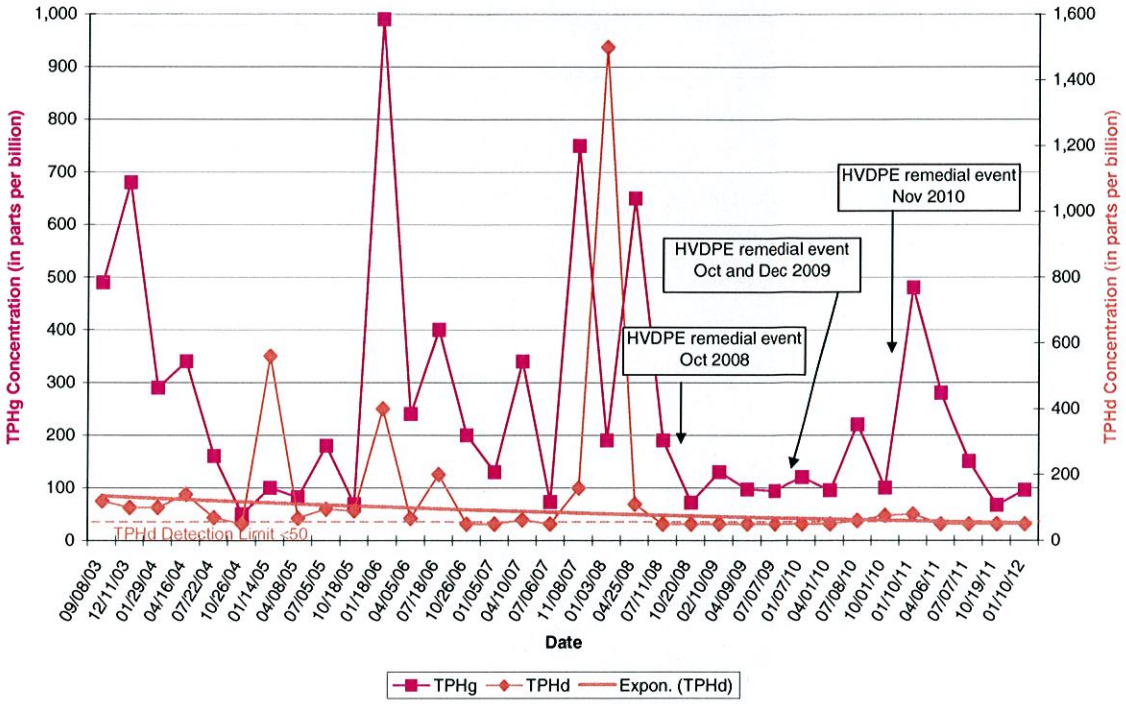
TESORO SITE NO. 67093
2601 LAKEVILLE HIGHWAY
PETALUMA, CALIFORNIA

FIGURE

**5**

**FIGURE 6**
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

**MW-1 Time vs. TPHg and TPHd**




**MW-1 Time vs. Benzene and MTBE**

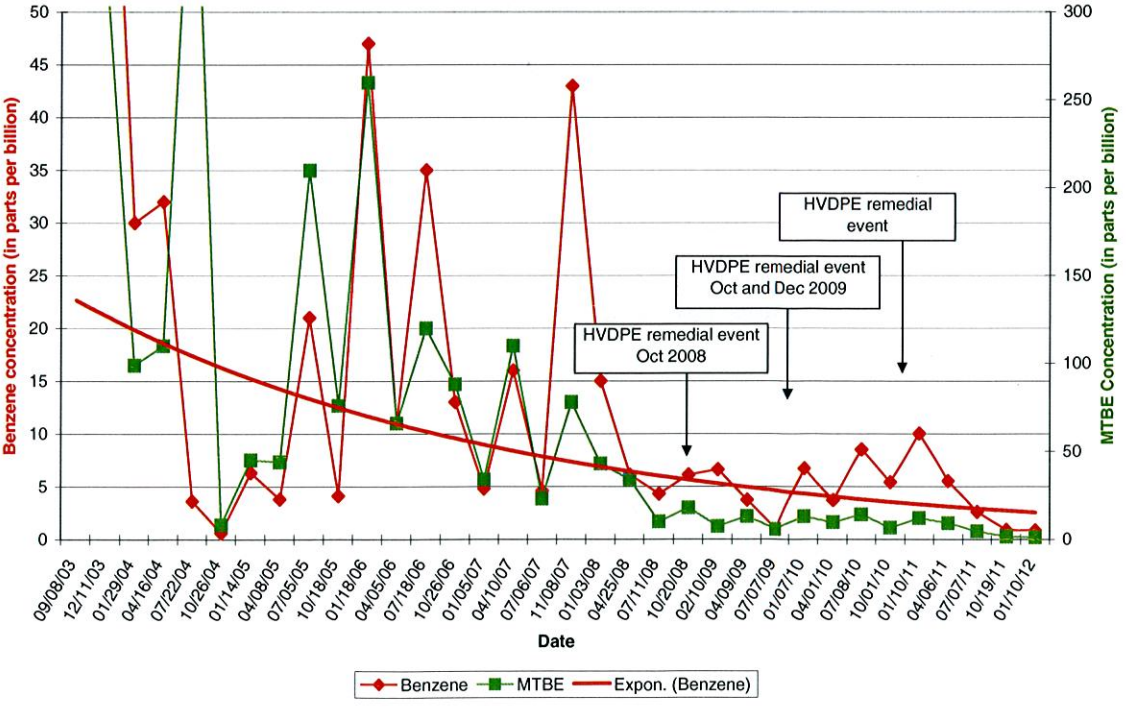
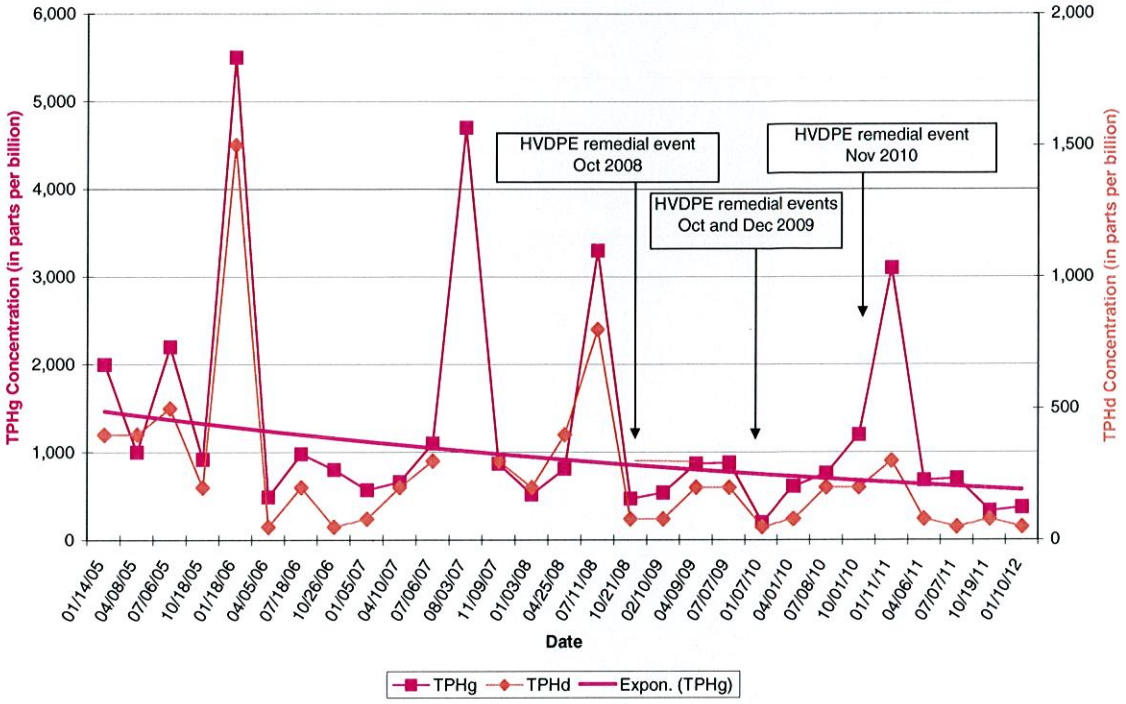


**FIGURE 7**
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

## RW-9 Time vs. TPHg and TPHd




## RW-9 Time vs. Benzene and MTBE

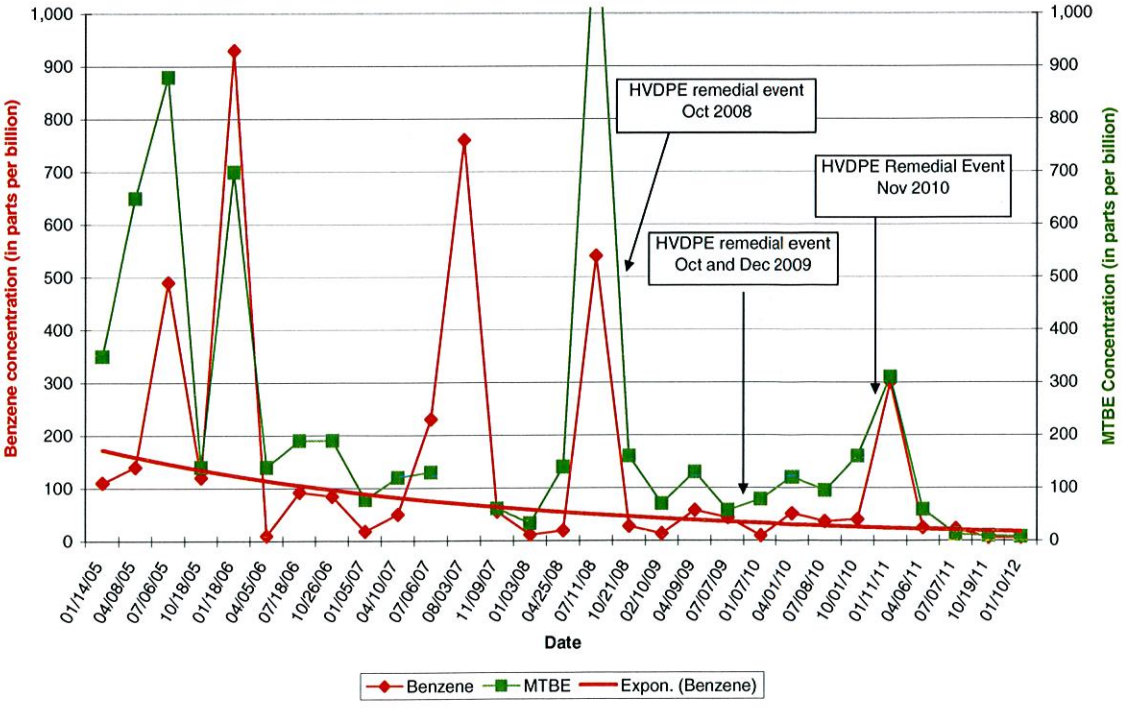
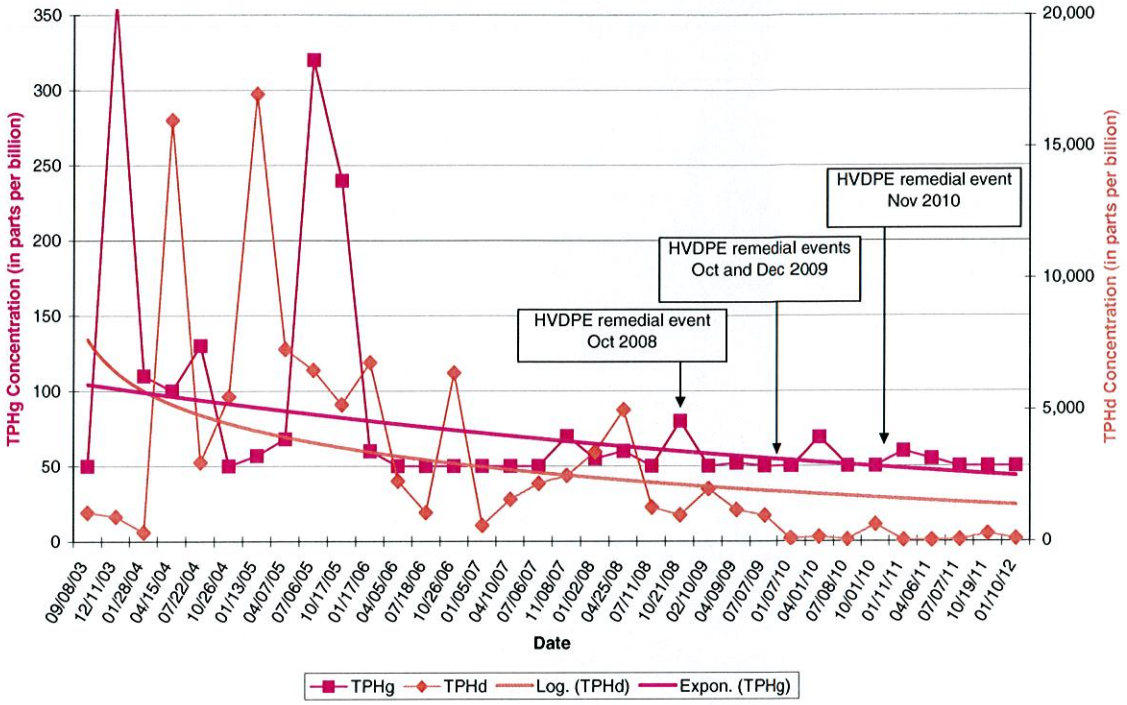
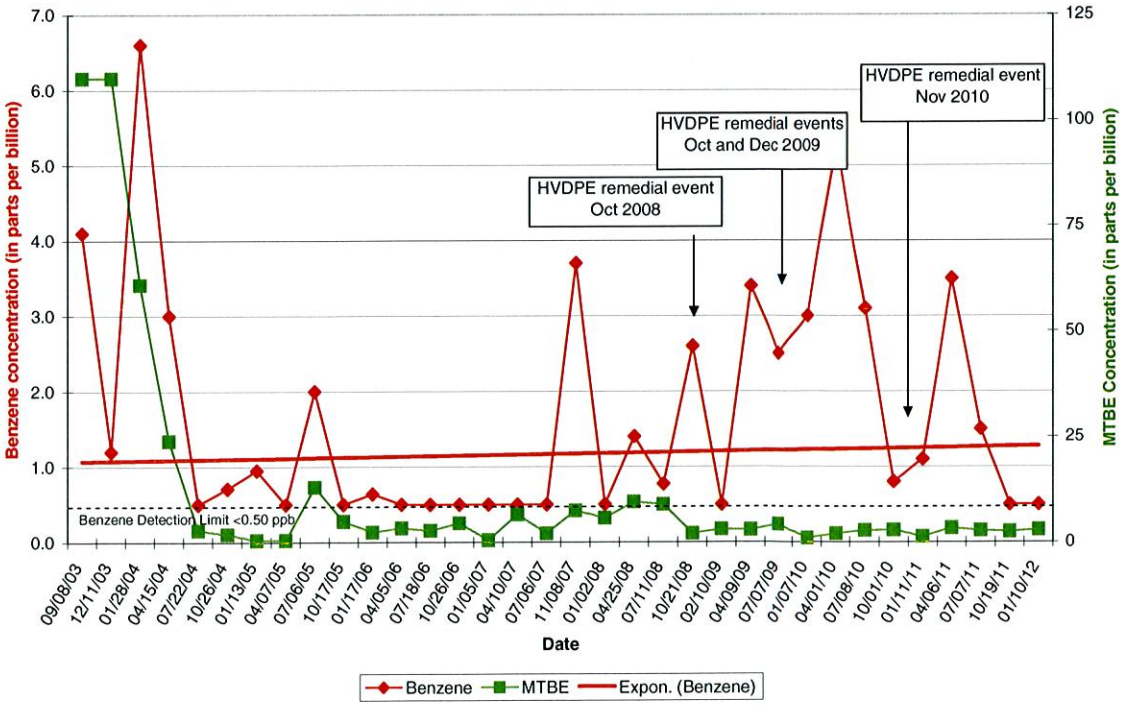


**FIGURE 8**
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

## RW-11 Time vs. TPHg and TPHd




## RW-11 Time vs. Benzene and MTBE

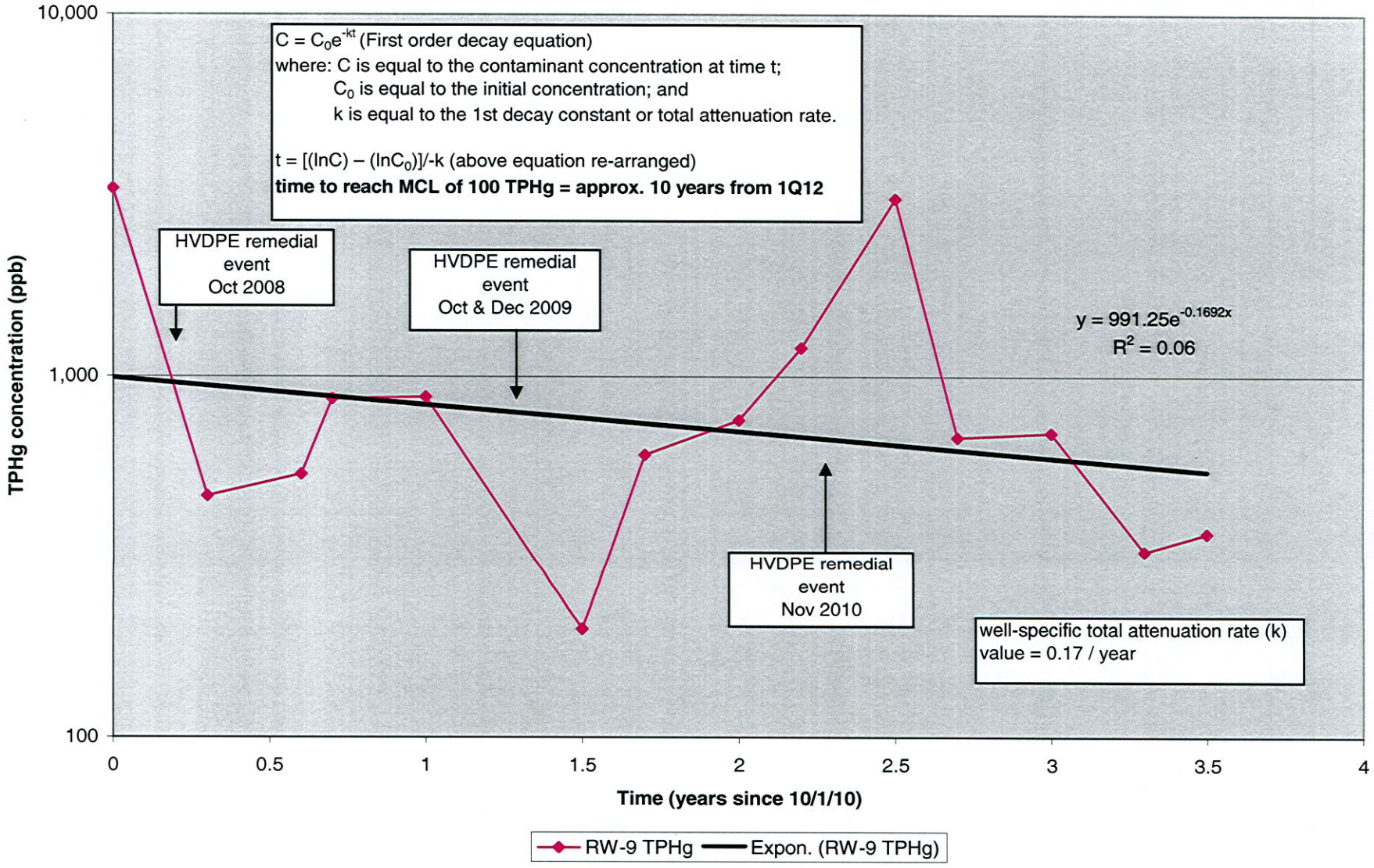


# FIGURE 9

**RW-9 TPHg vs. Time Post-remedial regression analysis**

Tesoro Site No. 67093

2601 Lakeville Highway, Petaluma, California




Project No. 34093.11

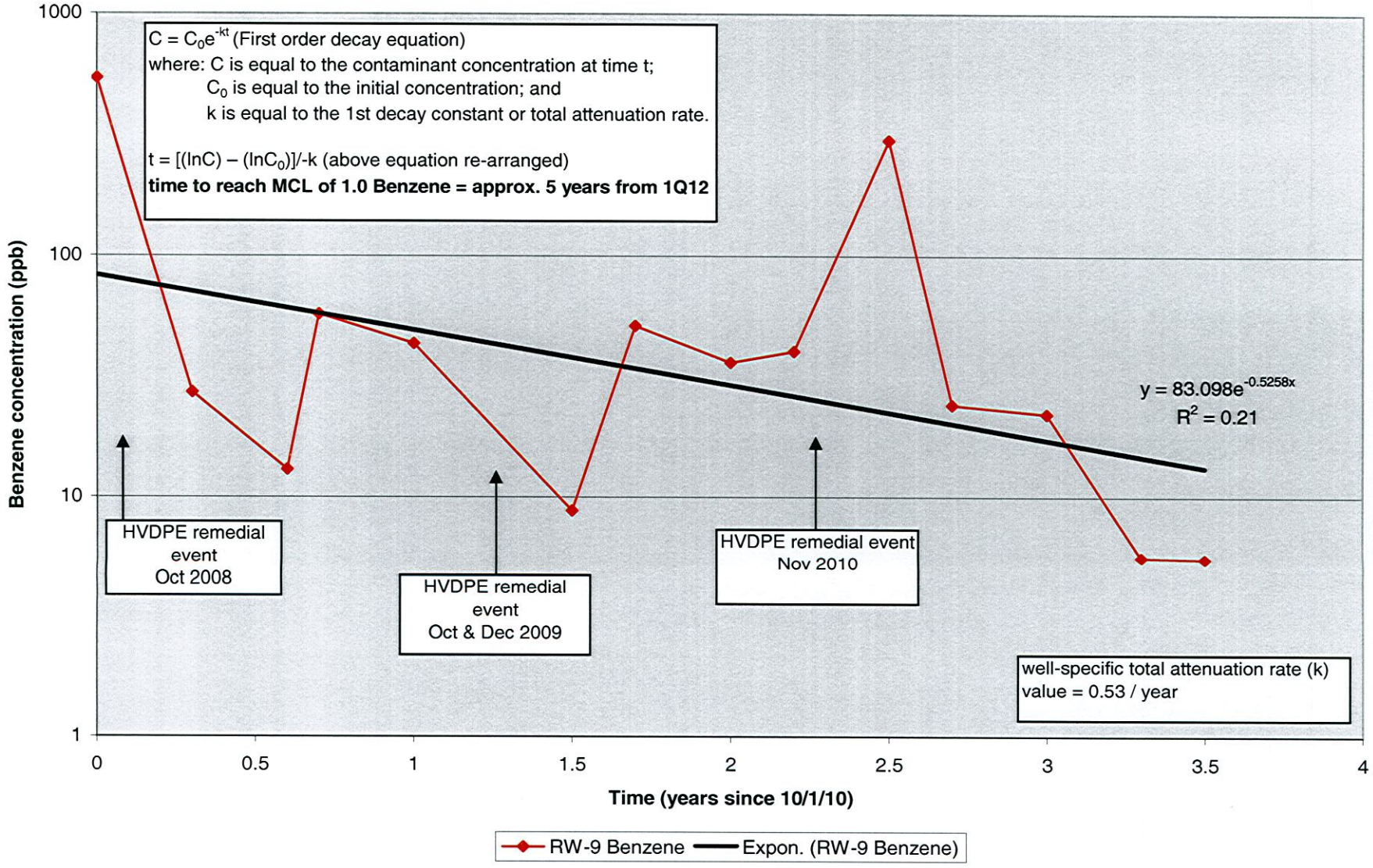
**HORIZON ENVIRONMENTAL INC.**

# FIGURE 10

## RW-9 Benzene vs. Time Post-remedial regression analysis

Tesoro Site No. 67093

2601 Lakeville Highway, Petaluma, California




Project No. 34093.11

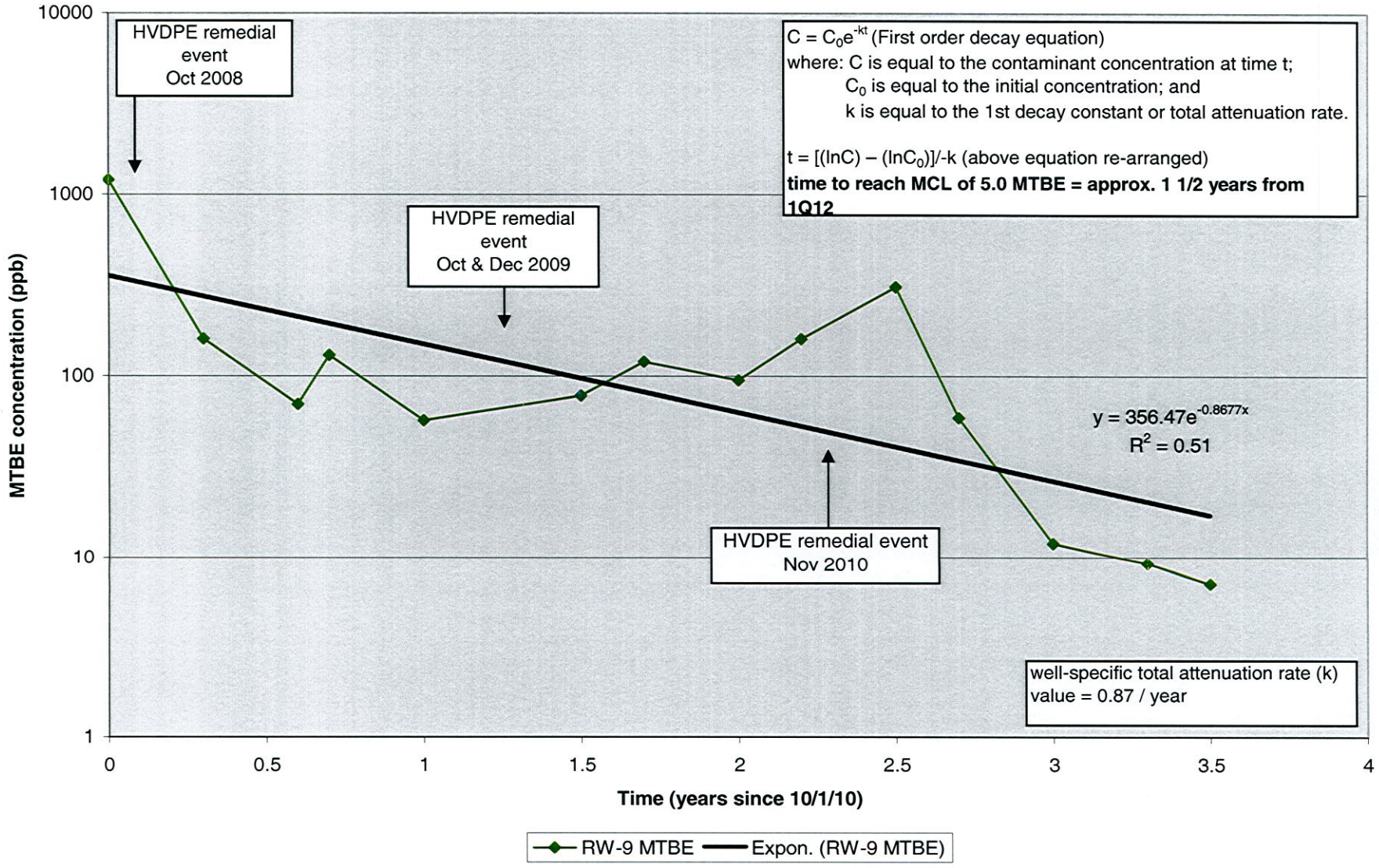
**HORIZON ENVIRONMENTAL INC.**

# FIGURE 11

## RW-9 MTBE vs. Time Post-remedial regression analysis

Tesoro Site No. 67093

2601 Lakeville Highway, Petaluma, California




Project No. 34093.11

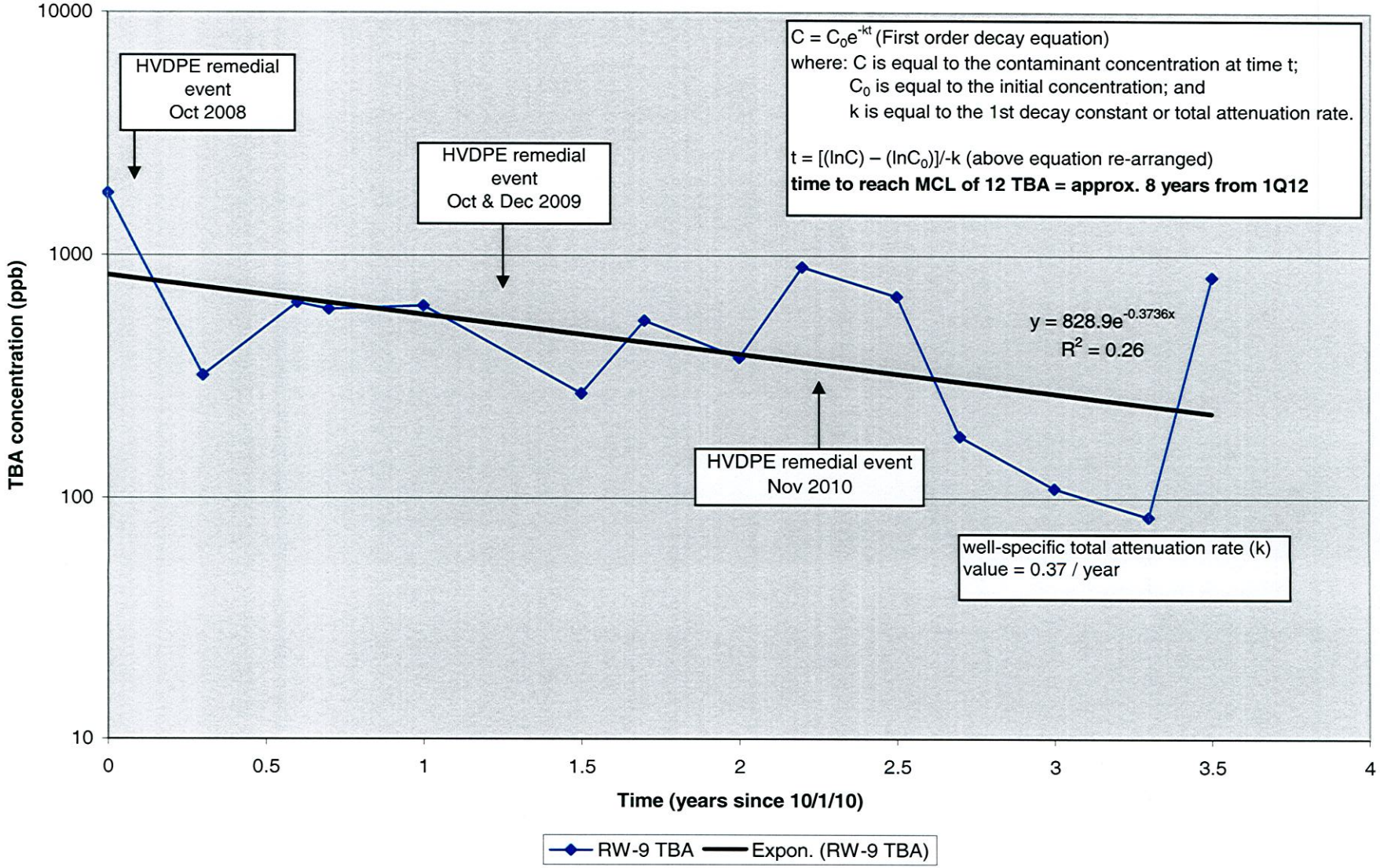
**HORIZON ENVIRONMENTAL INC.**

# FIGURE 12

**RW-9 TBA vs. Time Post-remedial regression analysis**

Tesoro Site No. 67093

2601 Lakeville Highway, Petaluma, California




Project No. 34093.11

**HORIZON ENVIRONMENTAL INC.**

# APPENDIX A

# SITE BACKGROUND

# Appendix A: Site Description and Background

## Site Description

Tesoro Site No. 67093 is an operating service station located on the northeast corner of the intersection of Lakeville Highway (California State Highway 116) and Casa Grande Road in Petaluma, California, as depicted on the Site Vicinity Map (see Figure 1). Site facilities currently include a convenience store building, two gasoline dispenser islands situated in the central portion of the property, one diesel dispenser island situated in the northwestern portion of the property, and four underground storage tanks (USTs) located in the northwestern portion of the site property. There are currently eleven groundwater monitoring wells (MW-1 through MW-8, and RW-9, RW-10 and RW-11), and six ozone-sparge wells (OS-1 through OS-6B) associated with this Site (Figure 2). Fourteen of the 17 wells are located within the Site boundaries, while monitoring well MW-5 is located west of the Site on Casa Grande Road, and monitoring wells MW-6 and MW-7 are located offsite to the south across Lakeville Highway.

## Site History

It is our understanding that a gasoline service station has been located at the property at 2601 Lakeville Highway since the 1970s. Prior to 1990, the station was a Jet Gas Station operated by the Conoco Oil Company (Conoco). Ultramar Inc. (Ultramar) purchased the service station site in July 1990 and operated Beacon Station No. 3710 at the site. In May 2002, Tesoro purchased the Site from Ultramar, then Tesoro sold the station to Green Valley Gasoline LLC (Green Valley) of Agoura Hills, California in December 2002.

## Previous Site Work

Previous work has been performed at the Site by Horizon and other consultants since 1987. The investigations have indicated that soil and groundwater beneath the Site have been impacted by petroleum hydrocarbons. Previous Site impacts consisted of total petroleum hydrocarbons as gasoline (TPHg) in soil up to a concentration of 480 parts per million (ppm). In addition, dissolved TPHg, benzene and MTBE are present in groundwater, primarily centered around groundwater recovery well RW-9. Historical soil and groundwater data is included in Appendix A. A brief summary of this previous work is presented below.

Previous work performed at the Site on behalf of Conoco indicated TPHg and the gasoline constituents benzene, toluene, ethylbenzene, total xylenes (BTEX) were detected in the groundwater beneath the Site. Previous work performed at the Site on behalf of Conoco between 1987 and 1990 included soil sampling during the removal of four former USTs in May 1987, the drilling and installation of four onsite groundwater monitoring wells (MW-1 through MW-4) by Applied GeoSystems in 1987 and by McLaren Environmental Engineering (McLaren) in 1988; and beginning a quarterly groundwater monitoring program in August 1988.

Previous work performed at the Site on behalf of Ultramar indicated TPHg; the volatile aromatics BTEX; and the fuel oxygenate methyl t-butyl ether (MTBE) detected in the soil and groundwater beneath the Site. Previous work performed at the Site on behalf of Ultramar has included the drilling and installation of offsite groundwater monitoring well MW-5 by Herzog Associates in July 1991; and the drilling and the installation of offsite groundwater monitoring

**Site Background (continued)**

wells MW-6 and MW-7, onsite groundwater monitoring well MW-8, and onsite groundwater recovery wells RW-9, RW-10 and RW-11 by Acton-Mickelson and van Dam in November 1992; the completion of a Problem Assessment Report (PAR) by Delta Environmental Consultants, Inc. (Delta) in June 1993; conducting a groundwater pumping test, soil vapor extraction test (SVET), and air-sparging test (AST) by Delta in 1993 and 1994; and continuing the quarterly groundwater monitoring program at the Site. In October 1997, Horizon prepared a Closure Evaluation Report and Risk-Based Corrective Action Tier 1 and Tier 2 Analysis report (Horizon, October 21, 1997). In December 1999, soil sampling and excavation work related to product line removal and upgrades was performed by Horizon at the Site.

In 1999 and 2000, episodes of high vacuum dual-phase extraction (HVDPE) were performed by TRC Alton Geoscience (TRCAG) on well RW-9 at the Site. During these monthly 8-hour HVDPE episodes, approximately 128.5 pounds of vapor-equivalent TPHg was removed from impacted soil in the area of well RW-9, and approximately 2,400 gallons of impacted groundwater were removed during the 48 hours of HVDPE testing. Groundwater extraction rates ranged between 0.78 to 1.23 gallons per minute (gpm) in the fine-grained soils beneath the Site.

In July 2003, ozone-sparge wells OS-1 through OS-6B were installed at the Site on behalf of Tesoro. During drilling and installation of sparge well OS-3, impacted soil was encountered between the depths of 10 and 20 feet bsg in the western portion of the Site. An ozone sparge system (OSS) operated between December 2004 and May 2008. The OSS was installed to facilitate the rate of degradation of the petroleum hydrocarbons beneath the Site. The combination of ozone and its reactive intermediates in the groundwater treatment process degrade to produce several harmless organic compounds, allowing for the in-situ oxidation of organic compounds, including the more recalcitrant organics, such as MTBE. In addition, the amount of oxygen generated by ozone injection generally increases the dissolved oxygen content in groundwater, and thus generally stimulates or enhances the natural biodegradation processes.

In October 2008, Horizon conducted a HVDPE test utilizing wells RW-9, RW-11 and MW-1. Vapor analytical results indicated TPHg influent concentrations were 800 parts per million vapor (ppmv) early in the test, then decreased to 320 ppmv at 19 hours into the test, then increased back to 680 ppmv near the end of the test. Influent benzene concentrations ranged between 0.93 ppmv and 1.9 ppmv. Volume calculations indicate that approximately 59.6 pounds of TPHg and 0.10-pound of benzene were removed during the 57-hour HVDPE test. The HVDPE test resulted in an induced vapor radius of influence (ROI) in the aquifer materials of at least 30 feet in radius by the end of the 57-hour test. Approximately 5,100 gallons of groundwater were extracted during the 57 hours of HVDPE. The HVDPE test resulted in a groundwater cone of depression centered on extraction wells RW-9 and RW-11 with drawdown in the surrounding monitoring wells that resulted in a groundwater ROI of at least 80 feet in radius by the end of the 57-hour test.

Between October and December 2009, Horizon conducted two HVDPE remedial events utilizing extraction wells RW-9, RW-11 and MW-1. During the October HVDPE event, vapor analytical results indicated TPHg influent concentrations ranged up to 1,000 ppmv early in the remedial event, then gradually decreased to 540 ppmv. Influent benzene concentrations ranged between 1.4 ppmv and 2.4 ppmv. During the December HVDPE event, vapor analytical results indicated

**Site Background (continued)**

TPHg influent concentrations ranged up to 510 ppmv early in the remedial event, then gradually decreased to 230 ppmv. Influent benzene concentrations ranged between 0.24 ppmv and 0.60 ppmv. Volume calculations indicated that the cumulative TPHg vapor mass removed during the October and December 2009 HVDPE events totaled approximately 629 pounds or 101 gallons of vapor-equivalent TPHg mass. Approximately 53,611 gallons of groundwater were extracted during the October and December 2009 HVDPE events and discharged to the City sanitary sewer system. Each HVDPE remedial event resulted in a groundwater cone of depression extending for a lateral radius of approximately **90 feet**, and an induced vacuum radius of influence (ROI) in the dewatered aquifer materials of approximately **25 feet**. The effectiveness of HVDPE technology was demonstrated based on the ability to successfully dewater the saturated water-bearing zone and extract petroleum hydrocarbon mass in the vapor phase.

Horizon performed a 4-day HVDPE remedial event between November 29 and December 4, 2010 to remove additional petroleum hydrocarbon mass from beneath the Site. Vapor analytical results indicated TPHg influent concentrations ranged up to 97 ppmv early in the remedial event, then gradually decreased to 58 ppmv. Only a trace concentration of 0.056 ppmv of Benzene was reported in the vapor sample collected after an elapsed time of 85 hours. The TPHg mass removed (16.67 pounds or 2.67 gallons of TPHg) was approximately 3% of the total petroleum hydrocarbon mass removed during the combined 9-day and 10-day HVDPE events (629 pounds or 101 gallons of TPHg) in 2009. The decrease in the TPHg mass removed reflects the decreasing residual petroleum concentrations remaining in the subsurface soils beneath the Site. The 2010 HVDPE remedial event resulted in a groundwater cone of depression extending for a lateral radius of approximately **80 feet**.

Groundwater monitoring and sampling has been performed at the Site since 1989. Groundwater has been present at depths between approximately 3 to 13 feet bsg in the ten monitoring wells. Based on the historical groundwater monitoring data, the groundwater flow direction has usually been to the south-southeast at gradient magnitudes of 0.1 or less (Horizon, 1997 through 2007). Historical groundwater data from May 1989 to the Present is included in Appendix D. In June 2009, the monitoring and sampling was reduced from a quarterly to a semi-annual schedule (Sonoma County Department of Health Services, June 25, 2009).

Groundwater sampling of the City of Petaluma's inactive Casa de Arroyo backup water supply well has been performed since 2001. This City well is located approximately 150 feet to the east-northeast and cross-gradient of the Site, and is screened from 89 to 149 feet and from 209 to 229 feet below grade (California Department of Water Resources, 1977). No concentrations of TPHd, TPHg, BTEX or the fuel oxygenates MTBE, TBA, TAME, DIPE and ETBE have been detected in the water samples collected from this City well, except for anomalous or non-typical TPHd concentrations reported in February 2003 and April 2004. The City of Petaluma's inactive Casa de Arroyo backup water supply well sampling has been reduced to an annual schedule to be performed in the first quarter of each year (Sonoma County Department of Health Services, March 31, 2005). Water from the City of Petaluma's municipal wells is typically "hard" and has high TDS concentrations. The Casa de Arroyo backup water supply well is currently inactive and used only for emergency purposes.

# APPENDIX B

## FIELD ACTIVITIES

## HORIZON FIELD METHODS AND PROCEDURES

## HORIZON MONITORING WELL DATA SHEETS

## PURGE WATER DISPOSAL DOCUMENTATION

## GEOTRACKER ELECTRONIC DATA DELIVERABLES

## WELLTEST INC. EXTRACTION REPORT

## Appendix B: Field Activities

Groundwater monitoring activities were conducted by Horizon on October 19, 2011 and January 9 and 10, 2012 according to Horizon Field Methods and Procedures contained in this appendix. Horizon Monitoring Well Data Sheets are contained in this appendix.

The depth to groundwater was measured in monitoring wells MW-1 through MW-8, RW-9, RW-10, RW-11 and OS-6B. Field groundwater level data were recorded on the Horizon Groundwater Level Data and Sampling Information Sheets. Purged groundwater was disposed to Instrat, Inc. Purge water disposal receipts are contained in this appendix.

Groundwater samples were collected from extraction wells MW-1, RW-9 and RW-11 on October 19, 2011 and monitoring wells MW-1 through MW-8, RW-9, RW-10, RW-11, deep-screened ozone sparge well OS-6B and the Casa de Arroyo City backup well on January 9 and 10, 2012. The groundwater samples were submitted under chain-of-custody (COC) documentation to Kiff Analytical (Kiff), a California-certified analytical laboratory (NELAP No. 08263CA) located in Davis, California. The water samples were analyzed for: total petroleum hydrocarbons as diesel (TPHd) and TPHd with Silica Gel cleanup by modified Environmental Protection Agency (EPA) Method 8015; and for total petroleum hydrocarbons as gasoline (TPHg); the volatile aromatics benzene, toluene, ethylbenzene, total xylenes (BTEX); and the five fuel oxygenates methyl tert-butyl ether (MTBE), diisopropyl ether (DIPE), ethyl-t-butyl ether (ETBE), tert-amyl methyl ether (TAME), and tert-butanol (TBA) by EPA Method 8260B. The analytical report is contained in Appendix C.

### GeoTracker Electronic Data Deliverables

The analytical electronic data deliverable (EDD) file (EDF) was prepared by Kiff and uploaded by Horizon. The groundwater level EDD (GEO_WELL) was prepared and uploaded by Horizon. The laboratory analytical EDD and groundwater well measurement EDD (GEO_WELL) upload confirmation sheets for this reporting period and the Semi-Annual Monitoring Report EDD (GEO_REPORT) upload confirmation sheet for the previous reporting period are contained in this appendix.

### Reporting

Extraction wells MW-1, RW-9 and RW-11 are monitored and sampled on a **quarterly** schedule to evaluate the post-HVDPE groundwater quality and hydrocarbon concentration trends in the center of the dissolved plume. All other wells are monitored on an **annual** or **semi-annual** schedule to evaluate the groundwater quality and hydrocarbon concentration trends. Results of the quarterly sampling of extraction wells MW-1, RW-9 and RW-11 are presented in the **semi-annual** (Q1 and Q3) **reports** submitted for the Site.

# APPENDIX D

## HISTORICAL DATA

# TABLE A
## GROUND-WATER POTENTIOMETRIC ELEVATIONS

**Beacon Station 703**
**2601 Lakeville Highway**
**Petaluma, California**

| WELL ID | DATE SAMPLED | TOP OF CASING ELEVATION (feet) | DEPTH TO GROUND WATER (feet) | GROUND-WATER ELEVATION (feet) | GROUND-WATER ELEVATION CHANGE (feet) |
|---|---|---|---|---|---|
| MW-1 | 01-May-89 | 16.10 | 12.63 | 3.47 | |
| | 08-Jun-89 | | 9.76 | 6.34 | 2.87 |
| | 07-Jul-89 | | 8.88 | 7.22 | 0.88 |
| | 24-Jul-89 | | 9.88 | 6.22 | -1.00 |
| | 31-Aug-89 | | 9.12 | 6.98 | 0.76 |
| | 25-Sep-89 | | 8.59 | 7.51 | 0.53 |
| | 30-Oct-89 | | 8.02 | 8.08 | 0.57 |
| | 29-Jan-90 | | 7.12 | 8.98 | 0.90 |
| | 13-Mar-90 | | 7.09 | 9.01 | 0.03 |
| | 06-Jun-90 | | 8.16 | 7.94 | -1.07 |
| | 02-Oct-90 | | 9.40 | 6.70 | -1.24 |
| | 04-Dec-90 | | 9.72 | 6.38 | -0.32 |
| | 20-Feb-91 | | 9.16 | 6.94 | 0.56 |
| MW-2 | 01-May-89 | 16.10 | 12.76 | 3.34 | |
| | 08-Jun-89 | | 9.89 | 6.21 | 2.87 |
| | 07-Jul-89 | | 9.02 | 7.08 | 0.87 |
| | 24-Jul-89 | | 10.00 | 6.10 | -0.98 |
| | 31-Aug-89 | | 9.28 | 6.82 | 0.72 |
| | 25-Sep-89 | | 8.71 | 7.39 | 0.57 |
| | 30-Oct-89 | | 8.17 | 7.93 | 0.54 |
| | 29-Jan-90 | | 7.11 | 8.99 | 1.06 |
| | 13-Mar-90 | | 7.15 | 8.95 | -0.04 |
| | 06-Jun-90 | | 8.21 | 7.89 | -1.06 |
| | 02-Oct-90 | | 9.45 | 6.65 | -1.24 |
| | 04-Dec-90 | | 9.85 | 6.25 | -0.40 |
| | 20-Feb-91 | | 9.19 | 6.91 | 0.66 |
| MW-3 | 01-May-89 | 16.12 | 13.77 | 2.35 | |
| | 08-Jun-89 | | 10.42 | 5.70 | 3.35 |
| | 07-Jul-89 | | 9.50 | 6.62 | 0.92 |
| | 24-Jul-89 | | 10.47 | 5.65 | -0.97 |
| | 31-Aug-89 | | 9.79 | 6.33 | 0.68 |
| | 25-Sep-89 | | 9.19 | 6.93 | 0.60 |
| | 30-Oct-89 | | 8.57 | 7.55 | 0.62 |
| | 29-Jan-90 | | 7.59 | 8.53 | 0.98 |
| | 13-Mar-90 | | 7.48 | 8.64 | 0.11 |
| | 06-Jun-90 | | 8.67 | 7.45 | -1.19 |
| | 02-Oct-90 | | 9.97 | 6.15 | -1.30 |
| | 04-Dec-90 | | 10.25 | 5.87 | -0.28 |
| | 20-Feb-91 | | 9.64 | 6.48 | 0.61 |



001

LTRAMAR

10/24/95 TUE 08:06 FAX 582 3282

# TABLE A
## GROUND-WATER POTENTIOMETRIC ELEVATIONS
(Continued)

**Beacon Station 703**
**2601 Lakeville Highway**
**Petaluma, California**

| WELL ID | DATE SAMPLED | TOP OF CASING ELEVATION (feet) | DEPTH TO GROUND WATER (feet) | GROUND-WATER ELEVATION (feet) | GROUND-WATER ELEVATION CHANGE (feet) |
|---|---|---|---|---|---|
| MW-4 | 01-May-89 | 15.42 | 11.57 | 3.85 | |
| | 08-Jun-89 | | 8.57 | 6.85 | 3.00 |
| | 07-Jul-89 | | 7.75 | 7.67 | 0.82 |
| | 24-Jul-89 | | 8.68 | 6.74 | -0.93 |
| | 31-Aug-89 | | 7.96 | 7.46 | 0.72 |
| | 25-Sep-89 | | 7.41 | 8.01 | 0.55 |
| | 30-Oct-89 | | 6.86 | 8.56 | 0.55 |
| | 29-Jan-90 | | 6.05 | 9.37 | 0.81 |
| | 13-Mar-90 | | 6.02 | 9.40 | 0.03 |
| | 06-Jun-90 | | 6.93 | 8.49 | -0.91 |
| | 02-Oct-90 | | 8.20 | 7.22 | -1.27 |
| | 04-Dec-90 | | 8.56 | 6.86 | -0.36 |
| | 20-Feb-91 | | 7.86 | 7.56 | 0.70 |

NOTES: 1) All elevations surveyed to the City of Petaluma Water Main Point Number 12, Bench Mark elevation taken as 8.22 feet above Mean Sea Level (MSL).
2) Elevations and depths given in feet, MSL.
3) Elevations prior to March 1990 were measured by McLaren Environmental Engineering.
4) MW-1 was constructed by Alcoteil GeoSystems, and MW-2, MW-3 and MW-4 were constructed by McLaren Environmental Engineers.



002
LLTRAMAR
10/24/95 TUE 09:08 FAX 583 3282

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
**(Measurements in feet)**

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| MW-1 | 10/12/92 | 16.10 | 10.09 | 6.01 | 8.95 | |
| | 01/28/93 | 18.22 | 6.91 | 11.31 | 28.90 | |
| | 04/17/93 | | 8.17 | 10.05 | 29.00 | |
| | 07/27/93 | | 9.65 | 8.57 | 29.00 | |
| | 10/27/93 | | 9.95 | 8.27 | 29.00 | |
| | 02/14/94 | | 7.77 | 10.45 | 29.11 | |
| | 05/03/94 | | 9.00 | 9.22 | 29.14 | |
| | 07/27/94 | | 10.10 | 8.12 | 29.15 | |
| | 11/03/94 | | 10.87 | 7.35 | 28.94 | |
| | 02/03/95 | | 6.21 | 12.01 | 28.91 | |
| | 05/03/95 | | 8.02 | 10.20 | 30.35 | |
| | 07/27/95 | | 9.55 | 8.67 | 30.51 | |
| | 11/16/95 | | 10.52 | 7.70 | 30.50 | |
| | 02/16/96 | | 7.58 | 10.64 | 30.50 | |
| | 05/16/96 | | 7.94 | 10.28 | 30.41 | |
| | 08/22/96 | | 9.37 | 8.85 | 30.41 | |
| | 11/19/96 | | 8.86 | 9.36 | 30.40 | |
| | 03/03/97 | | 8.15 | 10.07 | 30.39 | |
| | 05/29/97 | | 9.61 | 8.61 | 30.40 | |
| | 07/30/97 | | 9.95 | 8.27 | 30.40 | |
| | 11/14/97 | | 9.93 | 8.29 | 30.41 | |
| | 02/17/98 | | 6.26 | 11.96 | 30.41 | |
| | 05/18/98 | | 8.59 | 9.63 | 30.40 | |
| | 08/20/98 | | 9.78 | 8.44 | 30.39 | |
| | 12/18/98 | | 8.94 | 9.28 | 30.38 | |
| | 03/04/99 | | 7.59 | 10.63 | 30.39 | |
| | 06/14/99 | | 9.73 | 8.49 | 30.38 | |
| | 09/30/99 | | 10.77 | 7.45 | 30.36 | |
| | 12/29/99[4] | | | | | |

NOTES
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing
2 = Elevation referenced to mean sea level.
Well Depth[1] = Measurement from top of casing to bottom of well.
4 = Well inaccessible

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| MW-2 | 10/12/92 | 16.10 | 10.15 | 5.95 | 21.98 | |
| | 01/28/93 | 18.13 | 6.98 | 11.15 | 22.47 | |
| | 04/17/93 | | 8.18 | 9.95 | 22.13 | |
| | 07/27/93 | | 9.33 | 8.80 | 22.16 | |
| | 10/27/93 | | 10.04 | 8.09 | 22.16 | |
| | 02/14/94 | | 7.76 | 10.37 | 22.10 | |
| | 05/03/94 | | 9.15 | 8.98 | 22.12 | |
| | 07/27/94 | | 10.13 | 8.00 | 22.12 | |
| | 11/03/94 | | 10.91 | 7.22 | 21.90 | |
| | 02/03/95 | | 6.49 | 11.64 | 21.92 | |
| | 05/03/95 | | 8.06 | 10.07 | 21.91 | |
| | 07/27/95 | | 9.52 | 8.61 | 23.77 | |
| | 11/16/95 | | 10.54 | 7.59 | 23.79 | |
| | 02/16/96 | | 7.59 | 10.54 | 23.76 | |
| | 05/16/96 | | 8.01 | 10.12 | 23.64 | |
| | 08/22/96 | | 9.35 | 8.78 | 23.69 | |
| | 11/19/96 | | 8.90 | 9.23 | 23.68 | |
| | 03/03/97 | | 8.18 | 9.95 | 23.69 | |
| | 05/29/97 | | 9.75 | 8.38 | 23.67 | |
| | 07/30/97 | | 10.17 | 7.96 | 23.67 | |
| | 11/14/97 | | 10.00 | 8.13 | 23.67 | |
| | 02/17/98 | | 6.42 | 11.71 | 23.67 | |
| | 05/18/98 | | 8.64 | 9.49 | 23.68 | |
| | 08/20/98 | | 9.86 | 8.27 | 23.67 | |
| | 12/18/98 | | 8.95 | 9.18 | 23.66 | |
| | 03/04/99 | | 7.85 | 10.28 | 23.65 | |
| | 06/14/99 | | 9.78 | 8.35 | 23.65 | |
| | 09/30/99 | | 10.98 | 7.15 | 23.65 | |
| | 12/29/99[4] | | | | | |

NOTES. 1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible.

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
## (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| MW-3 | 10/12/92 | 16.12 | 10.79 | 5.33 | 24.67 | |
| | 01/28/93 | 18.15 | 7.31 | 10.84 | 24.56 | |
| | 04/17/93 | | 8.65 | 9.50 | 24.55 | |
| | 07/27/93 | | 10.08 | 8.07 | 24.55 | |
| | 10/27/93 | | 10.58 | 7.57 | 24.55 | |
| | 02/14/94 | | 8.21 | 9.94 | 24.67 | |
| | 05/03/94 | | 9.07 | 9.08 | 24.69 | |
| | 07/27/94 | | 10.68 | 7.47 | 24.68 | |
| | 11/03/94 | | 11.45 | 6.70 | 24.46 | |
| | 02/03/95 | | 6.83 | 11.32 | 24.41 | |
| | 05/03/95 | | 8.53 | 9.62 | 24.45 | |
| | 07/27/95 | | 10.06 | 8.09 | 24.86 | |
| | 11/16/95 | | 10.98 | 7.17 | 24.85 | |
| | 02/16/96 | | 7.98 | 10.17 | 24.86 | |
| | 05/16/96 | | 8.60 | 9.55 | 24.74 | |
| | 08/22/96 | | 9.91 | 8.24 | 24.73 | |
| | 11/19/96 | | 9.48 | 8.67 | 24.75 | |
| | 03/03/97 | | 8.64 | 9.51 | 24.73 | |
| | 05/29/97 | | 10.13 | 8.02 | 24.75 | |
| | 07/30/97 | | 10.47 | 7.68 | 24.76 | |
| | 11/14/97 | | 10.60 | 7.55 | 24.76 | |
| | 02/17/98 | | 6.63 | 11.52 | 24.76 | |
| | 05/18/98 | | 9.15 | 9.00 | 24.75 | |
| | 08/20/98 | | 10.41 | 7.74 | 24.75 | |
| | 12/18/98 | | 9.64 | 8.51 | 24.75 | |
| | 03/04/99 | | 8.17 | 9.98 | 24.75 | |
| | 06/14/99 | | 10.27 | 7.88 | 24.75 | |
| | 09/30/99 | | 11.40 | 6.75 | 24.74 | |
| | 12/29/99[4] | | | | | |

NOTES:
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible.

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| MW-4 | 01/28/93 | 18.46 | 5.71 | 12.75 | 24.95 | |
| | 04/17/93 | | 6.93 | 11.53 | 24.80 | |
| | 07/27/93 | | 8.37 | 10.09 | 24.51 | |
| | 10/27/93 | | 8.79 | 9.67 | 24.51 | |
| | 02/14/94 | | 6.49 | 11.97 | 24.95 | |
| | 05/03/94 | | 7.88 | 10.58 | 25.69 | |
| | 07/27/94 | | 9.86 | 8.60 | 25.71 | |
| | 11/03/94 | | 9.69 | 8.77 | 25.50 | |
| | 02/03/95 | | 5.24 | 13.22 | 25.50 | |
| | 05/03/95 | | 6.76 | 11.70 | 25.45 | |
| | 07/27/95 | | 8.26 | 10.20 | 26.06 | |
| | 11/16/95 | | 9.26 | 9.20 | 26.01 | |
| | 02/16/96 | | 6.33 | 12.13 | 26.05 | |
| | 05/16/96 | | 6.73 | 11.73 | 25.96 | |
| | 08/22/96 | | 8.11 | 10.35 | 25.95 | |
| | 11/19/96 | | 7.54 | 10.92 | 25.95 | |
| | 03/03/97 | | 7.01 | 11.45 | 25.92 | |
| | 05/29/97 | | 8.28 | 10.18 | 25.91 | |
| | 07/30/97 | | 7.65 | 10.81 | 25.93 | |
| | 11/14/97 | | 8.71 | 9.75 | 25.92 | |
| | 02/17/98 | | 4.81 | 13.65 | 25.92 | |
| | 05/18/98 | | 7.31 | 11.15 | 25.92 | |
| | 08/20/98 | | 8.50 | 9.96 | 25.92 | |
| | 12/18/98 | | 7.70 | 10.76 | 25.90 | |
| | 03/04/99 | | 6.40 | 12.06 | 25.90 | |
| | 06/14/99 | | 8.49 | 9.97 | 25.90 | |
| | 09/30/99 | | 9.46 | 9.00 | 25.90 | |
| | 12/29/99 | | 8.75 | 9.71 | 11.84 | |

NOTES:
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible.

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| MW-5 | 01/28/93 | 16.72 | 4.80 | 11.92 | 19.51 | |
| | 04/17/93 | | 5.97 | 10.75 | 19.49 | |
| | 07/27/93 | | 7.33 | 9.39 | 19.50 | |
| | 10/27/93 | | 7.77 | 8.95 | 19.50 | |
| | 02/14/94 | | 5.51 | 11.21 | 19.48 | |
| | 05/03/94 | | 6.89 | 9.83 | 19.83 | |
| | 07/27/94 | | 7.84 | 8.88 | 19.84 | |
| | 11/03/94 | | 8.67 | 8.05 | 19.63 | |
| | 02/03/95 | | 4.33 | 12.39 | 19.64 | |
| | 05/03/95 | | 5.82 | 10.90 | 19.64 | |
| | 07/27/95 | | 7.19 | 9.53 | 19.82 | |
| | 11/16/95 | | 8.23 | 8.49 | 19.84 | |
| | 02/16/96 | | 5.34 | 11.38 | 19.90 | |
| | 05/16/96 | | 5.79 | 10.93 | 19.74 | |
| | 08/22/96 | | 7.09 | 9.63 | 19.71 | |
| | 11/19/96 | | 6.57 | 10.15 | 19.72 | |
| | 03/03/97 | | 6.08 | 10.64 | 19.73 | |
| | 05/29/97 | | 7.29 | 9.43 | 19.72 | |
| | 07/30/97 | | 7.68 | 9.04 | 19.71 | |
| | 11/14/97 | | 7.73 | 8.99 | 19.70 | |
| | 02/17/98 | | 3.91 | 12.81 | 19.70 | |
| | 05/18/98 | | 6.36 | 10.36 | 19.71 | |
| | 08/20/98 | | 7.80 | 8.92 | 19.71 | |
| | 12/18/98 | | 6.69 | 10.03 | 19.70 | |
| | 03/04/99 | | 5.33 | 11.39 | 19.68 | |
| | 06/14/99[4] | | | | | |
| | 09/30/99 | | 8.40 | 8.32 | 19.67 | |
| | 12/29/99 | | 7.80 | 8.92 | 19.65 | |

NOTES:
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible.

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
**(Measurements in feet)**

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| MW-6 | 01/28/93 | 15.50 | 5.15 | 10.35 | 14.91 | |
| | 04/17/93 | | 6.55 | 8.95 | 14.93 | |
| | 07/27/93 | | 8.32 | 7.18 | 14.91 | |
| | 10/27/93 | | 8.61 | 6.89 | 14.91 | |
| | 02/14/94 | | 6.13 | 9.37 | 14.97 | |
| | 05/03/94 | | 7.63 | 7.87 | 14.99 | |
| | 07/27/94 | | 9.72 | 5.78 | 14.97 | |
| | 11/03/94 | | 9.41 | 6.09 | 14.76 | |
| | 02/03/95 | | 4.54 | 10.96 | 14.71 | |
| | 05/03/95 | | 6.51 | 8.99 | 14.74 | |
| | 07/27/95 | | 8.08 | 7.42 | 14.98 | |
| | 11/16/95 | | 8.99 | 6.51 | 14.92 | |
| | 02/16/96 | | 5.84 | 9.66 | 14.92 | |
| | 05/16/96 | | 6.64 | 8.86 | 14.84 | |
| | 08/22/96 | | 8.02 | 7.48 | 14.83 | |
| | 11/19/96 | | 7.47 | 8.03 | 14.82 | |
| | 03/03/97 | | 6.52 | 8.98 | 14.82 | |
| | 05/29/97[4] | | | | | |
| | 07/30/97[4] | | | | | |
| | 11/14/97 | 15.43 | 8.41 | 7.02 | 14.80 | |
| | 02/17/98 | | 4.41 | 11.02 | 14.80 | |
| | 05/18/98 | | 7.06 | 8.37 | 14.81 | |
| | 08/20/98 | | 8.34 | 7.09 | 14.80 | |
| | 12/18/98 | | 7.48 | 7.95 | 14.81 | |
| | 03/04/99 | | 6.01 | 9.42 | 14.82 | |
| | 06/14/99 | | 8.20 | 7.23 | 14.81 | |
| | 09/30/99 | | 9.32 | 6.11 | 14.80 | |
| | 12/29/99 | | 8.75 | 6.68 | 14.80 | |

NOTES:
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well Inaccessible

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| MW-7 | 01/28/93 | 15.24 | 5.13 | 10.11 | 19.19 | |
| | 04/17/93 | | 6.69 | 8.55 | 19.28 | |
| | 07/27/93 | | 8.39 | 6.85 | 19.24 | |
| | 10/27/93 | | 8.77 | 6.47 | 19.24 | |
| | 02/14/94 | | 6.29 | 8.95 | 19.21 | |
| | 05/03/94 | | 7.86 | 7.38 | 19.20 | |
| | 07/27/94 | | 9.02 | 6.22 | 19.21 | |
| | 11/03/94 | | 9.76 | 5.48 | 19.00 | |
| | 02/03/95 | | 4.54 | 10.70 | 29.01 | Anomalous TD |
| | 05/03/95 | | 6.69 | 8.55 | 28.98 | |
| | 07/27/95 | | 8.36 | 6.88 | 19.09 | |
| | 11/16/95 | | 9.31 | 5.93 | 19.10 | |
| | 02/16/96 | | 6.13 | 9.11 | 19.08 | |
| | 05/16/96 | | 6.93 | 8.31 | 19.14 | |
| | 08/22/96 | | 8.29 | 6.95 | 19.14 | |
| | 11/19/96 | | 7.61 | 7.63 | 19.14 | |
| | 03/03/97 | | 6.69 | 8.55 | 19.15 | |
| | 05/29/97[4] | | | | | |
| | 07/30/97 | | 10.46 | 4.78 | 21.07 | |
| | 11/14/97 | 17.19 | 10.69 | 6.50 | 21.08 | |
| | 02/17/98 | | 6.17 | 11.02 | 21.08 | |
| | 05/18/98 | | 8.51 | 8.68 | 21.09 | |
| | 08/20/98 | | 10.81 | 6.38 | 21.08 | |
| | 12/18/98 | | 9.79 | 7.40 | 21.09 | |
| | 03/04/99 | | 8.05 | 9.14 | 21.08 | |
| | 06/14/99 | | 10.35 | 6.84 | 21.07 | |
| | 09/30/99 | | 11.66 | 5.53 | 21.07 | |
| | 12/29/99 | | 10.95 | 6.24 | 21.08 | |

NOTES:
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible.

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| MW-8 | 01/28/93 | 18.61 | 8.42 | 10.19 | 19.21 | |
| | 04/17/93 | | 9.22 | 9.39 | 19.25 | |
| | 07/27/93 | | 10.88 | 7.73 | 19.26 | |
| | 10/27/93 | | 11.28 | 7.33 | 19.26 | |
| | 02/14/94 | | 8.86 | 9.75 | 19.30 | |
| | 05/03/94 | | 10.36 | 8.25 | 19.35 | |
| | 07/27/94 | | 11.46 | 7.15 | 19.31 | |
| | 11/03/94 | | 12.27 | 6.34 | 19.10 | |
| | 02/03/95 | | 7.52 | 11.09 | 19.11 | |
| | 05/03/95 | | 9.21 | 9.40 | 19.12 | |
| | 07/27/95 | | 10.83 | 7.78 | 19.30 | |
| | 11/16/95 | | 11.79 | 6.82 | 19.33 | |
| | 02/16/96 | | 8.65 | 9.96 | 19.33 | |
| | 05/16/96 | | 9.46 | 9.15 | 19.21 | |
| | 08/22/96 | | 10.37 | 8.24 | 19.21 | |
| | 11/19/96 | | 10.02 | 8.59 | 19.20 | |
| | 03/03/97 | | 9.31 | 9.30 | 19.20 | |
| | 05/29/97 | | 10.74 | 7.87 | 19.21 | |
| | 07/30/97 | | 11.22 | 7.39 | 19.24 | |
| | 11/14/97 | | 11.26 | 7.35 | 19.25 | |
| | 02/17/98 | | 6.74 | 11.87 | 19.25 | |
| | 05/18/98 | | 9.72 | 8.89 | 19.24 | |
| | 08/20/98 | | 11.40 | 7.21 | 19.22 | |
| | 12/18/98 | | 10.29 | 8.32 | 19.20 | |
| | 03/04/99 | | 8.74 | 9.87 | 19.20 | |
| | 06/14/99 | | 10.91 | 7.70 | 19.21 | |
| | 09/30/99 | | 12.15 | 6.46 | 19.22 | |
| | 12/29/99[4] | | | | | |

NOTES.
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible.

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| RW-9 | 04/12/93 | 18.57 | 8.34 | 10.23 | --- | |
| | 08/03/93 | | 10.20 | 8.37 | 18.78 | |
| | 10/27/93 | | 10.58 | 7.99 | 18.78 | |
| | 02/14/94 | | 8.36 | 10.21 | 18.77 | |
| | 05/03/94 | | 9.72 | 8.85 | 18.77 | |
| | 07/27/94 | | 10.75 | 7.82 | 18.78 | |
| | 11/03/94 | | 11.47 | 7.10 | 18.56 | |
| | 02/03/95 | | 6.98 | 11.59 | 18.51 | |
| | 05/03/95 | | 8.64 | 9.93 | 18.61 | |
| | 07/27/95 | | 10.04 | 8.53 | 18.78 | |
| | 11/16/95 | | 11.02 | 7.55 | 18.76 | |
| | 02/16/96 | | 8.13 | 10.44 | 18.78 | |
| | 05/16/96 | | 8.59 | 9.98 | 18.66 | |
| | 08/22/96 | | 9.96 | 8.61 | 18.64 | |
| | 11/19/96 | | 9.50 | 9.07 | 18.65 | |
| | 03/03/97 | | 8.71 | 9.86 | 18.65 | |
| | 05/29/97 | | 10.21 | 8.36 | 18.67 | |
| | 07/30/97 | | 10.59 | 7.98 | 18.64 | |
| | 11/14/97 | | 10.54 | 8.03 | 18.63 | |
| | 02/17/98 | | 6.76 | 11.81 | 18.63 | |
| | 05/18/98 | | 9.16 | 9.41 | 18.64 | |
| | 08/20/98 | | 10.40 | 8.17 | 18.65 | |
| | 12/18/98 | | 9.52 | 9.05 | 18.64 | |
| | 03/04/99 | | 8.20 | 10.37 | 18.63 | |
| | 06/14/99 | | 10.31 | 8.26 | 18.62 | |
| | 09/30/99 | | 11.38 | 7.19 | 18.62 | |
| | 12/29/99 | | 9.61 | 8.96 | 13.24 | |

NOTES.
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| RW-10 | 04/12/93 | 18.51 | 7.83 | 10.68 | -- | |
| | 08/03/93 | | 9.75 | 8.76 | 18.48 | |
| | 10/27/93 | | 10.00 | 8.51 | 18.48 | |
| | 02/14/94 | | 7.79 | 10.72 | 18.55 | |
| | 05/03/94 | | 9.14 | 9.37 | 18.57 | |
| | 07/27/94 | | 10.16 | 8.35 | 18.58 | |
| | 11/03/94 | | 10.95 | 7.56 | 18.35 | |
| | 02/03/95 | | 6.41 | 12.10 | 18.30 | |
| | 05/03/95 | | 4.98 | 13.53 | 18.36 | |
| | 07/27/95 | | 9.52 | 8.99 | 18.54 | |
| | 11/16/95 | | 10.55 | 7.96 | 18.54 | |
| | 02/16/96 | | 7.62 | 10.89 | 18.54 | |
| | 05/16/96 | | 8.03 | 10.48 | 18.42 | |
| | 08/22/96 | | 9.42 | 9.09 | 18.43 | |
| | 11/19/96 | | 8.89 | 9.62 | 18.46 | |
| | 03/03/97 | | 8.23 | 10.28 | 18.49 | |
| | 05/29/97 | | 9.55 | 8.96 | 18.49 | |
| | 07/30/97 | | 9.95 | 8.56 | 18.49 | |
| | 11/14/97 | | 9.99 | 8.52 | 18.49 | |
| | 02/17/98 | | 6.24 | 12.27 | 18.49 | |
| | 05/18/98 | | 8.62 | 9.89 | 18.50 | |
| | 08/20/98 | | 9.84 | 8.67 | 18.47 | |
| | 12/18/98 | | 8.95 | 9.56 | 18.47 | |
| | 03/04/99 | | 7.49 | 11.02 | 18.46 | |
| | 06/14/99 | | 9.70 | 8.81 | 18.45 | |
| | 09/30/99 | | 10.79 | 7.72 | 18.42 | |
| | 12/29/99[4] | | | | | |

NOTES:
1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible.

# TABLE 1
## GROUND WATER ELEVATION DATA
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
## (Measurements in feet)

| Monitoring Well | Date | Reference Elevation (top of casing)[1] | Depth to Ground Water[1] | Ground Water Elevation[2] | Well Depth | Comments |
|---|---|---|---|---|---|---|
| RW-11 | 04/12/93 | 18.05 | 7.94 | 10.11 | --- | |
| | 08/03/93 | | 10.08 | 7.97 | 18.59 | |
| | 10/27/93 | | 10.42 | 7.63 | 18.59 | |
| | 02/14/94 | | 8.16 | 9.89 | 18.53 | |
| | 05/03/94 | | 9.54 | 8.51 | 18.53 | |
| | 07/27/94 | | 10.56 | 7.49 | 18.53 | |
| | 11/03/94 | | 11.30 | 6.75 | 18.32 | |
| | 02/03/95 | | 6.56 | 11.49 | 18.28 | |
| | 05/03/95 | | 8.33 | 9.72 | 18.40 | |
| | 07/27/95 | | 9.97 | 8.08 | 18.52 | |
| | 11/16/95 | | 10.96 | 7.09 | 18.53 | |
| | 02/16/96 | | 7.83 | 10.22 | 18.50 | |
| | 05/16/96 | | 8.46 | 9.59 | 18.41 | |
| | 08/22/96 | | 9.86 | 8.19 | 18.41 | |
| | 11/19/96 | | 9.31 | 8.74 | 18.40 | |
| | 03/03/97 | | 8.54 | 9.51 | 18.43 | |
| | 05/29/97 | | 9.98 | 8.07 | 18.43 | |
| | 07/30/97 | | 10.49 | 7.56 | 18.43 | |
| | 11/14/97 | | 10.49 | 7.56 | 18.44 | |
| | 02/17/98 | | 6.58 | 11.47 | 18.44 | |
| | 05/18/98 | | 9.01 | 9.04 | 18.44 | |
| | 08/20/98 | | 10.27 | 7.78 | 18.45 | |
| | 12/18/98 | | 8.39 | 9.66 | 18.46 | |
| | 03/04/99 | | 8.01 | 10.04 | 18.40 | |
| | 06/14/99 | | 10.19 | 7.86 | 18.15 | |
| | 09/30/99 | | 11.39 | 6.66 | 18.16 | |
| | 12/29/99 | | 10.65 | 7.40 | 18.05 | |

NOTES: 1 = Measurement and reference elevation taken from notch/mark on top north side of well casing.
2 = Elevation referenced to mean sea level.
Well Depth[3] = Measurement from top of casing to bottom of well.
4 = Well inaccessible.

# TABLE B

## SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

*Beacon Station 703*
*2601 Lakeville Highway*
*Petaluma, California*

| WELL ID | DATE SAMPLED | BENZENE (ug/L) | ETHYL-BENZENE (ug/L) | TOLUENE (ug/L) | XYLENES (ug/L) | TPHg (ug/L) | COMMENTS |
|---|---|---|---|---|---|---|---|
| MW-1 | 24-Dec-87 | 390 | 51 | 71 | 37 | 1200 | |
| | 24-Mar-88 | 950 | ND(2) | 260 | 62 | 1500 | |
| | 01-Jul-88 | 150 | 9.7 | 31 | 40 | ND(50) | |
| | 29-Sep-88 | 430 | 30 | 50 | 40 | 200 | |
| | 16-Dec-88 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | ND(500) | |
| | 27-Mar-89 | 1500 | 98 | 130 | 130 | 3600 | Odor |
| | 01-May-89 | 370 | 12 | 31 | 210 | 1400 | Odor |
| | 08-Jun-89 | 1200 | 58 | 65 | 230 | 3100 | Odor |
| | 07-Jul-89 | 980 | 79 | 59 | 240 | 2800 | Odor |
| | 24-Jul-89 | 540 | 83 | 120 | 320 | 3300 | Odor |
| | 31-Aug-89 | 2200 | 100 | 140 | 480 | 6100 | Odor |
| | 25-Sep-89 | 5800 | 280 | 380 | 1200 | 11000 | Odor |
| | 30-Oct-89 | 2100 | 90 | 97 | 310 | 5300 | Odor |
| | 29-Jan-90 | 1600 | 74 | 63 | 200 | 2000 | |
| | 13-Mar-90 | 1400 | 70 | 71 | 210 | 1600 | |
| | 06-Jun-90 | 6600 | 350 | 540 | 1600 | 8600 | Odor |
| | 02-Oct-90 | 960 | 52 | 55 | 228 | 3400 | Odor |
| | 04-Dec-90 | 1100 | 98 | 53 | 400 | 4000 | Odor |
| | 20-Feb-91 | 920 | 80 | 34 | 220 | 4700 | |
| MW-2 | 24-Dec-87 | - | - | - | - | - | |
| | 24-Mar-88 | - | - | - | - | - | |
| | 30-Jun-88 | 3.0 | ND(0.5) | 2 | ND(0.5) | ND(50) | |
| | 29-Sep-88 | 11 | ND(0.5) | ND(0.5) | ND(0.5) | ND(50) | |
| | 16-Dec-88 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | ND(500) | |
| | 27-Mar-89 | 1800 | 170 | 130 | 550 | 8600 | Odor |
| | 01-May-89 | 320 | 60 | 19 | 330 | 2000 | Odor |
| | 08-Jun-89 | 120 | ND(1) | ND(0.9) | 9.4 | 300 | No Odor |
| | 07-Jul-89 | 67 | ND(0.8) | ND(0.5) | ND(1.0) | 97 | No Odor |
| | 24-Jul-89 | 480 | 250 | 80 | 1300 | 5800 | Odor |
| | 31-Aug-89 | 1200 | 550 | 210 | 2400 | 11000 | Odor |
| | 25-Sep-89 | 3600 | 1400 | 390 | 6000 | 26000 | Odor |
| | 30-Oct-89 | 640 | 320 | ND(80) | 1200 | 9200 | Odor |
| | 29-Jan-90 | 700 | 290 | ND(50) | 990 | 4600 | |
| | 13-Mar-90 | 720 | 220 | 20 | 640 | 2300 | |
| | 06-Jun-90 | 1800 | 1400 | 1400 | 4000 | 12000 | Odor |
| | 02-Oct-90 | 240 | 65 | 49 | 65 | 2500 | Odor |
| | 04-Dec-90 | 65 | 11 | ND(0.5) | 2.8 | 320 | Odor |
| | 20-Feb-91 | 60 | 15 | ND(2) | 28 | 840 | |



10/24/95 TUE 09:09 FAX 583 3282 ELTRAMAR 003

# TABLE B

(Continued)

## SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

*Beacon Station 703*
*2601 Lakeville Highway*
*Petaluma, California*

| WELL ID | DATE SAMPLED | BENZENE (ug/L) | ETHYL-BENZENE (ug/L) | TOLUENE (ug/L) | XYLENES (ug/L) | TPHg (ug/L) | COMMENTS |
|---|---|---|---|---|---|---|---|
| MW-3 | 24-Dec-87 | - | - | - | - | - | |
| | 24-Mar-88 | - | - | - | - | - | |
| | 30-Jun-88 | 39 | 4.0 | 57 | 54 | 80 | |
| | 29-Sep-88 | 64 | 2.0 | 2.0 | 4.0 | ND(50) | |
| | 16-Dec-88 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | ND(500) | |
| | 27-Mar-89 | 110 | 2.9 | 16 | 20 | 170 | No Odor |
| | 01-May-89 | 40 | 0.51 | ND(0.5) | 1.8 | 77 | No Odor |
| | 08-Jun-89 | 61 | ND(0.8) | ND(0.6) | ND(2) | 120 | No Odor |
| | 07-Jul-89 | 56 | 6.8 | ND(0.5) | 21 | 160 | No Odor |
| | 24-Jul-89 | 48 | 1.0 | 13 | 8.8 | 190 | No Odor |
| | 31-Aug-89 | 220 | 12 | 81 | 54 | 720 | No Odor |
| | 25-Sep-89 | 100 | 2.2 | 8.0 | 6.2 | 200 | No Odor |
| | 30-Oct-89 | 91 | 2.9 | 4.8 | 4.3 | 290 | No Odor |
| | 29-Jan-90 | 57 | ND(1) | ND(1) | ND(3) | 57 | |
| | 13-Mar-90 | 100 | 7.5 | 0.53 | ND(2) | 99 | |
| | 06-Jun-90 | 50 | 11 | 0.5 | ND(2) | 50 | |
| | 02-Oct-90 | 19 | 2.1 | 1.8 | 1.4 | 82 | No Odor |
| | 04-Dec-90 | 45 | 2.3 | 3.9 | 3.1 | 120 | |
| | 20-Feb-91 | 41 | 0.59 | 0.66 | ND(0.5) | 120 | |
| MW-4 | 24-Dec-87 | - | - | - | - | - | |
| | 24-Mar-88 | - | - | - | - | - | |
| | 01-Jul-88 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | 70 | |
| | 29-Sep-88 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | ND(50) | |
| | 16-Dec-88 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | ND(500) | |
| | 27-Mar-89 | 0.17 | 0.39 | 0.99 | 1.2 | 4.8 | No Odor |
| | 01-May-89 | ND(0.2) | ND(0.3) | ND(0.2) | ND(0.4) | ND(2.0) | No Odor |
| | 08-Jun-89 | 5 | ND(0.8) | ND(0.6) | ND(2) | 14 | No Odor |
| | 07-Jul-89 | 6.3 | ND(0.3) | ND(0.2) | ND(0.4) | 12 | No Odor |
| | 24-Jul-89 | ND(0.7) | ND(0.5) | ND(0.4) | ND(0.7) | ND(4.0) | No Odor |
| | 31-Aug-89 | ND(0.7) | ND(0.5) | ND(0.4) | ND(1.0) | ND(2.0) | No Odor |
| | 25-Sep-89 | ND(0.2) | ND(0.2) | ND(0.2) | ND(0.5) | ND(2.0) | No Odor |
| | 30-Oct-89 | ND(0.4) | ND(0.4) | ND(0.3) | ND(1.0) | ND(2.0) | No Odor |
| | 29-Jan-90 | ND(0.6) | ND(0.7) | ND(0.6) | ND(2) | ND(5) | |
| | 13-Mar-90 | ND(0.5) | ND(0.5) | ND(0.5) | ND(2) | ND(5) | |
| | 06-Jun-90 | ND(0.5) | ND(0.5) | ND(0.5) | ND(2) | ND(5) | |
| | 02-Oct-90 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | ND(50) | No Odor |
| | 04-Dec-90 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | ND(50) | |
| | 20-Feb-91 | ND(0.5) | ND(0.5) | ND(0.5) | ND(0.5) | ND(50) | |

NOTES:
1) TPHg = Total Petroleum Hydrocarbons (as gasoline).
2) Odor refers to petroleum hydrocarbon odor.
3) All results are presented in parts per billion.
4) Samples prior to March 1989 taken by McLaren Environmental Engineering, while samples prior to June 1988 were taken by Excaltech.
5) ND = Not Detected, detection limit shown in parentheses.



10/24/95 TUE 09:11 FAX 583 3282 CLTRAMAR 004

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
**(All results in micrograms per Liter)**

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| MW-1 | 10/12/92 | 2,900 | --- | | 1,200 | 22 | 100 | 160 |
| | 01/28/93 | 4,300 | --- | | 870 | <25 | 70 | 120 |
| | 04/17/93 | 11,000 | --- | | 3,500 | 240 | 390 | 670 |
| | 07/27/93 | 830 | --- | | 290 | 9.0 | 28 | 28 |
| | 10/27/93 | 3,100 | <50 | | 1,200 | 18 | 72 | 93 |
| | 02/14/94 | 1,100 | <50 | | 310 | 7.3 | 28 | 27 |
| | 05/03/94 | 3,000 | <50 | | 630 | 54 | 47 | 67 |
| | 07/27/94 | 1,300 | <50 | | 630 | 20 | 35 | 41 |
| | 11/03/94 | 2,400 | <50 | | 940 | 14 | 47 | 40 |
| | 02/03/95 | 1,700 | <50 | | 760 | 39 | 93 | 83 |
| | 05/03/95 | 2,700 | <50 | | 1,300 | 41 | 100 | 160 |
| | 07/27/95 | 2,200 | <50 | | 940 | 19 | 52 | 76 |
| | 11/16/95 | 1,900 | <50 | | 810 | 24 | 55 | 74 |
| | 02/16/96 | 2,500 | <50 | | 1,000 | 23 | 98 | 85 |
| | 05/16/96 | 3,400 | <50 | | 1,300 | 35 | 120 | 110 |
| | 08/22/96 | 2,800 | <50 | 93 | 990 | 5.2 | 76 | 29 |
| | 11/19/96 | 840 | <50 | 73 | 310 | 3.4 | 24 | 6.4 |
| | 03/03/97 | 1,600 | <50 | 96 | 700 | 7.1 | 76 | 23 |
| | 05/29/97 | 1,400 | <50 | 37 | 440 | 7.9 | 58 | 22 |
| | 07/30/97 | 280 | <50 | 15 | 100 | 1.4 | 13 | 4.2 |
| | 11/14/97 | 1,800 | <50 | 210 | 900 | 4.1 | 70 | 4.6 |
| | 02/17/98 | 1,700 | <50 | 100 | 470 | 9.9 | 44 | 38 |
| | 05/18/98 | 1,000 | <50 | 190 | 170 | <2.5 | <2.5 | <2.5 |
| | 08/20/98 | 2,700 | <50 | 380 | 560 | 6.8 | 28 | 6.8 |
| | 12/18/98 | 2,200 | <200 | 430 | 240 | 3.8 | 13 | 3.4 |
| | 03/04/99 | 1,200 | <50 | 320 | 190 | 2.7 | 18 | 6.5 |
| | 06/14/99 | <250 | <50 | 1,200 | 210 | 4.3 | 17 | 8.6 |
| | 09/30/99 | 570 | <50 | 810 | 170 | 5.0 | 12 | 7.6 |
| | 12/29/99[2] | | | | | | | |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
– = Non typical gasoline pattern.
— = Increased reporting limit due to interference from high boiling point compounds.

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (All results in micrograms per Liter)

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| MW-2 | 10/12/92 | 59 | — | | 1.8 | 1.1 | 1.0 | 2.8 |
| | 01/28/93 | 1,300 | — | | 92 | 1.0 | 14 | 83 |
| | 04/17/93 | 11,000 | — | | 940 | 43 | 740 | 1,200 |
| | 07/27/93 | 75 | — | | 2.7 | 0.99 | 0.88 | 0.67 |
| | 10/27/93 | <50 | <50 | | 0.74 | <0.5 | <0.5 | <0.5 |
| | 02/14/94 | 1,800 | <50 | | 140 | 23 | 80 | 150 |
| | 03/03/94 | 1,200 | <50 | | 110 | 2.4 | 73 | 92 |
| | 07/27/94 | 52 | <50 | | 1.4 | <0.5 | <0.5 | <0.5 |
| | 11/03/94 | 65 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/03/95 | 4,900 | 67* | | 440 | 2.4 | 440 | 570 |
| | 05/03/95 | 1,500 | <50 | | 120 | <1.3 | 120 | 120 |
| | 07/27/95 | 240 | <50 | | 15 | <0.50 | 6.6 | 6.7 |
| | 11/16/95 | 75 | <50 | | 1.7 | <0.50 | <0.50 | <0.50 |
| | 02/16/96 | 1,800 | <100 | | 110 | 1.5 | 130 | 130 |
| | 05/16/96 | 990 | <50 | | 51 | <0.50 | 37 | 26 |
| | 08/22/96 | 390 | <50 | 38 | 15 | <0.50 | 5.7 | 3.7 |
| | 11/19/96 | 130 | <50 | 18 | 0.58 | <0.50 | <0.50 | <0.50 |
| | 03/03/97 | 640 | <100** | 200 | 23 | <0.50 | 15 | 5.8 |
| | 05/29/97 | <50 | <50 | 25 | 1.1 | <0.50 | <0.50 | <0.50 |
| | 07/30/97 | 78 | <50 | <40 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/14/97 | 82 | <50 | 200 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/17/98 | 1,500 | 520 | 360 | 94 | <0.50 | 34 | 11 |
| | 05/18/98 | 2,600 | 510 | 450 | 200 | 1.9 | 38 | 12 |
| | 08/20/98 | 1,100 | <50 | 600 | 4.1 | <0.50 | 0.51 | <0.50 |
| | 12/18/98 | 3,800 | <700 | 2,500 | 210 | 27 | 150 | 71 |
| | 03/04/99 | 1,300 | <250 | 1,300 | 110 | 38 | 71 | 96 |
| | 06/14/99 | <1,000 | <100 | 4,100 | <10 | <10 | <10 | <10 |
| | 09/30/99 | <50 | <50 | 1,900 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/29/99[1] | | | | | | | |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
– = Non typical gasoline pattern.
— = Increased reporting limit due to interference from high boiling point compounds.

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
**(All results in micrograms per Liter)**

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| MW-3 | 10/12/92 | 360 | --- | | 110 | 6.6 | 11 | 27 |
| | 01/28/93 | 80 | --- | | 10 | <0.5 | <0.5 | 0.79 |
| | 04/17/93 | <50 | --- | | 6.0 | <0.5 | <0.5 | 0.81 |
| | 07/27/93 | <50 | --- | | 15 | 1.9 | <0.5 | 1.7 |
| | 10/27/93 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/14/94 | 60 | <50 | | 19 | <0.5 | <0.5 | 2.2 |
| | 05/03/94 | 73 | <50 | | 32 | 0.67 | 1.5 | 2.2 |
| | 07/27/94 | 80 | <50 | | 29 | 0.59 | 1.2 | 2.0 |
| | 11/03/94 | 120 | <50 | | 35 | 1.4 | 2.4 | 2.9 |
| | 02/03/95 | 530 | <50 | | 180 | 20 | 22 | 45 |
| | 05/03/95 | 210 | <50 | | 97 | 3.7 | <0.5 | 13 |
| | 07/27/95 | 60 | <50 | | 19 | <0.50 | 0.3 | 1.2 |
| | 11/16/95 | <50 | <50 | | 3.0 | <0.50 | <0.50 | <0.50 |
| | 02/16/96 | 96 | <50 | | 20 | 0.90 | 1.9 | 3.1 |
| | 05/16/96 | 130 | <50 | | 37 | 0.77 | 2.7 | 3.0 |
| | 08/22/96 | 72 | <50 | 17 | 15 | <0.50 | 1.3 | 1.2 |
| | 11/19/96 | <50 | <50 | 6.7 | 5.8 | <0.50 | <0.50 | 0.64 |
| | 03/03/97 | 58 | <50 | 8.6 | 15 | <0.50 | 1.7 | 1.2 |
| | 05/29/97 | 120 | <50 | 10 | 33 | 0.56 | 5.0 | 3.1 |
| | 07/30/97 | 61 | <50 | 5.0 | 19 | 0.60 | 1.7 | 2.7 |
| | 11/14/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/17/98 | 170 | <50 | 73 | 44 | <0.50 | 1.1 | 1.9 |
| | 05/18/98 | 220 | <50 | 7.6 | 46 | 0.80 | 5.6 | 2.8 |
| | 08/20/98 | 790 | <50 | <5.0 | 300 | 4.6 | 21 | 20 |
| | 12/18/98 | 490 | <50 | <5.0 | 140 | 5.3 | 20 | 30 |
| | 03/04/99 | 120 | <50 | 55 | 7.8 | <0.50 | 0.78 | 1.3 |
| | 06/14/99 | <50 | <50 | 130 | 0.91 | <0.50 | <0.50 | <0.50 |
| | 09/30/99 | 370 | <50 | 27 | 120 | 1.9 | 12 | 20 |
| | 12/29/99[2] | | | | | | | |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
– = Non typical gasoline pattern.
— = increased reporting limit due to interference from high boiling point compounds

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
**(All results in micrograms per Liter)**

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| MW-4 | 01/28/93 | <50 | --- | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 04/17/93 | <50 | --- | | 1.2 | 1.2 | <0.5 | 1.9 |
| | 07/27/93 | <50 | --- | | <0.5 | 1.2 | <0.5 | 0.69 |
| | 10/27/93 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/14/94 | <50 | <100 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 11/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/03/95 | <50 | <100 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/95 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/16/95 | <50 | 210 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/16/96 | <50 | 610 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/16/96 | <50 | 250* | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/22/96 | <50 | 430 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/19/96 | <50 | 280 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/03/97 | <50 | 200 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/29/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 07/30/97 | <50 | <50 | 6.3 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/14/97 | 67 | 7,100 | <5.0 | 0.78 | <0.50 | 0.68 | 3.8 |
| | 02/17/98 | <50 | 180 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/18/98 | <50 | <50 | 5.8 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/20/98 | <50 | <50 | 14 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/18/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | 0.81 |
| | 03/04/99 | <50 | 120 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 06/14/99 | <50 | <50 | 25 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 09/30/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/29/99 | 9,600 | 1,000 | 9,300 | 22 | 8.6 | 70 | 1,300 |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessable.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
** = Non typical gasoline pattern.
--- = Increased reporting limit due to interference from high boiling point compounds

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (All results in micrograms per Liter)

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| MW-5 | 01/28/93 | <50 | — | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 04/17/93 | <50 | — | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/93 | <50 | — | | <0.5 | 1.4 | <0.5 | 0.90 |
| | 10/27/93 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/14/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 11/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/95 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/16/95 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/16/96 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/16/96 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/22/96 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/19/96 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/03/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/29/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 07/30/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/14/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/17/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/18/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/20/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/18/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/04/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 06/14/99[2] | | | | | | | |
| | 09/30/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/29/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
** = Non typical gasoline pattern.
*** = Increased reporting limit due to interference from high boiling point compounds.

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (All results in micrograms per Liter)

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| MW-6 | 01/28/93 | <50 | -- | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 04/17/93 | <50 | -- | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/93 | <50 | -- | | <0.5 | 0.80 | <0.5 | 0.63 |
| | 10/27/93 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/14/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 11/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/95 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/16/95 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/16/96 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/16/96 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/22/96 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/19/96 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/03/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/29/97[2] | | | | | | | |
| | 07/30/97[1] | | | | | | | |
| | 11/14/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/17/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/18/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/20/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/18/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/04/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 06/14/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 09/30/99 | <50 | <50 | 7.4 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/29/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled
* = Non typical diesel pattern.
** = Non typical gasoline pattern
— = Increased reporting limit due to interference from high boiling point compounds

# TABLE 2
# GROUND WATER ANALYTICAL RESULTS
# BEACON STATION #703
# 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
## (All results in micrograms per Liter)

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| MW-7 | 01/28/93 | <50 | — | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 04/17/93 | <50 | — | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/93 | <50 | — | | <0.5 | 0.88 | <0.5 | 0.71 |
| | 10/27/93 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/14/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 11/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/95 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/16/95 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/16/96 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/16/96 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/22/96 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/19/96 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/03/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/29/97[1] | | | | | | | |
| | 07/30/97 | <50 | <50 | 5.1 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/14/97 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/17/98 | <50 | 94 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/18/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/20/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/18/98 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/04/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 06/14/99 | <50 | <50 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 09/30/99 | <50 | <50 | 16 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/29/99 | <50 | <50 | 14 | <0.50 | <0.50 | <0.50 | <0.50 |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
** = Non typical gasoline pattern.
*** = Increased reporting limit due to interference from high boiling point compounds.

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (All results in micrograms per Liter)

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| MW-8 | 01/28/93 | <50 | --- | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 04/17/93 | <50 | --- | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/93 | <50 | --- | | <0.5 | 1.9 | <0.5 | 1.1 |
| | 10/27/93 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/14/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/94 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 11/03/94 | 66 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/95 | <50 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/95 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/16/95 | 71 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/16/96 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/16/96 | <50 | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/22/96 | <50 | <50 | 21 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/19/96 | <50 | <50 | 7.1 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/03/97 | <50 | <50 | 10 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/29/97 | <50 | <50 | 10 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 07/30/97 | 89 | <50 | 9.4 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/14/97 | <50 | 1,100 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/17/98 | <50 | 390 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/18/98 | <50 | 840 | 7.4 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/20/98 | <50 | 1,500 | 7.6 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/18/98 | <50 | 7,700 | 6.2 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/04/99 | <50 | 4,900 | 11 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 06/14/99 | <50 | <50 | 140 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 09/30/99 | <50 | <50 | 390 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/29/99[2] | | | | | | | |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
** = Non typical gasoline pattern.
*** = Increased reporting limit due to interference from high boiling point compounds.

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
## (All results in micrograms per Liter)

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| RW-9 | 08/3/93 | 56,000 | --- | | 20,000 | 1,100 | 850 | 3,200 |
| | 10/27/93 | 51,000 | <100 | | 16,000 | 550 | 740 | 1,700 |
| | 02/14/94 | 2,700 | <50 | | 570 | 46 | 37 | 140 |
| | 05/03/94 | 5,500 | <100 | | 2,100 | 37 | 40 | 100 |
| | 07/27/94 | 12,000 | <50 | | 5,300 | 100 | 170 | 270 |
| | 11/03/94 | 11,000 | <50 | | 3,700 | 56 | 100 | 190 |
| | 02/03/95 | 11,000 | <50 | | 4,700 | 130 | 240 | 320 |
| | 05/03/95 | 9,200 | <50 | | 4,200 | 150 | 150 | 530 |
| | 07/27/95 | 7,000 | <50 | | 2,500 | 38 | 110 | 180 |
| | 11/16/95 | 5,300 | <50 | | 2,300 | 38 | 140 | 240 |
| | 02/16/96 | 12,000 | <50 | | 5,000 | 120 | 360 | 550 |
| | 05/16/96 | 7,800 | <50 | | 3,300 | 50 | 150 | 270 |
| | 08/22/96 | 9,300 | <50 | 590 | 3,800 | 32 | 190 | 200 |
| | 11/19/96 | 15,000 | <50 | 1,400 | 5,900 | 69 | 410 | 480 |
| | 03/03/97 | 7,500 | <50 | 580 | 2,700 | <25 | 110 | 120 |
| | 05/29/97 | 9,400 | 430 | 600 | 3,000 | 32 | 200 | 160 |
| | 07/30/97 | 13,000 | <200 | 910 | 3,800 | 37 | 190 | 150 |
| | 11/14/97 | 1,300 | 30,000 | 2,300 | 11,000 | 91 | 640 | 590 |
| | 02/17/98 | 1,200 | 24,000 | 1,600 | 8,800 | 100 | 420 | 330 |
| | 05/18/98 | 19,000 | 1,100 | 1,300 | 7,400 | 67 | 510 | 310 |
| | 08/20/98 | 22,000 | <50 | 1,300 | 7,000 | 44 | 300 | 170 |
| | 12/18/98 | 18,000 | <1,000 | 1,200 | 9,900 | 48 | 240 | 150 |
| | 03/04/99 | 34,000 | <500 | 1,300 | 11,000 | 50 | 240 | 150 |
| | 06/14/99 | 19,000 | <400 | 2,300 | 10,000 | 89 | 400 | 210 |
| | 09/30/99 | 13,000 | <400 | 1,400 | 4,600 | 30 | 130 | 47 |
| | 12/29/99 | 85 | <50 | 200 | 3.6 | <0.50 | < 70 | 1.2 |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
-- = Non typical gasoline pattern.
— = Increased reporting limit due to interference from high boiling point compounds

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
### (All results in micrograms per Liter)

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| RW-10 | 08/03/93 | 84 | --- | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 10/27/93 | 250 | 110[1] | | 15 | <0.5 | 0.61 | 0.69 |
| | 02/14/94 | 69 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/94 | 69 | <50 | | 2.1 | <0.5 | <0.5 | <0.5 |
| | 07/27/94 | 270 | <50 | | 3.6 | 1.3 | 1.9 | 6.2 |
| | 11/03/94 | 110 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 02/03/95 | 320 | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 05/03/95 | 330** | <50 | | <0.5 | <0.5 | <0.5 | <0.5 |
| | 07/27/95 | 170** | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/16/95 | 70 | <50 | | 0.94 | <0.50 | <0.50 | <0.50 |
| | 02/16/96 | 110 | <50 | | 0.41 | <0.30 | <0.30 | 0.54 |
| | 05/16/96 | 190** | <50 | | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/22/96 | 380 | <50 | 280 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/19/96 | 78 | <50 | 140 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 03/03/97 | 110 | <50 | 200 | 7.5 | <0.50 | <0.50 | <0.50 |
| | 05/29/97 | <50 | 160 | 62 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 07/30/97 | <50 | <50 | 70 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 11/14/97 | 54 | 1,600 | 420 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/17/98 | <50 | 300 | 120 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 05/18/98 | <50 | 1,400 | 370 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 08/20/98 | 61 | 180 | 340 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/18/98 | 190 | 240 | 14,000 | 19 | 39 | 0.53 | 1.7 |
| | 03/04/99 | 98 | 160 | 33,000 | 17 | 1.6 | 2.3 | 2.9 |
| | 06/14/99 | <50 | 80 | 23,000 | 9.1 | <0.50 | 1.3 | 2.2 |
| | 09/30/99 | <50 | 76 | 45,000 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 12/29/99[2] | | | | | | | |

NOTES:
1 = May be due to aged gasoline
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled.
* = Non typical diesel pattern.
** = Non typical gasoline pattern.
--- = increased reporting limit due to interference from high boiling point compounds.

# TABLE 2
## GROUND WATER ANALYTICAL RESULTS
## BEACON STATION #703
## 2601 LAKEVILLE HIGHWAY, PETALUMA, CALIFORNIA
**(All results in micrograms per Liter)**

| Monitoring Well | Date Collected | Total Petroleum Hydrocarbons | | Aromatic Volatile Organic Compounds | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Gasoline | Diesel | MTBE[1] | Benzene | Toluene | Ethyl-benzene | Total Xylenes |
| RW-11 | 08/3/93 | 240 | --- | | 66 | 0.96 | 2 | 4.4 |
| | 10/27/93 | 1,100 | <50 | | 240 | <5.0 | <5.0 | 20 |
| | 02/14/94 | 200 | <50 | | 42 | <0.5 | 14 | 7.5 |
| | 05/03/94 | 240 | <50 | | 55 | 0.65 | 23 | 12 |
| | 07/27/94 | 180 | <50 | | 45 | 0.80 | 14 | 5.5 |
| | 11/03/94 | 130 | <50 | | 14 | <0.5 | 2.4 | 1.6 |
| | 02/03/95 | 720 | <50 | | 190 | 0.86 | 48 | 37 |
| | 05/03/95 | 450 | <50 | | 90 | 0.60 | 1.5 | 56 |
| | 07/27/95 | 220 | <50 | | 47 | <0.50 | 21 | 8.4 |
| | 11/16/95 | 54 | <50 | | 11 | <0.50 | 3.6 | 0.78 |
| | 02/16/96 | 190 | <50 | | 47 | <0.50 | 10 | 7.6 |
| | 05/16/96 | 240 | <50 | | 37 | <0.50 | 16 | 8.1 |
| | 08/22/96 | 170 | <50 | 37 | 19 | <0.50 | 11 | 3.5 |
| | 11/19/96 | 210 | <200*** | <5.0 | 22 | <0.50 | 2 | 7.9 |
| | 03/03/97 | 260 | <50 | 12 | 49 | <0.50 | 13 | 8.7 |
| | 05/29/97 | 220 | <50 | 11 | 34 | 0.62 | 8 | 7.6 |
| | 07/30/97 | 100 | <50 | 7.4 | 14 | <0.50 | 4 | 2.3 |
| | 11/14/97 | <50 | 2,000 | <5.0 | <0.50 | <0.50 | <0.50 | <0.50 |
| | 02/17/98 | 170 | 2,900 | <5.0 | 41 | <0.50 | 7 | 7.6 |
| | 05/18/98 | 86 | 11,000 | <5.0 | 13 | 2.6 | 7 | 2.3 |
| | 08/20/98 | 580 | 7,200 | <5.0 | 210 | 1.8 | 3 | 39 |
| | 12/18/98 | 96 | 6,300 | <5.0 | 0.87 | <0.50 | <0.50 | 0.53 |
| | 03/04/99 | 140 | 8,000 | 6.1 | 27 | <0.50 | 2 | 10 |
| | 06/14/99 | 530 | 6,000 | 11 | 130 | 0.64 | 1 | 67 |
| | 09/30/99 | 840 | 18,000 | 130 | 0.70 | 7.4 | 29 | 130 |
| | 12/29/99 | 2,900 | <150 | 22,000 | 120 | 19 | 45 | 18 |

NOTES:
1 = May be due to aged gasoline.
2 = Well inaccessible.
< = Below indicated detection limit.
NS = Not sampled
* = Non typical diesel pattern.
** = Non typical gasoline pattern.
--- = Increased reporting limit due to interference from high boiling point compounds

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 03/14/00 | <200 | 1,200 | 210 | 7.2 | 21 | 19 | 3,200 | | 18.22 | 7.51 | 10.71 | No odor / No sheen |
| | 06/07/00 | <300 | 1,400 | 230 | 8.0 | 25 | 34 | 4,800 | | | 9.61 | 8.61 | No Comments |
| | 08/29/00 | <100 | 530 | 73 | 2.7 | 8.4 | 7.2 | 1,100 | | | 10.49 | 7.73 | No Comments |
| 5' - 30' | 11/29/00 | <150 | 510 | 74 | <2.0 | 4.6 | 3.4 | 1,400 | | | 10.24 | 7.98 | No Comments |
| screen | 03/29/01 | <200 | 890 | 150 | 4.0 | 8.5 | 9.2 | 1,200 | | | 8.95 | 9.27 | No Comments |
| interval | 06/14/01 | <200 | 340 | 50 | <2.0 | 5.3 | 4.4 | 520 | | | 10.30 | 7.92 | No Comments |
| | 08/22/01 | <100 | 260 | 63 | 0.92 | 1.8 | 1.5 | 460 | | | 11.11 | 7.11 | No Comments |
| | 11/27/01 | <50 | 420 | 68 | 0.75 | 0.88 | 0.89 | 310 | | | 9.36 | 8.86 | No Comments |
| | 03/18/02 | <50 | 790 | 160 | 3.2 | 4.0 | 4.6 | 370 | | | 8.57 | 11.38 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 19.95 | | | GPS surveying of well |
| | 05/22/02 | <50 | 410 | 56 | <2.0 | <2.0 | <2.0 | 580 | | | 9.89 | 10.06 | No Comments |
| | 08/19/02 | <50 | 300 | 36 | <0.50 | 1.3 | 0.77 | 320 | | | 10.74 | 9.21 | No Comments |
| | 11/18/02 | 64 | 500 | 87 | 1.4 | 1.1 | 1.5 | 390 | 89 | | 10.64 | 9.31 | No Comments |
| | 02/24/03 | <200 | 660 | 71 | 2.6 | 5.1 | 5.2 | 390 | 93 | | 8.12 | 11.83 | No Comments |
| | 05/22/03 | <200 | 630 | 67 | 2.3 | 6.1 | 5.0 | 310 | 69 | | 9.20 | 10.75 | No Comments |
| | 09/08/03 | 120 | 490 | 96 | 1.4 | 3.3 | 2.4 | 360 | 55 | | 10.43 | 9.52 | No Comments |
| | 12/11/03 | 100 # | 680 | 83 | 1.4 | 4.8 | 2.6 | 330 | 67 | | 9.32 | 10.63 | No Comments |
| | 01/29/04 | 100 | 290 | 30 | 1.2 | 5.8 | 3.5 | 99 | 27 | | 8.27 | 11.68 | Odor / No sheen |
| | 04/16/04 | 140 | 340 | 32 | 0.98 | 3.6 | 3.0 | 110 | 44 | | 9.50 | 10.45 | Odor / No sheen |
| | 07/22/04 | 70 | 160 | 3.6 | <0.50 | 0.77 | 1.5 | 430 | 27 | | 10.34 | 9.61 | Odor / No sheen |
| | 10/26/04 | <50 | <50 | 0.60 | <0.50 | <0.50 | <0.50 | 8.2 | <5.0 | | 11.41 | 8.54 | No odor / No sheen |
| | 01/14/05 | 560 # | 100 | 6.3 | 3.2 | 3.4 | 3.6 | 45 | 17 | | 7.00 | 12.95 | Odor / No sheen |
| | 04/08/05 | 68 # | 82 | 3.8 | <0.50 | 2.2 | 1.9 | 44 | 16 | | 7.91 | 12.04 | No odor / No sheen |
| | 07/05/05 | 95 # | 180 | 21 | 0.80 | 3.2 | 2.1 | 210 | 75 | | 9.72 | 10.23 | Odor / No sheen |
| | 10/18/05 | 90 # | 69 | 4.1 | <0.50 | 0.68 | 0.52 | 76 | 37 | | 10.80 | 9.15 | No odor / No sheen |
| | 01/18/06 | <400 | 990 | 47 | 3.0 | 27 | 37 | 260 | na | | 7.66 | 12.29 | No odor / No sheen |
| | 04/05/06 | 67 * | 240 | 11 | 0.88 | 6.8 | 8.3 | 66 | 85 | | 6.70 | 13.25 | No odor / No sheen |
| | 07/18/06 | 200 * | 400 | 35 | 0.88 | 4.6 | 1.9 | 120 | 150 | | 10.11 | 9.84 | No odor / No sheen |
| | 10/26/06 | <50 * | 200 | 13 | <0.50 | 1.0 | <0.50 | 88 | 150 | | 11.52 | 8.43 | No odor / No sheen |
| | 01/05/07 | <50 | 130 | 4.8 | <0.50 | 2.7 | 4.8 | 34 | 24 | | 8.34 | 11.61 | No odor / No sheen |
| | 04/10/07 | 63 * | 340 | 16 | <0.50 | 4.5 | 1.3 | 110 | 200 | | 9.82 | 10.13 | No odor / No sheen |
| | 07/06/07 | <50 | 73 | 4.6 | <0.50 | <0.50 | <0.50 | 23 | 130 | | 11.02 | 8.93 | No odor / No sheen |
| | 11/08/07 | 160 * | 750 | 43 | 1.4 | 2.2 | 1.4 | 78 | 290 | | 12.86 | 7.09 | No odor / No sheen |
| | 01/03/08 | 1,500 * | 190 | 15 | 0.52 | 2.6 | 1.6 | 43 | 170 | | 10.79 | 9.16 | Odor / No sheen |
| | 04/25/08 | 110* | 650 | 6.1 | <0.50 | 5.8 | 5.3 | 34 | 81 | | 10.03 | 9.92 | Odor / No sheen |
| | 07/11/08 | <50 * | 190 | 4.3 | <0.50 | 1.0 | <0.50 | 10 | 34 | | 9.97 | 9.98 | Odor / No sheen |
| | 10/20/08 | <50 * | 72 | 6.1 | <0.50 | 1.2 | 0.52 | 18 | 38 | | 11.40 | 8.55 | Post HVDPE sample |
| | 02/10/09 | <50 * | 130 | 6.6 | <0.50 | <0.50 | <0.50 | 7.4 | 56 | | 10.53 | 9.42 | Slight odor / No sheen |
| | 04/09/09 | <50 * | 97 | 3.7 | <0.50 | 1.0 | <0.50 | 13 | 28 | | 9.25 | 10.70 | Slight odor / No sheen |
| | 07/07/09 | <50 * | 94 | 0.94 | <0.50 | <0.50 | <0.50 | 5.7 | 25 | | 10.43 | 9.52 | Slight odor / No sheen |
| | 01/07/10 | <50 * | 120 | 6.7 | <0.50 | 3.4 | 2.1 | 13 | 24 | | 9.90 | 10.05 | Post HVDPE sample |
| | 04/01/10 | <50* | 95 | 3.7 | <0.50 | 1.3 | <0.50 | 9.6 | 19 | | 8.21 | 11.74 | Slight odor / No sheen |
| | 07/08/10 | <60* | 220 | 8.5 | <0.50 | 1.1 | 0.69 | 14 | 56 | | 8.94 | 11.01 | Slight odor / No sheen |
| | 10/01/10 | 76* | 100 | 5.4 | <0.50 | 0.62 | <0.50 | 6.5 | 32 | | 10.76 | 9.19 | Slight odor / No sheen |
| | 01/10/11 | <80* | 480 | 10 | <0.50 | 15 | 4.4 | 12 | 19 | | 7.92 | 12.03 | Post HVDPE sample |
| | 04/06/11 | <50* | 280 | 5.5 | <0.50 | 5.6 | 0.69 | 9.1 | 15 | | 7.51 | 12.44 | Slight odor / No sheen |
| | 07/07/11 | <50* | 150 | 2.6 | <0.50 | 0.63 | <0.50 | 4.5 | 13 | | 8.63 | 11.32 | Slight odor / No sheen |
| | 10/19/11 | <50* | 67 | 0.87 | <0.50 | <0.50 | <0.50 | 1.6 | 5.3 | | 9.51 | 10.44 | Slight odor / No sheen |
| | 01/10/12 | <50* | 96 | 0.84 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 10.08 | 9.87 | Slight odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-2** | 03/14/00 | <400 | 2,600 | 37 | <5.0 | 89 | 35 | 7,500 | | 18.13 | 7.89 | 10.24 | No odor / No sheen |
| | 06/07/00 | <50 | <200 | 2.5 | <2.0 | <2.0 | <2.0 | 1,700 | | | 9.79 | 8.34 | No Comments |
| | 08/29/00 | <50 | <200 | <2.0 | <2.0 | <2.0 | <2.0 | 820 | | | 11.04 | 7.09 | No Comments |
| **9' - 24'** | 11/29/00 | <100 | <2000 | <2.0 | <2.0 | <2.0 | <2.0 | 14,000 | | | 10.39 | 7.74 | No Comments |
| **screen** | 03/29/01 | <1,000 | 4,600 | 41 | <10 | 220 | 80 | 5,100 | | | 9.02 | 9.11 | No Comments |
| **interval** | 06/14/01 | <50 | <250 | <2.0 | <2.0 | <2.0 | <2.0 | 1,200 | | | 10.61 | 7.52 | No Comments |
| | 08/22/01 | 63 | 200 | <2.0 | <2.0 | 3.7 | <2.0 | 2,600 | | | 11.20 | 6.93 | No Comments |
| | 11/27/01 | <50 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 1,800 | | | 9.51 | 8.62 | No Comments |
| | 03/18/02 | <300 | 1,200 | 18 | 31 | <10 | 34 | 5,000 | | | 8.69 | 11.18 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 19.87 | | | GPS surveying of well |
| | 05/22/02 | <50 | <200 | <2.0 | <2.0 | <2.0 | <2.0 | 850 | | | 10.11 | 9.76 | No Comments |
| | 08/19/02 | 56 | <200 | <2.0 | <2.0 | <2.0 | <2.0 | 960 | | | 10.84 | 9.03 | No Comments |
| | 11/18/02 | <50 | <200 | <2.0 | <2.0 | <2.0 | <2.0 | 1,100 | 120 | | 11.41 | 8.46 | No Comments |
| | 02/24/03 | 130 # | <250 | <2.5 | <2.5 | <2.5 | <2.5 | 1,300 | 210 | | 8.32 | 11.55 | No Comments |
| | 05/22/03 | 280 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 2,100 | 320 | | 9.39 | 10.48 | No Comments |
| | 09/08/03 | 97 | 130 | 19 | <1.0 | <1.0 | <1.0 | 340 | 42 | | 10.57 | 9.30 | No Comments |
| | 12/11/03 | 750 | 280 | <2.0 | <2.0 | <2.0 | <2.0 | 850 | 3,100 | | 9.56 | 10.31 | No Comments |
| | 01/29/04 | 1,400 # | 630 | 8.1 | <1.5 | <1.5 | <1.5 | 600 | 1,600 | | 8.82 | 11.05 | Odor / No sheen |
| | 04/16/04 | 3,800 # | 310 | 2.2 | <0.50 | <0.50 | <0.50 | 83 | 1,500 | | 9.37 | 10.50 | Odor / No sheen |
| | 07/22/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.71 | <5.0 | | 9.89 | 9.98 | Odor / No sheen |
| | 10/26/04 | 70 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.64 | 9.23 | No odor / No sheen |
| | 01/13/05 | 180 # | 77 | <0.50 | 18 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.40 | 12.47 | No odor / No sheen |
| | 04/07/05 | <50 | 58 ## | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.80 | 12.07 | No odor / No sheen |
| | 07/05/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.0 | <5.0 | | 9.90 | 9.97 | No odor / No sheen |
| | 10/17/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.82 | 9.05 | No odor / No sheen |
| | 01/17/06 | 70 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 7.74 | 12.13 | No odor / No sheen |
| | 04/04/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.07 | 12.80 | No odor / No sheen |
| | 07/17/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.62 | 9.25 | No odor / No sheen |
| | 10/25/06 | <50 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.89 | 9.98 | No odor / No sheen |
| | 01/04/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.98 | 11.89 | No odor / No sheen |
| | 04/09/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.89 | 9.98 | No odor / No sheen |
| | 07/05/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.15 | 8.72 | No odor / No sheen |
| | 11/07/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 12.34 | 7.53 | No odor / No sheen |
| | 01/02/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.10 | 9.77 | No odor / No sheen |
| | 04/24/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.15 | 9.72 | No odor / No sheen |
| | 07/11/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.01 | 9.86 | No odor / No sheen |
| | 10/20/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.50 | 8.37 | No odor / No sheen |
| | 02/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.60 | 9.27 | No odor / No sheen |
| | 04/08/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.35 | 10.52 | No odor / No sheen |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.31 | 9.56 | not sampled |
| | 01/06/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.96 | 9.91 | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.43 | 11.44 | not sampled |
| | 07/07/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.05 | 10.82 | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 11.86 | 8.01 | not sampled |
| | 01/10/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.13 | 11.74 | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.73 | 12.14 | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.83 | 11.04 | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.63 | 10.24 | not sampled |
| | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.27 | 9.60 | No odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-3 | 03/14/00 | 440 | 440 | 96 | 2.7 | 24 | 41 | 200 | | 18.15 | 8.07 | 10.08 | No odor / No sheen |
| | 06/07/00 | <50 | <50 | 2.8 | <0.50 | 1.6 | 1.4 | 320 | | | 10.41 | 7.74 | No Comments |
| | 08/29/00 | <50 | 78 | 22 | <0.50 | 1.1 | 5.3 | 270 | | | 11.26 | 6.89 | No Comments |
| 10' - 25' | 11/29/00 | <50 | 410 | 150 | 1.5 | 16 | 25 | 150 | | | 10.91 | 7.24 | No Comments |
| screen | 03/29/01 | <50 | 380 | 68 | 1.1 | 24 | 29 | 300 | | | 9.51 | 8.64 | No Comments |
| interval | 06/14/01 | <50 | 280 | 75 | 0.92 | 20 | 23 | 120 | | | 10.83 | 7.32 | No Comments |
| | 08/22/01 | <50 | 170 | 42 | 0.67 | 10 | 14 | 79 | | | 11.63 | 6.52 | No Comments |
| | 11/27/01 | <50 | 810 | 190 | 2.6 | 31 | 54 | 95 | | | 10.15 | 8.00 | No Comments |
| | 03/18/02 | 17,000 | 110 | 7.8 | <0.50 | 4.5 | 2.8 | 400 | | | 8.98 | 10.94 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 19.92 | | | GPS surveying of well |
| | 05/22/02 | <50 | 180 | 57 | <0.50 | 8.0 | 10 | 170 | | | 10.65 | 9.27 | No Comments |
| | 08/19/02 | 70 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 57 | | | 11.32 | 8.60 | No Comments |
| | 11/18/02 | <50 | <50 | 12 | <0.50 | <0.50 | 2.2 | 37 | <5.0 | | 10.72 | 9.20 | No Comments |
| | 02/24/03 | <50 | 110 | 27 | <0.50 | 8.2 | 0.87 | 100 | <5.0 | | 8.62 | 11.30 | No Comments |
| | 05/22/03 | <50 | <50 | 2.3 | <0.50 | 0.86 | <0.50 | 120 | 7.4 | | 9.89 | 10.03 | No Comments |
| | 09/08/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 27 | <5.0 | | 11.03 | 8.89 | No Comments |
| | 12/11/03 | 84 # | 240 | 81 | <0.50 | 2.3 | 2.8 | 22 | <5.0 | | 10.15 | 9.77 | No Comments |
| | 01/28/04 | 1,600 # | <50 | 4.1 | <0.50 | 0.95 | <0.50 | 47 | <5.0 | | 9.35 | 10.57 | No odor / No sheen |
| | 04/15/04 | 440 # | 73 | 9.6 | <0.50 | 2.0 | <0.50 | 62 | 5.2 | | 10.09 | 9.83 | No odor / No sheen |
| | 07/22/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 40 | <5.0 | | 11.16 | 8.76 | No odor / No sheen |
| | 10/26/04 | <50 * | <50 | 2.2 | <0.50 | <0.50 | <0.50 | 12 | <5.0 | | 11.36 | 8.56 | No odor / No sheen |
| | 01/13/05 | 180 # | <50 | <0.50 | 4.6 | <0.50 | <0.50 | 2.8 | <5.0 | | 7.81 | 12.11 | No odor / No sheen |
| | 04/08/05 | 260 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 10 | <5.0 | | 8.30 | 11.62 | No odor / No sheen |
| | 07/05/05 | 55 # | <50 | 1.8 | <0.50 | <0.50 | <0.50 | 14 | <5.0 | | 10.28 | 9.64 | No odor / No sheen |
| | 10/18/05 | 84 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 7.0 | <5.0 | | 11.41 | 8.51 | No odor / No sheen |
| | 01/17/06 | 2,200 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 | na | | 8.41 | 11.51 | No odor / No sheen |
| | 04/05/06 | 160 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 5.7 | <5.0 | | 7.28 | 12.64 | No odor / No sheen |
| | 07/18/06 | 340 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.7 | <5.0 | | 10.71 | 9.21 | No odor / No sheen |
| | 10/26/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 11.08 | 8.84 | No odor / No sheen |
| | 01/04/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 8.39 | 11.53 | No odor / No sheen |
| | 04/09/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.19 | 9.73 | No odor / No sheen |
| | 07/05/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.0 | <5.0 | | 11.64 | 8.28 | No odor / No sheen |
| | 11/07/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.3 | <5.0 | | 12.95 | 6.97 | No odor / No sheen |
| | 01/03/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.53 | 9.39 | No odor / No sheen |
| | 04/24/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 10.56 | 9.36 | No odor / No sheen |
| | 07/11/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.77 | <5.0 | | 10.38 | 9.54 | No odor / No sheen |
| | 10/20/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.3 | <5.0 | | 11.84 | 8.08 | No odor / No sheen |
| | 02/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.87 | <5.0 | | 10.96 | 8.96 | No odor / No sheen |
| | 04/08/09 | <50 * | <50 | 0.83 | <0.50 | <0.50 | <0.50 | 1.6 | 8.0 | | 9.78 | 10.14 | No odor / No sheen |
| | 07/07/09 | na | na | na | na | na | na | 1.1 | <5.0 | | 10.84 | 9.08 | No odor / No sheen |
| | 01/06/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 10.30 | 9.62 | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.69 | 11.23 | not sampled |
| | 07/07/10 | na | na | na | na | na | na | 4.9 | <5.0 | | 9.35 | 10.57 | No odor / No sheen |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 11.18 | 8.74 | not sampled |
| | 01/10/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.3 | <5.0 | | 8.41 | 11.51 | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.93 | 11.99 | not sampled |
| | 07/07/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.4 | <5.0 | | 9.10 | 10.82 | No odor / No sheen |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.90 | 10.02 | not sampled |
| | 01/10/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.7 | <5.0 | | 10.53 | 9.39 | No odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-4** | 03/14/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 18.46 | 6.13 | 12.33 | No odor / No sheen |
| | 06/07/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | 8.12 | 10.34 | No Comments |
| | 08/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | 9.26 | 9.2 | No Comments |
| **11' - 26'** | 11/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.9 | | | 8.84 | 9.62 | No Comments |
| **screen** | 03/29/01 | 610 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.57 | | | 7.55 | 10.91 | No Comments |
| **interval** | 06/14/01 | 3,100 | 380 | <0.50 | <0.50 | <0.50 | 0.51 | 8.2 | | | 8.95 | 9.51 | No Comments |
| | 08/22/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 9.6 | | | 9.59 | 8.87 | No Comments |
| | 11/27/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 9.2 | | | 8.02 | 10.44 | No Comments |
| | 03/18/02 | 690 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.56 | | | 7.04 | 12.18 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 19.22 | | | GPS surveying of well |
| | 05/22/02 | 740 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 5.1 | | | 8.54 | 10.68 | No Comments |
| | 08/19/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 18 | | | 9.34 | 9.88 | No Comments |
| | 11/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 14 | <5.0 | | 9.11 | 10.11 | No Comments |
| | 02/24/03 | 78 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.61 | <5.0 | | 6.8 | 12.42 | No Comments |
| | 05/22/03 | 7,000 | 300 | <0.50 | <0.50 | <0.50 | <0.50 | 4.4 | <5.0 | | 7.81 | 11.41 | No Comments |
| | 09/08/03 | 150 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 19 | <5.0 | | 9.01 | 10.21 | No Comments |
| | 12/11/03 | 230 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.3 | <5.0 | | 7.98 | 11.24 | No Comments |
| | 01/28/04 | 7,700 # | 110 | <0.50 | <0.50 | <0.50 | <0.50 | 4.1 | <5.0 | | 7.32 | 11.9 | No odor / No sheen |
| | 04/15/04 | 54,000 # | 130 ## | <0.50 | <0.50 | <0.50 | <0.50 | 1.2 | <5.0 | | 8.11 | 11.11 | Odor / No sheen |
| | 07/21/04 | 370 # | <50 | <0.50 | 1.3 | <0.50 | <0.50 | 13 | <5.0 | | 9.01 | 10.21 | Odor / No sheen |
| | 10/26/04 | 620 * | <50 | <0.50 | 0.5 | <0.50 | <0.50 | 12 | <5.0 | | 9.03 | 10.19 | No odor / No sheen |
| | 01/14/05 | 1,400 # | 77 | <0.50 | 11 | <0.50 | <0.50 | 8.6 | <5.0 | | 5.56 | 13.66 | No odor / No sheen |
| | 04/07/05 | 1,900 # | 100 | <0.50 | 0.53 | <0.50 | <0.50 | 0.99 | <5.0 | | 6.55 | 12.67 | No odor / No sheen |
| | 07/25/05 | 3,900 | 150 | <0.50 | 0.8 | <0.50 | 0.54 | 3.7 | <5.0 | | 8.49 | 10.73 | Odor / No sheen |
| | 10/17/05 | 7,100 # | 160 | <0.50 | <0.50 | <0.50 | <0.50 | 0.51 | <5.0 | | 9.44 | 9.78 | No odor / No sheen |
| | 01/17/06 | 4,900 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 6.27 | 12.95 | No odor / No sheen |
| | 04/04/06 | 2,000 * | 110 ## | <0.50 | 0.87 | <0.50 | <0.50 | <0.50 | <5.0 | | 5.15 | 14.07 | Odor / No sheen |
| | 07/17/06 | 1,100 * | 61 | <0.50 | 1.8 | <0.50 | <0.50 | 2.4 | <5.0 | | 8.79 | 10.43 | Odor / No sheen |
| | 10/26/06 | 6,700 # | 56 | <0.50 | 3.0 | <0.50 | <0.50 | 2.9 | <5.0 | | 9.78 | 9.44 | No odor / No sheen |
| | 01/04/07 | 360 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.69 | <5.0 | | 7.63 | 11.59 | No odor / No sheen |
| | 04/10/07 | 1,600 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.4 | <5.0 | | 8.53 | 10.69 | No odor / No sheen |
| | 07/05/07 | 750* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.1 | <5.0 | | 9.64 | 9.58 | No odor / No sheen |
| | 11/08/07 | 1,600 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 12.24 | 6.98 | some odor, no sheen |
| | 01/02/08 | 1,300 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.51 | <5.0 | | 8.04 | 11.18 | No odor / No sheen |
| | 04/24/08 | 1,300* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.71 | 10.51 | No odor / No sheen |
| | 07/11/08 | 460 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.74 | <5.0 | | 8.95 | 10.27 | Odor / No sheen |
| | 10/21/08 | 76 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.30 | 8.92 | Slight odor / No sheen |
| | 02/10/09 | 210 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.29 | 9.93 | Slight odor / No sheen |
| | 04/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.97 | 11.25 | No odor / No sheen |
| | 07/06/09 | 140* | na | na | na | na | na | na | na | | 9.22 | 10.00 | No odor / No sheen |
| | 01/06/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.72 | 10.50 | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.87 | 12.35 | not sampled |
| | 07/07/10 | <50* | na | na | na | na | na | na | na | | 7.66 | 11.56 | No odor / No sheen |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.55 | 9.67 | not sampled |
| | 01/10/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 6.53 | 12.69 | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.12 | 13.10 | not sampled |
| | 07/07/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.38 | 11.84 | No odor / No sheen |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.33 | 10.89 | not sampled |
| | 01/09/12 | <230*# | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.97 | 10.25 | No odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-5** | 03/14/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 16.72 | 5.16 | 11.56 | No odor / No sheen |
| | 06/07/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | 7.17 | 9.55 | No Comments |
| | 08/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | 8.28 | 8.44 | No Comments |
| 5' - 20' | 11/29/00 | NS | NS | NS | NS | NS | NS | NS | | | NM | NM | No Access |
| screen | 03/29/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | 6.53 | 10.19 | No Comments |
| interval | 06/14/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 250 | | | 7.87 | 8.85 | No Comments |
| | 08/22/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 140 | | | 8.61 | 8.11 | No Comments |
| | 11/27/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.67 | | | 9.99 | 6.73 | No Comments |
| | 03/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | 5.99 | 12.48 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ------ | | 18.47 | | | GPS surveying of well |
| | 05/22/02 | 110 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | | | 7.48 | 10.99 | No Comments |
| | 08/19/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.7 | | | 8.30 | 10.17 | No Comments |
| | 11/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.5 | <5.0 | | 8.07 | 10.40 | No Comments |
| | 02/24/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 5.77 | 12.70 | No Comments |
| | 05/22/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.71 | <5.0 | | 6.79 | 11.68 | No Comments |
| | 09/08/03 | 90 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 8.11 | 10.36 | No Comments |
| | 12/11/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 6.87 | 11.60 | No Comments |
| | 01/28/04 | 360 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 6.42 | 12.05 | No odor / No sheen |
| | 04/15/04 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | No Access |
| | 07/21/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.08 | 10.39 | No odor / No sheen |
| | 10/26/04 | 60 * | <50 | <0.50 | 0.51 | <0.50 | <0.50 | 0.60 | <5.0 | | 8.05 | 10.42 | No odor / No sheen |
| | 01/13/05 | 78 # | 64 | <0.50 | 18 | <0.50 | <0.50 | <0.50 | <5.0 | | 4.74 | 13.73 | No odor / No sheen |
| | 04/07/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 5.68 | 12.79 | No odor / No sheen |
| | 07/05/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.69 | <5.0 | | 7.45 | 11.02 | No odor / No sheen |
| | 10/17/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.49 | 9.98 | No odor / No sheen |
| | 01/17/06 | 180 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 5.31 | 13.16 | No odor / No sheen |
| | 04/04/06 | <50 * | <50 | <0.50 | 0.57 | <0.50 | <0.50 | <0.50 | <5.0 | | 4.14 | 14.33 | No odor / No sheen |
| | 07/17/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.71 | 10.76 | No odor / No sheen |
| | 10/25/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.79 | 9.68 | No odor / No sheen |
| | 01/04/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 6.39 | 12.08 | No odor / No sheen |
| | 04/09/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.52 | 10.95 | No odor / No sheen |
| | 07/05/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 6.32 | 12.15 | No odor / No sheen |
| | 11/08/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 12.44 | 6.03 | No odor / No sheen |
| | 01/02/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.74 | 10.73 | No odor / No sheen |
| | 04/24/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.78 | 10.69 | No odor / No sheen |
| | 07/11/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.92 | 10.55 | No odor / No sheen |
| | 10/20/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.26 | 9.21 | No odor / No sheen |
| | 02/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.22 | 10.25 | No odor / No sheen |
| | 04/08/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 6.95 | 11.52 | No odor / No sheen |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.22 | 10.25 | not sampled |
| | 01/06/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.72 | 10.75 | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 5.92 | 12.55 | not sampled |
| | 07/07/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.69 | 11.78 | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.55 | 9.92 | not sampled |
| | 01/10/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 5.57 | 12.90 | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 5.21 | 13.26 | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.34 | 12.13 | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.37 | 11.10 | not sampled |
| | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.53 | 9.94 | No odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-6 | 03/14/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 7.3 | | 15.43 | 5.79 | 9.64 | No odor / No sheen |
| | 06/07/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | 8.11 | 7.32 | No Comments |
| | 08/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | 9.21 | 6.22 | No Comments |
| 4' - 16.5' | 11/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.8 | | | 8.71 | 6.72 | No Comments |
| screen | 03/29/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.2 | | | 7.35 | 8.08 | No Comments |
| interval | 06/14/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.0 | | | 8.85 | 6.58 | No Comments |
| | 08/22/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | | | 9.50 | 5.93 | No Comments |
| | 11/27/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.89 | | | 7.78 | 7.65 | No Comments |
| | 03/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 12 | | | 6.75 | 10.61 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 17.36 | | | GPS surveying of well |
| | 05/22/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.6 | | | 8.56 | 8.80 | No Comments |
| | 08/19/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.5 | | | 8.15 | 9.21 | No Comments |
| | 11/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.57 | <5.0 | | 9.03 | 8.33 | No Comments |
| | 02/24/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.8 | <5.0 | | 6.28 | 11.08 | No Comments |
| | 05/22/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.8 | <5.0 | | 7.74 | 9.62 | No Comments |
| | 09/08/03 | 84 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.82 | <5.0 | | 8.88 | 8.48 | No Comments |
| | 12/11/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.90 | <5.0 | | 7.91 | 9.45 | No Comments |
| | 01/28/04 | 96 | <50 | <0.50 | 0.79 | <0.50 | <0.50 | 3.4 | <5.0 | | 8.15 | 9.21 | No odor / No sheen |
| | 04/15/04 | 110 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.2 | <5.0 | | 8.89 | 8.47 | No odor / No sheen |
| | 07/21/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.4 | <5.0 | | 9.81 | 7.55 | No odor / No sheen |
| | 10/26/04 | <50 | <50 | <0.50 | 0.65 | <0.50 | <0.50 | 0.59 | <5.0 | | 9.87 | 7.49 | No odor / No sheen |
| | 01/13/05 | <50 | 66 | <0.50 | 19 | <0.50 | <0.50 | 0.82 | <5.0 | | 5.42 | 11.94 | No odor / No sheen |
| | 04/07/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 6.33 | 11.03 | No odor / No sheen |
| | 07/05/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.81 | <5.0 | | 8.22 | 9.14 | No odor / No sheen |
| | 10/17/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.21 | 8.15 | No odor / No sheen |
| | 01/17/06 | 61 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 5.93 | 11.43 | No odor / No sheen |
| | 04/04/06 | <50 | <50 | <0.50 | 0.51 | <0.50 | <0.50 | <0.50 | <5.0 | | 4.84 | 12.52 | No odor / No sheen |
| | 07/17/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.40 | 8.96 | No odor / No sheen |
| | 10/25/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.53 | 7.83 | No odor / No sheen |
| | 01/04/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.27 | 9.09 | No odor / No sheen |
| | 04/09/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.05 | 8.31 | No odor / No sheen |
| | 07/05/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.84 | 5.52 | No odor / No sheen |
| | 11/07/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 12.07 | 5.29 | No odor / No sheen |
| | 01/02/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.11 | 10.25 | No odor / No sheen |
| | 04/24/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.36 | 9.00 | No odor / No sheen |
| | 07/10/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.85 | 9.51 | No odor / No sheen |
| | 10/20/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.42 | 7.94 | No odor / No sheen |
| | 02/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.67 | 8.69 | No odor / No sheen |
| | 04/08/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.45 | 8.91 | No odor / No sheen |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.52 | 8.84 | not sampled |
| | 01/06/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.84 | 9.52 | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.36 | 11.00 | not sampled |
| | 07/07/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.95 | 10.41 | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.75 | 8.61 | not sampled |
| | 01/10/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 5.96 | 11.40 | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 5.60 | 11.76 | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 6.73 | 10.63 | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.41 | 9.95 | not sampled |
| | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.12 | 9.24 | No odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-7 | 03/14/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 14 | | 17.19 | 7.65 | 9.54 | No odor / No sheen |
| | 06/07/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | 10.30 | 6.89 | No Comments |
| | 08/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 45 | | | 11.28 | 5.91 | No Comments |
| 4' - 19' | 11/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | 10.75 | 6.44 | No Comments |
| screen | 03/29/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 9.2 | | | 9.41 | 7.78 | No Comments |
| interval | 06/14/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 18 | | | 11.01 | 6.18 | No Comments |
| | 08/22/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 38 | | | 11.61 | 5.58 | No Comments |
| | 11/27/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.2 | | | 9.66 | 7.53 | No Comments |
| | 03/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.93 | | | 8.67 | 8.02 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 16.69 | | | GPS surveying of well |
| | 05/22/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 31 | | | 9.68 | 7.01 | No Comments |
| | 8/19/022 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 22 | | | 11.21 | 5.48 | No Comments |
| | 11/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 52 | <5.0 | | 11.05 | 5.64 | No Comments |
| | 02/24/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 49 | <5.0 | | 8.18 | 8.51 | No Comments |
| | 05/22/03 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nm | Could Not Locate |
| | 09/08/03 | 210 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 44 | <5.0 | | 10.91 | 5.78 | No Comments |
| | 12/11/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 29 | <5.0 | | 9.96 | 6.73 | No Comments |
| | 01/28/04 | 100 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 30 | <5.0 | | 9.15 | 7.54 | No odor / No sheen |
| | 04/15/04 | 220 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 39 | <5.0 | | 10.03 | 6.66 | No odor / No sheen |
| | 07/21/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 38 | <5.0 | | 11.09 | 5.60 | No odor / No sheen |
| | 10/26/04 | <50 | 210 | <0.50 | <0.50 | <0.50 | <0.50 | 26 | <5.0 | | 11.10 | 5.59 | No odor / No sheen |
| | 01/13/05 | 73 # | 59 | <0.50 | 4.8 | <0.50 | <0.50 | 11 | <5.0 | | 7.21 | 9.48 | No odor / No sheen |
| | 04/07/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 7.8 | <5.0 | | 8.32 | 8.37 | No odor / No sheen |
| | 07/05/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.1 | <5.0 | | 10.35 | 6.34 | No odor / No sheen |
| | 10/17/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.4 | <5.0 | | 11.24 | 5.45 | No odor / No sheen |
| | 01/17/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.68 | na | | 7.81 | 8.88 | No odor / No sheen |
| | 04/04/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 6.69 | 10.00 | No odor / No sheen |
| | 07/17/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.72 | <5.0 | | 10.50 | 6.19 | No odor / No sheen |
| | 10/25/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.62 | 5.07 | No odor / No sheen |
| | 01/04/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.34 | 7.35 | No odor / No sheen |
| | 04/09/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.34 | 6.35 | No odor / No sheen |
| | 07/05/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.97 | 4.72 | No odor / No sheen |
| | 11/07/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 12.19 | 4.50 | No odor / No sheen |
| | 01/02/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.96 | 8.73 | No odor / No sheen |
| | 04/24/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.47 | 6.22 | No odor / No sheen |
| | 07/10/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.93 | 6.76 | No odor / No sheen |
| | 10/21/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.50 | 5.19 | No odor / No sheen |
| | 02/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.74 | 5.95 | No odor / No sheen |
| | 04/08/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.50 | 7.19 | No odor / No sheen |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.53 | 6.16 | not sampled |
| | 01/06/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.84 | 6.85 | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.17 | 8.52 | not sampled |
| | 07/07/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.89 | 7.80 | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.84 | 5.85 | not sampled |
| | 01/10/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.83 | 8.86 | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.21 | 9.48 | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.63 | 8.06 | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.33 | 7.36 | not sampled |
| | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.54 | <5.0 | | 10.03 | 6.66 | No odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-8** | 03/14/00 | <50 | 150 | <0.50 | <0.50 | <0.50 | <0.50 | 220 | | 18.61 | 8.38 | 10.23 | No odor / No sheen |
| | 06/07/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 220 | | | 10.74 | 7.87 | No Comments |
| | 08/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 140 | | | 11.77 | 6.84 | No Comments |
| 5' - 20' | 11/29/00 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 9.5 | | | 11.37 | 7.24 | No Comments |
| screen | 03/29/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 87 | | | 10.02 | 8.59 | No Comments |
| interval | 06/14/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 110 | | | 11.56 | 7.05 | No Comments |
| | 08/22/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 89 | | | 12.24 | 6.37 | No Comments |
| | 11/27/01 | 810 | 120 | <0.50 | <0.50 | <0.50 | <0.50 | 35 | | | 10.33 | 8.28 | No Comments |
| | 03/18/02 | 160 | 93 | <0.50 | <0.50 | <0.50 | <0.50 | 64 | | | 9.35 | 11.04 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 20.39 | | | GPS surveying of well |
| | 05/22/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 110 | | | 11.25 | 9.14 | No Comments |
| | 08/19/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 68 | | | 11.83 | 8.56 | No Comments |
| | 11/18/02 | 61 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 53 | <5.0 | | 11.64 | 8.75 | No Comments |
| | 02/24/03 | 140 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 47 | <5.0 | | 9.06 | 11.33 | No Comments |
| | 05/22/03 | 360 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 56 | <5.0 | | 10.43 | 9.96 | No Comments |
| | 09/08/03 | 82 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 58 | <5.0 | | 11.52 | 8.87 | No Comments |
| | 12/11/03 | 690 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 19 | <5.0 | | 10.51 | 9.88 | No Comments |
| | 01/28/04 | 1,500 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.1 | <5.0 | | 9.81 | 10.58 | No odor / No sheen |
| | 04/15/04 | 380 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 30 | <5.0 | | 10.68 | 9.71 | No odor / No sheen |
| | 07/21/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 40 | <5.0 | | 11.63 | 8.76 | No odor / No sheen |
| | 10/26/04 | 230 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 20 | <5.0 | | 11.72 | 8.67 | No odor / No sheen |
| | 01/13/05 | 190 # | <50 | <0.50 | 1.6 | <0.50 | <0.50 | <0.50 | <5.0 | | 7.95 | 12.44 | No odor / No sheen |
| | 04/07/05 | 130 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 18 | <5.0 | | 9.06 | 11.33 | No odor / No sheen |
| | 07/05/05 | 110 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 37 | <5.0 | | 10.95 | 9.44 | No odor / No sheen |
| | 10/17/05 | 53 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 18 | <5.0 | | 11.87 | 8.52 | No odor / No sheen |
| | 01/17/06 | 160 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 5.5 | na | | 8.65 | 11.74 | No odor / No sheen |
| | 04/05/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 18 | <5.0 | | 7.32 | 13.07 | No odor / No sheen |
| | 07/17/06 | 61 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 36 | <5.0 | | 11.21 | 9.18 | No odor / No sheen |
| | 10/26/06 | <50 # | 110 | <0.50 | <0.50 | <0.50 | <0.50 | 28 | <5.0 | | 12.28 | 8.11 | No odor / No sheen |
| | 01/05/07 | <50 * | 360 | <0.50 | <0.50 | <0.50 | <0.50 | 24 | <5.0 | | 9.94 | 10.45 | No odor / No sheen |
| | 04/10/07 | 80 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 16 | <5.0 | | 10.05 | 10.34 | No odor / No sheen |
| | 07/06/07 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 28 | <5.0 | | 12.29 | 8.10 | No odor / No sheen |
| | 11/08/07 | 120 * | <50 | 0.70 | <0.50 | <0.50 | <0.50 | 7.9 | <5.0 | | 13.41 | 6.98 | No odor / No sheen |
| | 01/02/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 8.7 | <5.0 | | 11.09 | 9.30 | No odor / No sheen |
| | 04/24/08 | 71 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.2 | <5.0 | | 11.20 | 9.19 | No odor / No sheen |
| | 07/11/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.6 | <5.0 | | 11.09 | 9.30 | No odor / No sheen |
| | 10/20/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.5 | <5.0 | | 12.40 | 7.99 | No odor / No sheen |
| | 02/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 | <5.0 | | 11.65 | 8.74 | No odor / No sheen |
| | 04/08/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.4 | <5.0 | | 10.25 | 10.14 | No odor / No sheen |
| | 07/06/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.1 | <5.0 | | 11.40 | 8.99 | No odor / No sheen |
| | 01/06/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | <5.0 | | 10.78 | 9.61 | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.03 | 11.36 | not sampled |
| | 07/07/10 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.7 | <5.0 | | 9.73 | 10.66 | No odor / No sheen |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 11.73 | 8.66 | not sampled |
| | 01/10/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <5.0 | | 9.63 | 10.76 | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.08 | 12.31 | not sampled |
| | 07/07/11 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.93 | <5.0 | | 9.48 | 10.91 | No odor / No sheen |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.35 | 10.04 | not sampled |
| | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.81 | <5.0 | | 10.99 | 9.40 | No odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RW-9** | 03/14/00 | <2,000 | 32,000 | 7,900 | 290 | 940 | 2,700 | 1,600 | | 18.57 | 8.04 | 10.53 | No odor / No sheen |
| | 06/07/00 | <1,500 | 24,000 | 4,000 | 470 | 900 | 3,100 | 1,400 | | | 10.28 | 8.29 | No Comments |
| | 08/29/00 | NS | NS | NS | NS | NS | NS | NS | | | NM | NM | DPE equipment on well |
| 4' - 19' | 11/29/00 | <1,000 | 9,700 | 1,900 | 45 | 320 | 420 | 1,300 | | | 10.85 | 7.72 | No Comments |
| screen | 03/29/01 | <4,000 | 31,000 | 6,500 | 230 | 900 | 1,000 | 3,100 | | | 9.56 | 9.01 | No Comments |
| interval | 06/14/01 | <2,500 | 14,000 | 3,900 | 36 | 590 | 300 | 2,800 | | | 10.96 | 7.61 | No Comments |
| | 08/22/01 | <3,000 | 15,000 | 5,700 | <25 | 490 | 110 | 6,500 | | | 11.70 | 6.87 | No Comments |
| | 11/27/01 | <2,000 | 11,000 | 3,800 | 22 | 410 | 63 | 4,500 | | | 10.05 | 8.52 | No Comments |
| | 03/18/02 | <1,500 | 22,000 | 7,200 | 62 | 1,000 | 430 | 5,100 | | | 9.01 | 11.31 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 20.32 | | | GPS surveying of well |
| | 05/22/02 | <1,700 | 17,000 | 6,100 | 25 | 810 | 140 | 7,000 | | | 10.70 | 9.62 | No Comments |
| | 08/19/02 | <1,000 | 7,500 | 2,200 | <10 | 210 | <10 | 3,000 | | | 11.36 | 8.96 | No Comments |
| | 11/18/02 | <2,100 | 8,700 | 2,300 | 16 | 240 | 52 | 4,500 | 1,400 | | 11.22 | 9.10 | No Comments |
| | 02/24/03 | <1,100 | 3,300 | 560 | 5.8 | 61 | 13 | 1,200 | 470 | | 8.75 | 11.57 | No Comments |
| | 05/22/03 | <1,500 | 4,400 | 1,300 | <5.0 | 66 | <5.0 | 1,300 | 640 | | 9.87 | 10.45 | No Comments |
| | 09/08/03 | 8,900 | 10,000 | 3,300 | <20 | 280 | 26 | 6,800 | 1,600 | | 11.02 | 9.30 | No Comments |
| | 12/11/03 | 2,300 | 9,200 | 2,800 | 14 | 130 | 24 | 4,400 | 1,400 | | 10.01 | 10.31 | No Comments |
| | 01/29/04 | 610 | 1,900 | 520 | 5.2 | 26 | 28 | 700 | 240 | | 9.23 | 11.09 | Odor / No sheen |
| | 04/16/04 | <300 | 1,200 | 220 | <1.5 | 7.0 | 3.1 | 590 | 180 | | 10.14 | 10.18 | Odor / No sheen |
| | 07/22/04 | <2,000 | 11,000 | 1,300 | 110 | 110 | 1,700 | 3,700 | 1,200 | | 11.28 | 9.04 | Odor / No sheen |
| | 10/26/04 | 170 | 310 | 8.4 | <1.5 | <1.5 | <1.5 | 540 | 210 | | 11.08 | 9.24 | Odor / No sheen |
| | 01/14/05 | <400 | 2,000 | 110 | 7.3 | 24 | 390 | 350 | 310 | | 7.24 | 13.08 | Odor / No sheen |
| | 04/08/05 | <400 | 1,000 | 140 | 1.0 | 6.5 | 8.3 | 650 | 310 | | 8.55 | 11.77 | Odor / No sheen |
| | 07/06/05 | <500 | 2,200 | 490 | 1.9 | 9.4 | 22 | 880 | 420 | | 10.35 | 9.97 | Odor / No sheen |
| | 10/18/05 | <200 | 920 | 120 | <0.50 | 2.4 | 0.51 | 140 | 440 | | 11.48 | 8.84 | Odor / No sheen |
| | 01/18/06 | <1500 | 5,500 | 930 | 22 | 180 | 360 | 700 | na | | 8.24 | 12.08 | Odor / No sheen |
| | 04/05/06 | <50 * | 490 | 9.6 | <0.50 | 1.6 | <0.50 | 140 | 540 | | 7.10 | 13.22 | Odor / No sheen |
| | 07/18/06 | <200 * | 980 | 92 | 0.67 | 0.98 | 0.50 | 190 | 450 | | 10.82 | 9.50 | Odor / No sheen |
| | 10/26/06 | <50 * | 800 | 84 | <0.50 | 0.59 | 0.51 | 190 | 550 | | 11.89 | 8.43 | Odor / No sheen |
| | 01/05/07 | <80 * | 570 | 18 | <0.50 | 1.3 | <0.50 | 78 | 230 | | 8.98 | 11.34 | Odor / No sheen |
| | 04/10/07 | <200 * | 660 | 50 | 0.71 | 0.90 | 0.51 | 120 | 490 | | 10.41 | 9.91 | Odor / No sheen |
| | 07/06/07 | <300* | 1,100 | 230 | 1.1 | 1.5 | 0.98 | 130 | 620 | | 11.64 | 8.68 | Odor / No sheen |
| | 08/03/07 | na | 4,700 | 760 | 2.2 | 15 | 3.5 | na | na | | 12.11 | 8.21 | Well Resampled |
| | 11/09/07 | <300 | 870 | 55 | 0.94 | 1.2 | 1.2 | 61 | 460 | | 12.86 | 7.46 | Odor / No sheen |
| | 01/03/08 | <200 | 520 | 11 | <0.50 | 0.68 | <0.50 | 33 | 300 | | 10.61 | 9.71 | Odor / No sheen |
| | 04/25/08 | <400 | 810 | 19 | 0.53 | 1.1 | <0.50 | 140 | 1,000 | | 10.64 | 9.68 | Odor / No sheen |
| | 07/11/08 | <800 | 3,300 | 540 | 2.4 | 2.6 | 2.8 | 1,200 | 1,800 | | 10.52 | 9.80 | Odor / No sheen |
| | 10/21/08 | <80 * | 470 | 27 | 0.66 | 6.2 | 16 | 160 | 320 | | 11.91 | 8.41 | Post HVDPE sample |
| | 02/10/09 | <80 * | 540 | 13 | <0.50 | 0.65 | <0.50 | 70 | 640 | | 11.00 | 9.32 | Slight odor / No sheen |
| | 04/09/09 | <200* | 870 | 57 | 0.93 | 3.0 | 0.64 | 130 | 600 | | 9.85 | 10.47 | No odor / No sheen |
| | 07/07/09 | <200* | 880 | 43 | 0.89 | 0.63 | 0.66 | 57 | 620 | | 10.90 | 9.42 | Slight odor / No sheen |
| | 01/07/10 | <50* | 200 | 8.8 | <0.50 | 1.7 | <0.50 | 78 | 270 | | 10.31 | 10.01 | Post HVDPE sample |
| | 04/01/10 | <80* | 610 | 51 | 0.72 | 8.3 | 0.75 | 120 | 540 | | 8.71 | 11.61 | Slight odor / No sheen |
| | 07/08/10 | <200* | 760 | 36 | 0.86 | 1.5 | 0.64 | 95 | 380 | | 9.43 | 10.89 | Slight odor / No sheen |
| | 10/01/10 | <200* | 1,200 | 40 | 0.97 | 0.79 | 0.78 | 160 | 900 | | 11.25 | 9.07 | Slight odor / No sheen |
| | 01/11/11 | <300* | 3,100 | 300 | 1.8 | 94 | 45 | 310 | 680 | | 8.35 | 11.97 | Post HVDPE sample |
| | 04/06/11 | <80* | 680 | 24 | 0.63 | 4.8 | 0.90 | 59 | 180 | | 7.97 | 12.35 | Slight odor / No sheen |
| | 07/07/11 | <50 * | 700 | 22 | 0.73 | <0.50 | <0.50 | 12 | 110 | | 9.18 | 11.14 | Slight odor / No sheen |
| | 10/19/11 | <80* | 330 | 5.6 | <0.50 | <0.50 | <0.50 | 9.2 | 84 | | 10.02 | 10.30 | Slight odor / No sheen |
| | 01/10/12 | <50 * | 370 | 5.5 | <0.50 | <0.50 | <0.50 | 7.1 | 820 | | 10.67 | 9.65 | Slight odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RW-10** | 03/14/00 | 4,500 | <2000 | <20 | <20 | <20 | <20 | 11,000 | | 18.51 | 7.35 | 11.16 | No odor / No sheen |
| | 06/07/00 | 230 | <2000 | <20 | <20 | <20 | <20 | 9,900 | | | 9.55 | 8.96 | No Comments |
| | 08/29/00 | 350 | <1000 | <10 | <10 | <10 | <10 | 6,300 | | | 10.63 | 7.88 | No Comments |
| 4' - 19' | 11/29/00 | 840 | <1000 | <10 | <10 | <10 | <10 | 8,000 | | | 10.12 | 8.39 | No Comments |
| screen | 03/29/01 | 1,400 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 3,400 | | | 8.86 | 9.65 | No Comments |
| interval | 06/14/01 | 1,200 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 3,800 | | | 10.22 | 8.29 | No Comments |
| | 08/22/01 | 1,300 | <250 | <2.5 | <2.5 | <2.5 | <2.5 | 5,300 | | | 10.95 | 7.56 | No Comments |
| | 11/27/01 | 6,200 | <1000 | 10 | <10 | <10 | <10 | 4,000 | | | 9.24 | 9.27 | No Comments |
| | 03/18/02 | 2,900 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 3,000 | | | 8.27 | 11.97 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 20.24 | | | GPS surveying of well |
| | 05/22/02 | 930 | <200 | <2.0 | <2.0 | <2.0 | <2.0 | 790 | | | 9.85 | 10.39 | No Comments |
| | 08/19/02 | 2,100 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 2,400 | | | 10.67 | 9.57 | No Comments |
| | 11/18/02 | 290 | <100 | <1.0 | <1.0 | <1.0 | <1.0 | 340 | 20 | | 10.48 | 9.76 | No Comments |
| | 02/24/03 | 710 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1,500 | 200 | | 8.03 | 12.21. | No Comments |
| | 05/22/03 | 940 | <200 | <1.5 | <1.5 | <1.5 | <1.5 | 540 | 38 | | 9.11 | 11.13 | No Comments |
| | 09/08/03 | 2,100 | <250 | <2.5 | <2.5 | <2.5 | <2.5 | 1,100 | 100 | | 10.38 | 9.86 | No Comments |
| | 12/11/03 | 980 | <100 | <1.0 | <1.0 | <1.0 | <1.0 | 550 | 80 | | 9.20 | 11.04 | No Comments |
| | 01/29/04 | 1,600 | <500 | <3.0 | <3.0 | <3.0 | <3.0 | 1,300 | 270 | | 8.62 | 11.62 | Odor / No sheen |
| | 04/16/04 | 2,000 | <250 | 8.0 | <2.5 | <2.5 | <2.5 | 1,200 | 510 | | 9.42 | 10.82 | Odor / No sheen |
| | 07/22/04 | 320 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 360 | 110 | | 10.29 | 9.95 | Odor / No sheen |
| | 10/26/04 | 1,300 | 310 | <0.50 | <0.50 | <0.50 | <0.50 | 430 | 340 | | 10.37 | 9.87 | No odor / No sheen |
| | 01/14/05 | 1,400 | 300 | <0.50 | 1.2 | <0.50 | <0.50 | 280 | 600 | | 6.86 | 13.38 | Odor / No sheen |
| | 04/08/05 | 860 | 84 | <0.50 | <0.50 | <0.50 | <0.50 | 120 | 140 | | 7.88 | 12.36 | No odor / No sheen |
| | 07/06/05 | 890 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 87 | 140 | | 9.75 | 10.49 | No odor / No sheen |
| | 10/18/05 | 380 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 49 | 140 | | 10.82 | 9.42 | No odor / No sheen |
| | 01/18/06 | 1,100 | 310 | 1.0 | <0.50 | <0.50 | <0.50 | 63 | na | | 7.50 | 12.74 | Odor / No sheen |
| | 04/05/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 31 | 250 | | 6.52 | 13.72 | No odor / No sheen |
| | 07/18/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.1 | <5.0 | | 9.96 | 10.28 | No odor / No sheen |
| | 10/25/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nm | Ozone Sparge Well |
| | 01/04/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nm | Ozone Sparge Well |
| | 04/10/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.83 | <5.0 | | 9.84 | 10.40 | No odor / No sheen |
| | 07/05/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.24 | 9.00 | No odor / No sheen |
| | 11/08/07 | 120 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.3 | <5.0 | | 13.07 | 7.17 | No odor / No sheen |
| | 01/02/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.3 | na | | 9.76 | 10.48 | No odor / No sheen |
| | 04/24/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 5.2 | 7.5 | | 9.94 | 10.30 | No odor / No sheen |
| | 07/11/08 | 290 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.4 | <5.0 | | 10.05 | 10.19 | No odor / No sheen |
| | 10/21/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 7.4 | <5.0 | | 11.34 | 8.90 | No odor / No sheen |
| | 02/10/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.7 | <5.0 | | 10.40 | 9.84 | No odor / No sheen |
| | 04/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.2 | <5.0 | | 8.96 | 11.28 | No odor / No sheen |
| | 07/06/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.4 | <5.0 | | 10.27 | 9.97 | No odor / No sheen |
| | 01/07/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.9 | <5.0 | | 9.72 | 10.52 | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.92 | 12.32 | not sampled |
| | 07/07/10 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 | <5.0 | | 8.68 | 11.56 | No odor / No sheen |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.63 | 9.61 | not sampled |
| | 01/11/11 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | <5.0 | | 7.56 | 12.68 | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 7.11 | 13.13 | not sampled |
| | 07/07/11 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.3 | <5.0 | | 8.43 | 11.81 | No odor / No sheen |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.38 | 10.86 | not sampled |
| | 01/10/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | <5.0 | | 10.06 | 10.18 | Slight odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RW-11 | 03/14/00 | <50 | 210 | 16 | 5.3 | 4.4 | 16 | 8.3 | | 18.05 | 7.86 | 10.19 | No odor / No sheen |
| | 06/07/00 | <100 | 130 | 7.1 | 1.9 | <0.50 | 3.6 | 310 | | | 10.07 | 7.98 | No Comments |
| | 08/29/00 | <50 | 170 | 7.5 | <0.50 | 0.52 | 3.0 | 600 | | | 11.42 | 6.63 | No Comments |
| 4' - 19' | 11/29/00 | 16,000 | 92 | 0.50 | <0.50 | <0.50 | 0.82 | 2.7 | | | 10.70 | 7.35 | No Comments |
| screen | 03/29/01 | 27,000 | 58 | 3.0 | 1.7 | 0.66 | 3.2 | 5.5 | | | 9.33 | 8.72 | No Comments |
| Interval | 06/14/01 | <100 | 220 | 3.1 | 1.0 | 0.63 | 6.7 | 59 | | | 10.84 | 7.21 | No Comments |
| | 08/22/01 | <50 | 430 | 4.5 | 0.56 | 0.58 | 6.6 | 74 | | | 11.54 | 6.51 | No Comments |
| | 11/27/01 | <50 | 170 | <0.50 | <0.50 | <0.50 | <0.50 | 210 | | | 9.82 | 8.23 | No Comments |
| | 03/18/02 | 6,800 | 300 | <0.50 | <0.50 | <0.50 | <0.50 | 120 | | | 8.83 | 10.96 | No Comments |
| | 04/24/02 | ------ | ------ | ----- | ----- | ----- | ----- | ----- | | 19.79 | | | GPS surveying of well |
| | 05/22/02 | 15,000 | 280 | <0.50 | <0.50 | <0.50 | <0.50 | 160 | | | 10.50 | 9.29 | No Comments |
| | 08/19/02 | 19,000 | 330 | 0.78 | <0.50 | <0.50 | <0.50 | 200 | | | 11.22 | 8.57 | No Comments |
| | 11/18/02 | 67,000 | 270 | <0.50 | <0.50 | <0.50 | <0.50 | 140 | 25 | | 11.08 | 8.71 | No Comments |
| | 02/24/03 | 4,100 | 480 | 0.93 | <0.50 | <0.50 | <0.50 | 130 | 26 | | 10.75 | 9.04 | No Comments |
| | 05/22/03 | 11,000 | 420 | 0.96 | <0.50 | <0.50 | <0.50 | 120 | 21 | | 9.70 | 10.09 | No Comments |
| | 09/08/03 | 1,100 # | <50 | 4.1 | <0.50 | 1.2 | 0.59 | 110 | 9.1 | | 10.86 | 8.93 | No Comments |
| | 12/11/03 | 940 # | 360 | 1.2 | <0.50 | <0.50 | <0.50 | 110 | 29 | | 9.86 | 9.93 | No Comments |
| | 01/28/04 | 350 # | 110 | 6.6 | <0.50 | 3.1 | 1.9 | 61 | 6.1 | | 8.62 | 11.17 | Odor / No sheen |
| | 04/15/04 | 16,000 # | 100 | 3.0 | 10 | 0.72 | 0.52 | 24 | 5.7 | | 9.95 | 9.84 | Odor / No sheen |
| | 07/22/04 | 3,000 # | 130 | <0.50 | <0.50 | <0.50 | <0.50 | 2.8 | <5.0 | | 11.11 | 8.68 | Odor / No sheen |
| | 10/26/04 | 5,500 * | <50 | 0.71 | <0.50 | <0.50 | <0.50 | 1.9 | <5.0 | | 10.91 | 8.88 | Odor / No sheen |
| | 01/13/05 | 17,000 # | 57 | 0.95 | 7.8 | <0.50 | 0.58 | <0.50 | <5.0 | | 7.48 | 12.31 | Odor / No sheen |
| | 04/07/05 | 7,300 # | 68 | <0.50 | 1.2 | <0.50 | 0.79 | <0.50 | <5.0 | | 6.85 | 12.94 | Odor / No sheen |
| | 07/06/05 | 6,500 # | 320 | 2.0 | 16 | 12 | 50 | 13 | <5.0 | | 10.01 | 9.78 | No odor / No sheen |
| | 10/17/05 | 5,200 # | 240 | <0.50 | 2.9 | 8.0 | 32 | 4.9 | <5.0 | | 11.02 | 8.77 | No odor / No sheen |
| | 01/17/06 | 6,800 # | 60 | 0.64 | <0.50 | 0.76 | 1.8 | 2.4 | na | | 7.55 | 12.24 | No odor / No sheen |
| | 04/05/06 | 2,300 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.3 | <5.0 | | 5.91 | 13.88 | Slight odor / No sheen |
| | 07/18/06 | 1,100 * | <50 | <0.50 | 1.2 | <0.50 | <0.50 | 2.7 | <5.0 | | 10.36 | 9.43 | No odor / No sheen |
| | 10/26/06 | 6,400 # | 50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.5 | 7.6 | | 10.93 | 8.86 | No odor / No sheen |
| | 01/05/07 | 610 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.87 | 10.92 | No odor / No sheen |
| | 04/10/07 | 1,600 * | <50 | <0.50 | 0.54 | <0.50 | <0.50 | 6.6 | 5.9 | | 10.04 | 9.75 | No odor / No sheen |
| | 07/06/07 | 2,200* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.1 | <5.0 | | 11.37 | 8.42 | No odor / No sheen |
| | 11/08/07 | 2,500 * | 70 | 3.7 | <0.50 | <0.50 | <0.50 | 7.5 | 10 | | 12.47 | 7.32 | No odor / No sheen |
| | 01/02/08 | 3,400 * | 55 | <0.50 | <0.50 | <0.50 | <0.50 | 5.7 | 9.0 | | 10.21 | 9.58 | No odor / No sheen |
| | 04/25/08 | 5,000 * | 60 | 1.4 | <0.50 | <0.50 | <0.50 | 9.5 | 10 | | 10.19 | 9.60 | Odor / No sheen |
| | 07/11/08 | 1,300 * | <50 | 0.77 | <0.50 | <0.50 | <0.50 | 8.9 | 7.9 | | 9.98 | 9.81 | Slight odor / No sheen |
| | 10/21/08 | 1,000 * | 80 | 2.6 | <0.50 | 1.9 | 1.8 | 2.1 | <5.0 | | 11.43 | 8.36 | Post HVDPE sample |
| | 02/10/09 | 2,000 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.0 | 5.1 | | 10.62 | 9.17 | Slight odor / No sheen |
| | 04/09/09 | 1,200* | 52 | 3.4 | <0.50 | 0.86 | <0.50 | 2.9 | <5.0 | | 9.39 | 10.40 | Slight odor / No sheen |
| | 07/07/09 | 980* | <50 | 2.5 | <0.50 | 0.56 | <0.50 | 4.2 | <5.0 | | 10.51 | 9.28 | Slight odor / No sheen |
| | 01/07/10 | 110* | <50 | 3.0 | <0.50 | 1.4 | 0.67 | 0.89 | <5.0 | | 9.84 | 9.95 | Post HVDPE sample |
| | 04/01/10 | 170* | 69 | 5.3 | 0.66 | 3.8 | 1.7 | 2.0 | <5.0 | | 8.39 | 11.40 | Slight odor / No sheen |
| | 07/08/10 | 72* | <50 | 3.1 | <0.50 | 1.7 | <0.50 | 2.7 | <5.0 | | 9.00 | 10.79 | Slight odor / No sheen |
| | 10/01/10 | 640* | <50 | 0.80 | <0.50 | <0.50 | <0.50 | 2.8 | <5.0 | | 10.83 | 8.96 | Slight odor / No sheen |
| | 01/11/11 | <50* | 60 | 1.1 | <0.50 | 1.9 | 5.3 | 1.3 | <5.0 | | 8.08 | 11.71 | Post HVDPE sample |
| | 04/06/11 | <50* | 55 | 3.5 | <0.50 | 3.3 | 0.56 | 3.3 | <5.0 | | 7.65 | 12.14 | No odor / No sheen |
| | 07/07/11 | 69*# | <50 | 1.5 | <0.50 | 1.2 | <0.50 | 2.7 | <5.0 | | 8.71 | 11.08 | Slight odor / No sheen |
| | 10/19/11 | 290*# | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.5 | <5.0 | | 9.57 | 10.22 | Slight odor / No sheen |
| | 01/10/12 | 100*# | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.9 | <5.0 | | 10.22 | 9.57 | Slight odor / No sheen |
| | | **100** | **100** | **1.0** | **40** | **30** | **20** | **5.0** | **12** | SF Bay RWQCB **Table A** ESLs (May 2008) | | | |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OS-1 | 07/24/03 | 60 | <50 | <0.50 | <0.50 | 0.51 | 1.4 | <0.50 | <5.0 | nm | 9.16 | nc | No odor / No sheen |
| 20' - 23' | 10/25/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 13.25 | nc | No odor / No sheen |
| screen | 01/13/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| interval | 04/07/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/22/05 | 61 | 170 | <0.50 | 54 | <0.50 | 0.60 | <0.50 | <5.0 | | 8.35 | nc | No odor / No sheen |
| | 07/05/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 10/17/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/17/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/05/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 5.29 | nc | No odor / No sheen |
| | 07/18/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.13 | nc | No odor / No sheen |
| | 10/25/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/04/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/10/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.73 | nc | No odor / No sheen |
| | 07/05/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 11/08/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 14.69 | nc | No odor / No sheen |
| | 01/02/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/24/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/10/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/20/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | inaccessible due to vehicle |
| | 02/09/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.89 | nc | not sampled |
| | 04/08/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 8.12 | nc | not sampled |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.32 | nc | not sampled |
| | 01/06/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/08/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/10/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| OS-2 | 07/24/03 | 68 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | nm | 9.67 | nc | No odor / No sheen |
| 19.5' - 22.5' | 10/25/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.81 | nc | No odor / No sheen |
| screen | 01/13/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| interval | 04/07/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/22/05 | <50 | <50 | <0.50 | 5.8 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.00 | nc | No odor / No sheen |
| | 07/05/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 10/17/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/17/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/05/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 6.37 | nc | No odor / No sheen |
| | 07/18/06 | <50 | <50 | 2.5 | <0.50 | <0.50 | <0.50 | 1.8 | <0.50 | | nm | nc | Ozone Sparge Well |
| | 10/25/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/04/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/10/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.74 | nc | No odor / No sheen |
| | 07/05/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 11/08/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 12.61 | nc | No odor / No sheen |
| | 01/02/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/24/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/10/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/21/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.28 | nc | No odor / No sheen |
| | 02/09/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 11.02 | nc | not sampled |
| | 04/08/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.17 | nc | not sampled |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.28 | nc | not sampled |
| | 01/06/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/08/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/10/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OS-3 | 07/24/03 | <200 | 560 | 14 | 0.88 | 2.7 | 30 | 2.7 | <5.0 | nm | 10.65 | nc | No odor / No sheen |
| 20.5' - 23.5' | 10/25/04 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 13.29 | nc | No odor / No sheen |
| screen | 01/13/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| interval | 04/07/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/22/05 | 83 | 60 | <0.50 | 5.7 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.30 | nc | No odor / No sheen |
| | 07/05/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 10/17/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/17/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/05/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 | na | | 6.84 | nc | No odor / No sheen |
| | 07/18/06 | <50 * | 67 | 4.9 | 0.85 | <0.50 | <0.50 | 8.6 | <5.0 | | 10.44 | nc | No odor / No sheen |
| | 10/25/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/04/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/10/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.29 | nc | No odor / No sheen |
| | 07/05/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 11/08/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 12.77 | nc | No odor / No sheen |
| | 01/02/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/24/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/10/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/21/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.58 | <5.0 | | 11.70 | nc | No odor / No sheen |
| | 02/09/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.71 | nc | not sampled |
| | 04/08/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.55 | nc | not sampled |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.71 | nc | not sampled |
| | 01/06/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/08/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/10/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| OS-4 | 07/24/03 | <200 | 390 | 0.68 | <0.50 | 0.69 | 2.1 | 150 | 5.6 J | nm | 10.31 | nc | No odor / No sheen |
| 20.5' - 23.5' | 10/25/04 | 56 * | <50 | <0.50 | 1.9 | <0.50 | <0.50 | <0.50 | <5.0 | | 10.26 | nc | No odor / No sheen |
| screen | 01/13/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| interval | 04/07/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/22/05 | 66 | 140 | <0.50 | 5.4 | <0.50 | <0.50 | <0.50 | <5.0 | | 8.77 | nc | No odor / No sheen |
| | 07/05/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 10/17/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/17/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/06/06 | 70 * | 79 ## | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 6.33 | nc | No odor / No sheen |
| | 07/18/06 | <50 * | <50 | 4.2 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.86 | nc | No odor / No sheen |
| | 10/25/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/04/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/10/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 9.80 | nc | No odor / No sheen |
| | 07/05/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 11/08/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 13.57 | nc | No odor / No sheen |
| | 01/02/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/24/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/10/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/21/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 11.08 | nc | No odor / No sheen |
| | 02/09/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.48 | nc | not sampled |
| | 04/08/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.03 | nc | not sampled |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 10.10 | nc | not sampled |
| | 01/06/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/08/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/10/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OS-5** | 07/24/03 | <300 | 1,400 | 26 | 1.7 | 17 | 46 | 180 | <5.0 | nm | 11.08 | nc | No odor / No sheen |
| 21.5' - 24.5' | 10/25/04 | <50 * | 76 | <0.50 | 3.6 | <0.50 | <0.50 | 9.0 | <5.0 | | 11.30 | nc | No odor / No sheen |
| screen | 01/13/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| interval | 04/07/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/22/05 | 110 | 98 | <0.50 | 6.0 | <0.50 | <0.50 | 68 | 5.0 | | 9.80 | nc | No odor / No sheen |
| | 07/05/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 10/17/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/17/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/06/06 | <50 * | <50 | 2.0 | <0.50 | <0.50 | <0.50 | 5.6 | na | | 7.06 | nc | Odor / No sheen |
| | 07/18/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 13 | <5.0 | | 10.94 | nc | No odor / No sheen |
| | 10/25/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/04/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/10/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.5 | <5.0 | | 10.78 | nc | No odor / No sheen |
| | 07/05/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 11/08/07 | 390 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 13.47 | nc | No odor / No sheen |
| | 01/02/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/24/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/10/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/21/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.5 | 7.8 | | 12.05 | nc | No odor / No sheen |
| | 02/09/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 11.70 | nc | not sampled |
| | 04/08/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 9.97 | nc | not sampled |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 11.03 | nc | not sampled |
| | 01/06/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/08/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/10/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/09/12 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| **OS-6B** | 07/24/03 | 98 | <50 | <0.50 | 0.79 | <0.50 | <0.50 | 10 | <5.0 | nm | 31.53 | nc | No Odor, No Sheen |
| | 12/11/03 | 86 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.3 | <5.0 | | 34.85 | nc | No Comments |
| 79' - 84' | 01/28/04 | 270 # | 77 | <0.50 | 5.6 | <0.50 | <0.50 | 15 | <5.0 | | 43.48 | nc | No odor / No sheen |
| screen | 04/15/04 | 54 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 17 | <5.0 | | 39.49 | nc | No odor / No sheen |
| interval | 07/21/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.5 | <5.0 | | 74.33 | nc | Ozone Sparge Well |
| | 10/25/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.6 | <5.0 | | 71.65 | nc | No odor / No sheen |
| | 01/14/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 13 | <5.0 | | 55.65 | nc | No odor / No sheen |
| | 04/07/05 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/22/05 | 270 | 66 | <0.50 | 15 | <0.50 | <0.50 | 1.1 | <5.0 | | 38.56 | nc | No odor / No sheen |
| | 07/25/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 20 | <5.0 | | 29.60 | nc | No odor / No sheen |
| | 10/17/05 | 160 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 17 | <5.0 | | 28.47 | nc | No odor / No sheen |
| | 01/18/06 | <50 | 85 | 5.2 | 0.93 | 3.8 | 8.1 | 16 | na | | 38.72 | nc | Slight odor / No sheen |
| | 04/05/06 | <50 * | <50 | 1.0 | <0.50 | <0.50 | <0.50 | 7.4 | na | | 32.57 | nc | Slight odor / No sheen |
| | 07/18/06 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 5.7 | <5.0 | | 58.01 | nc | No odor / No sheen |
| | 10/25/06 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 01/04/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 04/10/07 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.88 | <5.0 | | 38.18 | nc | No odor / No sheen |
| | 07/05/07 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | Ozone Sparge Well |
| | 11/08/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 64.17 | nc | No odor / No sheen |
| | 01/02/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 36.78 | nc | No odor / No sheen |
| | 04/24/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 37.46 | nc | No odor / No sheen |
| | 07/11/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 36.68 | nc | No odor / No sheen |
| | 10/20/08 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 27.73 | nc | No odor / No sheen |
| | 02/09/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 31.03 | nc | No odor / No sheen |
| | 04/08/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 33.86 | nc | No odor / No sheen |
| | 07/07/09 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 26.55 | nc | No odor / No sheen |
| | 01/06/10 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 29.79 | nc | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 27.77 | nc | not sampled |
| | 07/07/10 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 27.53 | nc | No odor / No sheen |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | 33.35 | nc | not sampled |
| | 01/10/11 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 25.92 | nc | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 21.83 | nc | not sampled |
| | 07/07/11 | <50* | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.60 | <5.0 | | 27.85 | nc | No odor / No sheen |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | 28.58 | nc | not sampled |
| | 01/09/12 | <50 * | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | <5.0 | | 28.75 | nc | No odor / No sheen |

# Table 1A - Historical Groundwater Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

| Well Number | Date | TPHd (ppb) | TPHg (ppb) | B (ppb) | T (ppb) | E (ppb) | X (ppb) | MTBE (ppb) | TBA (ppb) | TOC Elevation | Depth to GW | GW Elevation | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Casa | 03/29/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | | | No Comments |
| de | 06/14/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | | | No Comments |
| Arroyo | 08/22/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | | | No Comments |
| City | 11/27/01 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | | | 13:40 sample time |
| Well | 03/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | | | 11:40 sample time |
| | 05/22/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | | | 09:10 sample time |
| | 8/19/022 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | | | | | 13:25 sample time |
| 89' - 149' | 11/18/02 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | | 13:36 sample time |
| 209' - 229' | 02/24/03 | 67 # | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | | 14:45 sample time |
| screen | 03/26/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | | 06:10 sample time |
| interval | 05/22/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | | 12:40 sample time |
| | 09/08/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | | 15:45 sample time |
| | 12/11/03 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | | 14:40 sample time |
| | 01/28/04 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 04/15/04 | 100 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | | | 12:00 sample time |
| | 05/27/04 | <50 | na | na | na | na | na | na | na | | | | City Well resampled |
| | 07/21/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 39.35 | | No Comments |
| | 10/25/04 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 35.55 | | No Comments |
| | 01/14/05 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 33.12 | | No Comments |
| | 04/07/05 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 07/05/05 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 10/17/05 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 01/18/06 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 32.03 | | 11:50 sample time |
| | 04/04/06 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 07/17/06 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 10/25/06 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 01/04/07 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 37.52 | | No odor / No sheen |
| | 04/10/07 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 07/05/07 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 11/07/07 | ns | ns | ns | ns | ns | ns | ns | ns | | | | not sampled |
| | 01/02/08 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 33.87 | | No Comments |
| | 04/24/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | | not sampled |
| | 07/10/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | | not sampled |
| | 10/20/08 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | | not sampled |
| | 02/09/09 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | na | | 37.85 | | No Comments |
| | 04/08/09 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | | not sampled |
| | 07/06/09 | ns | ns | ns | ns | ns | ns | ns | ns | | 37.85 | | not sampled |
| | 01/06/10 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 29.10 | | No odor / No sheen |
| | 04/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/08/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/01/10 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/10/11 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | 31.62 | nc | No odor / No sheen |
| | 04/06/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 07/07/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 10/19/11 | ns | ns | ns | ns | ns | ns | ns | ns | | nm | nc | not sampled |
| | 01/09/12 | <50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | | nm | nc | No odor / No sheen |

Notes:

TPHd = total petroleum hydrocarbons as diesel
TPHg = total petroleum hydrocarbons as gasoline
B = benzene
T = toluene
E = ethylbenzene
X = xylenes
MTBE = methyl tertiary-butyl ether

# = not typical diesel chromatographic pattern
J = may be biased slightly high
* = silica gel value reported
## = not typical gasoline chromatographic pattern
ppb = parts per billion
< = less than indicated detection level

GW = GroundWater
TOC = Top of Casing
Depths and Elevations recorded in feet
na = not analyzed
nm = not measured
ns = not sampled

Well casings resurveyed in April 2002 with Global Positioning System (GPS) coordinates.

SF Bay RWQCB ESLs: Table A Environmental Screening Levels for Groundwater when Groundwater is a Potential Source of Drinking Water with impacted soils less than or equal to 3 meters (approx. 10 feet) in depth

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 5/3/2004 | START | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5/3/2004 | 0 | OS-1 | 1.42 | 1.42 | 5.5 | 26 | 0.08 | 0.08 |
| | | OS-2 | 0.80 | 0.80 | 5.5 | 26 | 0.05 | 0.05 |
| | | OS-3 | 0.58 | 0.58 | 5.5 | 26 | 0.03 | 0.03 |
| | | OS-4 | 0.62 | 0.62 | 5.5 | 26 | 0.04 | 0.04 |
| | | OS-5 | 0.85 | 0.85 | 5.5 | 26 | 0.05 | 0.05 |
| | | OS-6B | 0.77 | 0.77 | 5.5 | 26 | 0.04 | 0.04 |
| 6/14/2004 | 35 | OS-1 | 35.50 | 36.30 | 4.5 | 26 | 2.02 | 2.10 |
| | | OS-2 | 35.05 | 35.63 | 5.0 | 26 | 2.00 | 2.04 |
| | | OS-3 | 34.55 | 35.17 | 5.0 | 26 | 1.97 | 2.00 |
| | | OS-4 | 34.10 | 34.95 | 5.0 | 26 | 1.94 | 1.98 |
| | | OS-5 | 34.41 | 35.18 | 5.0 | 26 | 1.96 | 2.01 |
| | | OS-6B | 34.33 | 35.10 | 5.0 | 26 | 1.96 | 2.00 |
| 6/16/2004 | 2 | OS-1 | 5.99 | 41.62 | 5.0 | 26 | 0.34 | 2.45 |
| | | OS-2 | 4.88 | 40.05 | 5.0 | 26 | 0.28 | 2.32 |
| | | OS-3 | 4.52 | 39.47 | 5.0 | 26 | 0.26 | 2.26 |
| | | OS-4 | 4.09 | 39.27 | 5.0 | 26 | 0.23 | 2.21 |
| | | OS-5 | 4.35 | 39.45 | 5.0 | 26 | 0.25 | 2.26 |
| | | OS-6B | 5.22 | 40.32 | 5.0 | 26 | 0.30 | 2.30 |
| 6/21/2004 | 5 | OS-1 | 17.40 | 57.45 | 5.0 | 26 | 0.99 | 3.44 |
| | | OS-2 | 15.96 | 55.43 | 5.0 | 26 | 0.91 | 3.23 |
| | | OS-3 | 15.56 | 54.83 | 5.0 | 26 | 0.89 | 3.15 |
| | | OS-4 | 15.18 | 54.63 | 5.0 | 26 | 0.87 | 3.08 |
| | | OS-5 | 14.50 | 54.82 | 5.0 | 26 | 0.83 | 3.08 |
| | | OS-6B | 15.36 | 55.68 | 5.0 | 26 | 0.88 | 3.17 |
| 7/6/2004 | 15 | OS-1 | 50.6 | 106 | 4.0 | 26 | 2.88 | 6.32 |
| | | OS-2 | 49.2 | 104 | 3.5 | 26 | 2.80 | 6.03 |
| | | OS-3 | 47.4 | 102 | 3.0 | 26 | 2.70 | 5.85 |
| | | OS-4 | 47.2 | 102 | 3.5 | 26 | 2.69 | 5.77 |
| | | OS-5 | 46.3 | 102 | 2.5 | 26 | 2.64 | 5.72 |
| | | OS-6B | 47.3 | 103 | 1.0 | 26 | 2.70 | 5.87 |
| 7/21/2004 | 15 | OS-1 | 51.5 | 155.50 | 5.0 | 26 | 2.94 | 9.26 |
| | | OS-2 | 49.9 | 151.90 | 6.0 | 26 | 2.84 | 8.88 |
| | | OS-3 | 48.4 | 150.38 | 6.5 | 26 | 2.76 | 8.60 |
| | | OS-4 | 48.0 | 150.00 | 6.0 | 26 | 2.74 | 8.50 |
| | | OS-5 | 47.3 | 150.33 | 6.0 | 26 | 2.70 | 8.42 |
| | | OS-6B | 49.5 | 152.50 | 6.5 | 26 | 2.82 | 8.69 |
| | | | | | | Total = | **52.4** | pounds |

**Total Days Since 05 / 03 / 04 =** 72

**Total Days of Operation Since 05 / 03 / 04 =** **38** 53.2%

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 8/4/2004 | 16 | OS-1 | 44.5 | 200 | 4.5 | 26 | 2.54 | 11.79 |
| | | OS-2 | 44.1 | 196 | 4.5 | 26 | 2.51 | 11.39 |
| | | OS-3 | 43.6 | 194 | 4.5 | 26 | 2.49 | 11.09 |
| | | OS-4 | 44.0 | 194 | 4.5 | 26 | 2.51 | 11.01 |
| | | OS-5 | 43.7 | 194 | 4.5 | 26 | 2.49 | 10.91 |
| | | OS-6B | 43.5 | 196 | 4.5 | 26 | 2.48 | 11.17 |
| 8/18/2004 | 14 | OS-1 | 45 | 245 | 4.5 | 26 | 2.57 | 14.36 |
| | | OS-2 | 45 | 241 | 4.5 | 26 | 2.57 | 13.96 |
| | | OS-3 | 45 | 239 | 4.5 | 26 | 2.57 | 13.66 |
| | | OS-4 | 44 | 238 | 4.5 | 26 | 2.51 | 13.52 |
| | | OS-5 | 45 | 239 | 4.5 | 26 | 2.57 | 13.48 |
| | | OS-6B | 45 | 241 | 4.5 | 26 | 2.57 | 13.74 |
| 9/2/2004 | 15 | OS-1 | 48 | 293 | 4.0 | 26 | 2.74 | 17.09 |
| | | OS-2 | 48 | 289 | 4.0 | 26 | 2.74 | 16.69 |
| | | OS-3 | 48 | 287 | 4.0 | 26 | 2.74 | 16.39 |
| | | OS-4 | 48 | 286 | 4.0 | 26 | 2.74 | 16.25 |
| | | OS-5 | 48 | 287 | 4.0 | 26 | 2.74 | 16.21 |
| | | OS-6B | 48 | 289 | 4.0 | 26 | 2.74 | 16.47 |
| 9/21/2004 | 19 | OS-1 | 1.0 | 294 | 7.0 | 26 | 0.06 | 17.15 |
| | | OS-2 | 0.0 | 289 | 7.0 | 26 | 0.00 | 16.69 |
| | | OS-3 | 182 | 469 | 7.0 | 26 | 10.37 | 26.77 |
| | | OS-4 | 31 | 317 | 7.0 | 26 | 1.77 | 18.02 |
| | | OS-5 | 15 | 302 | 7.0 | 26 | 0.86 | 17.07 |
| | | OS-6B | 61 | 350 | 7.0 | 26 | 3.48 | 19.95 |
| 10/8/2004 | 18 | OS-1 | 54 | 348 | 4.5 | 26 | 3.08 | 20.23 |
| | | OS-2 | 14 | 303 | 4.5 | 26 | 0.80 | 17.49 |
| | | OS-3 | 85 | 85 | 4.5 | 26 | 4.85 | 31.61 |
| | | OS-4 | 27 | 344 | 4.5 | 26 | 1.54 | 19.56 |
| | | OS-5 | 14 | 316 | 4.5 | 26 | 0.80 | 17.87 |
| | | OS-6B | 54 | 404 | 4.5 | 26 | 3.08 | 23.03 |
| 10/25/2004 | 17 | OS-1 | 46.2 | 394.15 | 5.0 | 26 | 2.63 | 22.86 |
| | | OS-2 | 11.0 | 314.03 | 5.0 | 26 | 0.63 | 18.12 |
| | | OS-3 | 137.0 | 222.03 | 5.0 | 26 | 7.81 | 39.42 |
| | | OS-4 | 91.0 | 435.03 | 5.0 | 26 | 5.19 | 24.75 |
| | | OS-5 | 11.4 | 327.40 | 5.0 | 26 | 0.65 | 18.52 |
| | | OS-6B | 46.0 | 449.97 | 5.0 | 26 | 2.62 | 25.65 |
| | | | | | | Total = | **149.3** | pounds |

**Total Days Since 05 / 03 / 04 =** 171

**Total Days of Operation Since 05 / 03 / 04 =** **109** 63.8%

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 12/16/2004 | 52 | OS-1 | 137.9 | 532 | 4.5 | 26 | 7.86 | 30.72 |
| | | OS-2 | 35.0 | 349 | 4.5 | 26 | 1.99 | 20.11 |
| | | OS-3 | 92.0 | 92 | 4.5 | 26 | 5.24 | 44.67 |
| | | OS-4 | 165.0 | 165 | 4.5 | 26 | 9.41 | 34.15 |
| | | OS-5 | 34.6 | 362 | 4.5 | 26 | 1.97 | 20.49 |
| | | OS-6B | 42.0 | 42 | 4.5 | 26 | 2.39 | 28.04 |
| 12/29/2004 | 13 | OS-1 | 36.0 | 23 | 4.5 | 26 | 2.05 | 32.77 |
| | | OS-2 | 1.0 | 350 | 4.5 | 26 | 0.06 | 20.17 |
| | | OS-3 | 111.0 | 203 | 4.5 | 26 | 6.33 | 50.99 |
| | | OS-4 | 74.0 | 239 | 4.5 | 26 | 4.22 | 38.37 |
| | | OS-5 | 9.0 | 371 | 4.5 | 26 | 0.51 | 21.00 |
| | | OS-6B | 37.0 | 79 | 4.5 | 26 | 2.11 | 30.15 |
| 1/13/2005 | 15 | OS-1 | 37.8 | 60.8 | 3.25 | 26 | 2.15 | 34.92 |
| | | OS-2 | 18.0 | 368.0 | 3.25 | 26 | 1.03 | 21.20 |
| | | OS-3 | 110.9 | 313.9 | 3.25 | 26 | 6.32 | 57.31 |
| | | OS-4 | 73.8 | 312.8 | 3.25 | 26 | 4.21 | 42.58 |
| | | OS-5 | 9.3 | 380.3 | 3.25 | 26 | 0.53 | 21.53 |
| | | OS-6B | 36.9 | 115.9 | 3.50 | 26 | 2.10 | 32.25 |
| 2/11/2005 | 29 | OS-1 | 74.7 | 135.47 | 3.5 | 26 | 4.26 | 39.18 |
| | | OS-2 | 18.7 | 386.67 | 3.5 | 26 | 1.06 | 22.26 |
| | | OS-3 | 224.0 | 537.92 | 3.5 | 26 | 12.77 | 70.08 |
| | | OS-4 | 149.4 | 462.17 | 3.5 | 26 | 8.51 | 51.09 |
| | | OS-5 | 18.7 | 399.02 | 3.5 | 26 | 1.07 | 22.60 |
| | | OS-6B | 75.0 | 190.87 | 3.5 | 26 | 4.27 | 36.53 |
| 3/3/2005 | 20 | OS-1 | 53.33 | 188.80 | 2.75 | 26 | 3.04 | 42.22 |
| | | OS-2 | 13.33 | 400.00 | 2.75 | 26 | 0.76 | 23.02 |
| | | OS-3 | 158.88 | 151.80 | 2.75 | 26 | 9.06 | 79.14 |
| | | OS-4 | 105.55 | 22.72 | 2.75 | 26 | 6.02 | 57.11 |
| | | OS-5 | 13.33 | 412.35 | 2.75 | 26 | 0.76 | 23.36 |
| | | OS-6B | 53.33 | 244.20 | 2.75 | 26 | 3.04 | 39.57 |
| 3/16/2005 | 13 | OS-1 | 31.37 | 220.17 | 2.5 | 26 | 1.79 | 44.01 |
| | | OS-2 | 7.85 | 407.85 | 2.5 | 26 | 0.45 | 23.47 |
| | | OS-3 | 93.65 | 245.45 | 2.5 | 26 | 5.34 | 84.48 |
| | | OS-4 | 62.01 | 84.73 | 2.5 | 26 | 3.53 | 60.64 |
| | | OS-5 | 23.25 | 435.60 | 2.5 | 26 | 1.33 | 24.68 |
| | | OS-6B | 47.17 | 291.37 | 2.5 | 26 | 2.69 | 42.26 |
| 3/23/2005 | 7 | OS-1 | 17.00 | 237.17 | 2.25 | 26 | 0.97 | 44.98 |
| | | OS-2 | 4.17 | 412.02 | 2.25 | 26 | 0.24 | 23.71 |
| | | OS-3 | 50.00 | 295.45 | 2.25 | 26 | 2.85 | 87.33 |
| | | OS-4 | 33.34 | 118.07 | 2.25 | 26 | 1.90 | 62.54 |
| | | OS-5 | 12.50 | 448.10 | 2.25 | 26 | 0.71 | 25.40 |
| | | OS-6B | 25.00 | 316.37 | 2.25 | 26 | 1.43 | 43.68 |
| | | | | | | Total = | **287.6** | pounds |

**Total Days Since 05 / 03 / 04 =** 320

**Total Days of Operation Since 05 / 03 / 04 =** **210** 65.7%

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 4/7/2005 | 15 | OS-1 | 35.76 | 272.93 | 2.5 | 26 | 2.04 | 47.01 |
| | | OS-2 | 9.11 | 421.13 | 2.5 | 26 | 0.52 | 24.22 |
| | | OS-3 | 108.20 | 403.65 | 2.5 | 26 | 6.17 | 93.49 |
| | | OS-4 | 71.95 | 190.02 | 2.5 | 26 | 4.10 | 66.65 |
| | | OS-5 | 26.78 | 474.88 | 2.5 | 26 | 1.53 | 26.92 |
| | | OS-6B | 53.50 | 369.87 | 2.5 | 26 | 3.05 | 46.73 |
| 4/21/2005 | 14 | OS-1 | 34.15 | 307.08 | 2.0 | 26 | 1.95 | 48.96 |
| | | OS-2 | 8.55 | 429.68 | 2.0 | 26 | 0.49 | 24.71 |
| | | OS-3 | 102.03 | 505.68 | 2.0 | 26 | 5.82 | 99.31 |
| | | OS-4 | 68.03 | 258.05 | 2.0 | 26 | 3.88 | 70.52 |
| | | OS-5 | 25.69 | 500.57 | 2.0 | 26 | 1.46 | 28.39 |
| | | OS-6B | 51.50 | 421.37 | 2.0 | 26 | 2.94 | 49.67 |
| 5/16/2005 | 26 | OS-1 | 57.70 | 364.78 | 2.75 | 26 | 3.29 | 52.25 |
| | | OS-2 | 14.44 | 444.12 | 2.5 | 26 | 0.82 | 25.53 |
| | | OS-3 | 126.90 | 87.58 | 2.5 | 26 | 7.23 | 106.54 |
| | | OS-4 | 115.33 | 373.38 | 2.5 | 26 | 6.57 | 77.10 |
| | | OS-5 | 43.25 | 543.82 | 2.5 | 26 | 2.47 | 30.85 |
| | | OS-6B | 86.51 | 507.88 | 2.5 | 26 | 4.93 | 54.60 |
| 5/16/2005 | | | | System | Shut | Down | | |
| 8/9/2005 | | | | System | | Re started | | |
| 8/9/2005 | 0 | OS-1 | 1.18 | 365.96 | 0.0 | 26 | 0.07 | 52.32 |
| | | OS-2 | 1.06 | 445.18 | 7.5 | 26 | 0.06 | 25.60 |
| | | OS-3 | 0.10 | 136.05 | 7.5 | 26 | 0.01 | 106.55 |
| | | OS-4 | 0.08 | 373.46 | 7.5 | 26 | 0.00 | 77.10 |
| | | OS-5 | 0.03 | 543.85 | 7.5 | 26 | 0.00 | 30.85 |
| | | OS-6B | 0.29 | 508.17 | 7.3 | 26 | 0.02 | 54.61 |
| 8/17/2005 | 8 | OS-1 | 0.00 | 365.96 | 0.0 | 26 | 0.00 | 52.32 |
| | | OS-2 | 5.37 | 450.55 | 4.5 | 26 | 0.31 | 25.90 |
| | | OS-3 | 63.65 | 199.70 | 4.5 | 26 | 3.63 | 110.18 |
| | | OS-4 | 41.94 | 415.40 | 5.0 | 26 | 2.39 | 79.49 |
| | | OS-5 | 14.29 | 13.14 | 5.0 | 26 | 0.81 | 31.67 |
| | | OS-6B | 31.26 | 539.43 | 4.8 | 26 | 1.78 | 56.40 |
| 8/29/2005 | 12 | OS-1 | 0.00 | 365.96 | 0.0 | 26 | 0.00 | 52.32 |
| | | OS-2 | 7.97 | 458.52 | 6.0 | 26 | 0.45 | 26.36 |
| | | OS-3 | 97.00 | 296.70 | 6.0 | 26 | 5.53 | 115.71 |
| | | OS-4 | 64.52 | 479.92 | 6.0 | 26 | 3.68 | 83.17 |
| | | OS-5 | 24.11 | 37.25 | 6.0 | 26 | 1.37 | 33.04 |
| | | OS-6B | 47.50 | 41.93 | 6.0 | 26 | 2.71 | 59.10 |
| 9/13/2005 | 16 | OS-1 | 0.00 | 365.96 | 0.0 | 26 | 0.00 | 52.32 |
| | | OS-2 | 10.03 | 468.55 | 4.5 | 26 | 0.57 | 26.93 |
| | | OS-3 | 120.02 | 416.72 | 4.5 | 26 | 6.84 | 122.55 |
| | | OS-4 | 78.58 | 13.50 | 4.5 | 26 | 4.48 | 87.65 |
| | | OS-5 | 29.77 | 67.02 | 4.5 | 26 | 1.70 | 34.74 |
| | | OS-6B | 59.99 | 101.92 | 4.5 | 26 | 3.42 | 62.52 |
| 9/29/2005 | 16 | OS-1 | 0.00 | 365.96 | 0.0 | 26 | 0.00 | 52.32 |
| | | OS-2 | 10.70 | 479.25 | 3.0 | 26 | 0.61 | 27.54 |
| | | OS-3 | 127.10 | 543.82 | 3.0 | 26 | 7.24 | 129.79 |
| | | OS-4 | 84.67 | 98.17 | 3.0 | 26 | 4.83 | 92.48 |
| | | OS-5 | 31.75 | 98.77 | 3.0 | 26 | 1.81 | 36.55 |
| | | OS-6B | 63.50 | 165.42 | 3.0 | 26 | 3.62 | 66.14 |
| | | | | | | Total = | **404.8** | pounds |

**Total Days Since 05 / 03 / 04 =** 427

**Total Days of Operation Since 05 / 03 / 04 =** **296** 69%

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 10/17/2005 | 19 | OS-1 | 2.39 | 368.35 | 6.0 | 26 | 0.14 | 59.24 |
| | | OS-2 | 11.93 | 491.18 | 6.0 | 26 | 0.68 | 53.00 |
| | | OS-3 | 97.76 | 141.58 | 6.0 | 26 | 5.57 | 32.50 |
| | | OS-4 | 96.01 | 194.18 | 6.0 | 26 | 5.47 | 128.02 |
| | | OS-5 | 35.75 | 134.52 | 6.0 | 26 | 2.04 | 89.69 |
| | | OS-6B | 71.51 | 236.93 | 6.0 | 26 | 4.08 | 38.81 |
| 10/27/2005 | 10 | OS-1 | 1.33 | 369.68 | 6.0 | 26 | 0.08 | 59.32 |
| | | OS-2 | 6.67 | 497.85 | 6.0 | 26 | 0.38 | 53.38 |
| | | OS-3 | 79.10 | 220.68 | 6.0 | 26 | 4.51 | 37.01 |
| | | OS-4 | 52.67 | 246.85 | 6.0 | 26 | 3.00 | 131.02 |
| | | OS-5 | 20.00 | 154.52 | 6.0 | 26 | 1.14 | 90.83 |
| | | OS-6B | 39.50 | 276.43 | 6.0 | 26 | 2.25 | 41.07 |
| 11/9/2005 | 13 | OS-1 | 1.74 | 371.42 | 6.0 | 26 | 0.10 | 59.41 |
| | | OS-2 | 8.57 | 506.42 | 6.0 | 26 | 0.49 | 53.87 |
| | | OS-3 | 103.90 | 324.58 | 6.0 | 26 | 5.92 | 42.93 |
| | | OS-4 | 69.35 | 316.20 | 6.0 | 26 | 3.95 | 134.98 |
| | | OS-5 | 26.00 | 180.52 | 6.0 | 26 | 1.48 | 92.31 |
| | | OS-6B | 52.00 | 328.43 | 6.0 | 26 | 2.96 | 44.03 |
| 11/21/2005 | 12 | OS-1 | 1.60 | 373.02 | 6.0 | 26 | 0.09 | 59.51 |
| | | OS-2 | 8.00 | 514.42 | 6.0 | 26 | 0.46 | 54.32 |
| | | OS-3 | 95.84 | 420.42 | 6.0 | 26 | 5.46 | 48.39 |
| | | OS-4 | 63.33 | 379.53 | 6.0 | 26 | 3.61 | 138.59 |
| | | OS-5 | 23.75 | 204.27 | 6.0 | 26 | 1.35 | 93.66 |
| | | OS-6B | 47.50 | 375.93 | 6.0 | 26 | 2.71 | 46.74 |
| 12/8/2005 | 17 | OS-1 | 2.23 | 375.25 | 6.0 | 26 | 0.13 | 59.63 |
| | | OS-2 | 11.24 | 525.66 | 6.0 | 26 | 0.64 | 54.96 |
| | | OS-3 | 88.43 | 8.85 | 6.0 | 26 | 5.04 | 53.43 |
| | | OS-4 | 89.90 | 469.43 | 6.0 | 26 | 5.12 | 143.71 |
| | | OS-5 | 33.50 | 237.77 | 6.0 | 26 | 1.91 | 95.57 |
| | | OS-6B | 67.00 | 442.93 | 6.0 | 26 | 3.82 | 50.56 |
| 12/19/2005 | 11 | OS-1 | 1.37 | 376.62 | 6.0 | 26 | 0.08 | 59.71 |
| | | OS-2 | 1.39 | 527.05 | 6.0 | 26 | 0.08 | 55.04 |
| | | OS-3 | 83.02 | 91.87 | 6.0 | 26 | 4.73 | 58.17 |
| | | OS-4 | 55.44 | 524.87 | 6.0 | 26 | 3.16 | 146.87 |
| | | OS-5 | 41.35 | 279.12 | 6.0 | 26 | 2.36 | 97.93 |
| | | OS-6B | 41.89 | 484.82 | 6.0 | 26 | 2.39 | 52.94 |
| | | | | | | Total = | **492.2** | pounds |

**Total Days Since 05 / 03 / 04 =** 509

**Total Days of Operation Since 05 / 03 / 04 =** **360** 71%

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 1/6/2006 | 18 | OS-1 | 2.21 | 378.83 | 6.0 | 26 | 0.13 | 59.84 |
| | | OS-2 | 2.22 | 529.27 | 6.0 | 26 | 0.13 | 55.17 |
| | | OS-3 | 132.96 | 224.83 | 6.0 | 26 | 7.58 | 65.74 |
| | | OS-4 | 87.56 | 67.43 | 5.8 | 26 | 4.99 | 151.86 |
| | | OS-5 | 66.91 | 346.03 | 6.0 | 26 | 3.81 | 101.74 |
| | | OS-6B | 65.48 | 5.30 | 6.0 | 26 | 3.73 | 56.68 |
| 1/23/2006 | 17 | OS-1 | 2.14 | 380.97 | 6.0 | 26 | 0.12 | 59.96 |
| | | OS-2 | 3.56 | 532.83 | 6.0 | 26 | 0.20 | 55.37 |
| | | OS-3 | 128.00 | 352.83 | 6.0 | 26 | 7.30 | 73.04 |
| | | OS-4 | 84.80 | 152.23 | 6.0 | 26 | 4.83 | 156.69 |
| | | OS-5 | 63.50 | 409.53 | 6.0 | 26 | 3.62 | 105.36 |
| | | OS-6B | 63.50 | 68.80 | 6.0 | 26 | 3.62 | 60.30 |
| 2/8/2006 | 15 | OS-1 | 1.98 | 382.95 | 6.0 | 26 | 0.11 | 60.07 |
| | | OS-2 | 5.97 | 538.80 | 6.0 | 26 | 0.34 | 55.71 |
| | | OS-3 | 118.37 | 471.20 | 6.0 | 26 | 6.75 | 79.79 |
| | | OS-4 | 79.20 | 231.43 | 6.0 | 26 | 4.51 | 161.21 |
| | | OS-5 | 59.50 | 469.03 | 6.0 | 26 | 3.39 | 108.75 |
| | | OS-6B | 59.50 | 128.30 | 6.0 | 26 | 3.39 | 63.69 |
| 2/22/2006 | 14 | OS-1 | 1.73 | 384.68 | 6.0 | 26 | 0.10 | 60.17 |
| | | OS-2 | 5.13 | 543.93 | 6.0 | 26 | 0.29 | 56.00 |
| | | OS-3 | 102.52 | 28.72 | 6.0 | 26 | 5.84 | 85.63 |
| | | OS-4 | 69.35 | 300.78 | 6.0 | 26 | 3.95 | 165.16 |
| | | OS-5 | 52.00 | 521.03 | 6.0 | 26 | 2.96 | 111.72 |
| | | OS-6B | 51.58 | 179.88 | 6.0 | 26 | 2.94 | 66.63 |
| 3/9/2006 | 17 | OS-1 | 1.87 | 386.55 | 6.0 | 26 | 0.11 | 60.28 |
| | | OS-2 | 4.49 | 3.42 | 6.0 | 26 | 0.26 | 56.26 |
| | | OS-3 | 111.48 | 140.20 | 6.0 | 26 | 6.35 | 91.99 |
| | | OS-4 | 74.00 | 374.78 | 6.0 | 26 | 4.22 | 169.38 |
| | | OS-5 | 54.39 | 30.42 | 6.0 | 26 | 3.10 | 114.82 |
| | | OS-6B | 55.92 | 235.80 | 6.0 | 26 | 3.19 | 69.82 |
| 3/20/2006 | 11 | OS-1 | 1.38 | 387.93 | 5.0 | 26 | 0.08 | 60.36 |
| | | OS-2 | 4.13 | 7.55 | 5.0 | 26 | 0.24 | 56.49 |
| | | OS-3 | 81.87 | 222.07 | 5.0 | 26 | 4.67 | 96.65 |
| | | OS-4 | 54.67 | 429.45 | 5.0 | 26 | 3.12 | 172.50 |
| | | OS-5 | 41.00 | 71.42 | 5.0 | 26 | 2.34 | 117.15 |
| | | OS-6B | 4.25 | 240.05 | 5.0 | 26 | 0.24 | 70.06 |
| | | | | | | Total = | **594.7** | pounds |

**Total Days Since 05 / 03 / 04 =** 601

**Total Days of Operation Since 05 / 03 / 04 =** **435** 72%

| | |
|---|---|
| 40.1 | JAN |
| 34.6 | FEB |
| 27.9 | MAR |
| 102.5 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 4/4/2006 | 15 | **OS-1** | 1.89 | 389.82 | 6.0 | 26 | 0.11 | 60.46 |
| | | **OS-2** | 5.67 | 13.22 | 6.0 | 26 | 0.32 | 56.82 |
| | | **OS-3** | 112.00 | 334.07 | 6.0 | 26 | 6.38 | 103.04 |
| | | **OS-4** | 74.57 | 504.02 | 6.0 | 26 | 4.25 | 176.75 |
| | | **OS-5** | 55.01 | 126.43 | 6.0 | 26 | 3.14 | 120.29 |
| | | **OS-6B** | 0.02 | 240.07 | 6.0 | 26 | 0.001 | 70.06 |
| 4/20/2006 | 16 | **OS-1** | 2.05 | 391.87 | 5.0 | 26 | 0.12 | 60.58 |
| | | **OS-2** | 6.08 | 19.30 | 5.0 | 26 | 0.35 | 57.16 |
| | | **OS-3** | 123.00 | 457.07 | 5.0 | 26 | 7.01 | 110.05 |
| | | **OS-4** | 80.88 | 39.90 | 5.0 | 26 | 4.61 | 181.36 |
| | | **OS-5** | 61.50 | 187.93 | 5.0 | 26 | 3.51 | 123.80 |
| | | **OS-6B** | 0.00 | 240.07 | 5.0 | 26 | 0.00 | 70.06 |
| 5/3/2006 | 13 | **OS-1** | 1.85 | 393.72 | 6.0 | 26 | 0.11 | 60.69 |
| | | **OS-2** | 5.53 | 24.83 | 6.0 | 26 | 0.32 | 57.48 |
| | | **OS-3** | 109.90 | 21.97 | 6.0 | 26 | 6.26 | 116.31 |
| | | **OS-4** | 74.00 | 113.90 | 6.0 | 26 | 4.22 | 185.57 |
| | | **OS-5** | 55.99 | 243.92 | 6.0 | 26 | 3.19 | 126.99 |
| | | **OS-6B** | 9.23 | 249.30 | 6.0 | 26 | 0.53 | 70.58 |
| 5/16/2006 | 13 | **OS-1** | 2.51 | 396.23 | 6.0 | 26 | 0.14 | 60.83 |
| | | **OS-2** | 6.02 | 30.85 | 6.0 | 26 | 0.34 | 57.82 |
| | disabled | **OS-3** | 103.20 | 125.17 | 6.0 | 26 | 5.88 | 122.19 |
| | | **OS-4** | 74.83 | 188.73 | 6.0 | 26 | 4.27 | 189.84 |
| | disabled | **OS-5** | 51.23 | 295.15 | 6.0 | 26 | 2.92 | 129.91 |
| | | **OS-6B** | 9.38 | 258.68 | 6.0 | 26 | 0.53 | 71.12 |
| | activated | **RW-10** | 9.20 | 9.20 | 6.0 | 26 | 0.52 | 61.35 |
| 6/7/2006 | 22 | **OS-1** | 3.75 | 399.98 | 6.0 | 26 | 0.21 | 61.04 |
| | | **OS-2** | 11.25 | 42.10 | 6.0 | 26 | 0.64 | 58.46 |
| | OZONE | **OS-3** | 0.00 | 125.17 | 6.0 | 26 | 0.00 | 122.19 |
| | SYSTEM | **OS-4** | 149.90 | 338.63 | 6.0 | 26 | 8.54 | 198.38 |
| | SHUT DOWN | **OS-5** | 0.00 | 295.15 | 6.0 | 26 | 0.00 | 129.91 |
| | | **OS-6B** | 18.67 | 277.35 | 6.0 | 26 | 1.06 | 72.18 |
| | | **RW-10** | 224.08 | 233.28 | 6.0 | 26 | 12.77 | 73.82 |
| 7/8/2006 | 0 | **OS-1** | 0.00 | 399.98 | 10 | 26 | 0.00 | 61.04 |
| 3 min run time | | **OS-2** | 0.00 | 42.10 | 10 | 26 | 0.00 | 58.46 |
| 15 min run time | OZONE | **OS-3** | 0.00 | 125.17 | 10 | 26 | 0.00 | 122.19 |
| 40 min run time | SYSTEM | **OS-4** | 0.00 | 338.63 | 10 | 26 | 0.00 | 198.38 |
| 30 min run time | RESTARTED | **OS-5** | 0.00 | 295.15 | 10 | 26 | 0.00 | 129.91 |
| 5 min run time | | **OS-6B** | 0.00 | 277.35 | 10 | 26 | 0.00 | 72.18 |
| 60 min run time | | **RW-10** | 0.00 | 233.28 | 10 | 26 | 0.00 | 61.04 |
| | | | | | | Total = | **677.0** | pounds |

**Total Days Since 05 / 03 / 04 =** 680

**Total Days of Operation Since 05 / 03 / 04 =** **495** 73%

| | |
|---|---|
| 29.8 | APRIL |
| 29.2 | MAY |
| 7.4 | JUNE |
| 66.5 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

11877 hours

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 7/16/2006 | 8 | OS-1 | 1.32 | 401.30 | 7.0 | 26 | 0.08 | 61.12 |
| 3 min run time | | OS-2 | 3.87 | 45.97 | 7.0 | 26 | 0.22 | 58.68 |
| 15 min run time | | OS-3 | 19.75 | 144.92 | 7.0 | 26 | 1.13 | 123.32 |
| 40 min run time | | OS-4 | 52.72 | 391.35 | 7.0 | 26 | 3.01 | 201.39 |
| 30 min run time | | OS-5 | 38.98 | 334.13 | 7.0 | 26 | 2.22 | 132.13 |
| 5 min run time | | OS-6B | 6.58 | 283.93 | 7.0 | 26 | 0.38 | 72.56 |
| 60 min run time | | RW-10 | 79.42 | 312.70 | 7.0 | 26 | 4.53 | 65.57 |
| 7/27/2006 | 11 | OS-1 | 1.33 | 402.63 | 7.0 | 26 | 0.08 | 58.76 |
| 3 min run time | | OS-2 | 4.00 | 49.97 | 7.0 | 26 | 0.23 | 123.55 |
| 15 min run time | | OS-3 | 20.00 | 164.92 | 7.0 | 26 | 1.14 | 202.53 |
| 40 min run time | | OS-4 | 53.34 | 444.69 | 7.0 | 26 | 3.04 | 135.17 |
| 30 min run time | | OS-5 | 4.24 | 338.37 | 7.0 | 26 | 0.24 | 72.80 |
| 5 min run time | | OS-6B | 6.67 | 290.60 | 7.0 | 26 | 0.38 | 65.95 |
| 60 min run time | | RW-10 | 79.62 | 392.32 | 7.0 | 26 | 4.54 | 63.30 |
| 8/8/2006 | 12 | OS-1 | 2.02 | 404.65 | 6.0 | 26 | 0.12 | 123.66 |
| 3 min run time | | OS-2 | 6.05 | 56.02 | 6.0 | 26 | 0.34 | 202.87 |
| 15 min run time | | OS-3 | 30.03 | 194.95 | 6.0 | 26 | 1.71 | 136.88 |
| 40 min run time | | OS-4 | 80.00 | 524.69 | 6.0 | 26 | 4.56 | 77.36 |
| 1 min run time | | OS-5 | 2.00 | 340.37 | 6.0 | 26 | 0.11 | 66.06 |
| 5 min run time | | OS-6B | 10.00 | 300.60 | 6.0 | 26 | 0.57 | 63.87 |
| 60 min run time | | RW-10 | 120.40 | 512.72 | 6.0 | 26 | 6.86 | 130.53 |
| 8/23/2006 | 15 | OS-1 | 2.32 | 406.97 | 7.0 | 26 | 0.13 | 203.01 |
| 3 min run time | | OS-2 | 6.93 | 62.95 | 7.0 | 26 | 0.40 | 137.28 |
| 15 min run time | OZONE | OS-3 | 34.58 | 229.53 | 7.0 | 26 | 1.97 | 79.33 |
| 40 min run time | SYSTEM | OS-4 | 87.21 | 71.90 | 7.0 | 26 | 4.97 | 71.03 |
| 1 min run time | SHUT DOWN | OS-5 | 2.32 | 342.69 | 7.0 | 26 | 0.13 | 64.00 |
| 5 min run time | | OS-6B | 12.18 | 312.78 | 7.0 | 26 | 0.69 | 131.22 |
| 60 min run time | | RW-10 | 133.33 | 106.05 | 7.0 | 26 | 7.60 | 210.61 |
| 9/11/2006 | 0 | OS-1 | 0.06 | 407.03 | 2.5 | 26 | 0.00 | 137.28 |
| 3 min run time | | OS-2 | 0.07 | 63.02 | 0.0 | 26 | 0.00 | 79.34 |
| 15 min run time | OZONE | OS-3 | 0.55 | 230.08 | 2.0 | 26 | 0.03 | 71.07 |
| 40 min run time | SYSTEM | OS-4 | 1.12 | 73.02 | 2.5 | 26 | 0.06 | 64.07 |
| 1 min run time | RESTARTED | OS-5 | 0.09 | 342.78 | 2.5 | 26 | 0.01 | 131.23 |
| 5 min run time | | OS-6B | 0.00 | 312.78 | 2.0 | 26 | 0.00 | 210.61 |
| 60 min run time | | RW-10 | 1.68 | 107.73 | 2.5 | 26 | 0.10 | 137.38 |
| 9/12/2006 | 1 | OS-1 | 0.17 | 407.20 | 2.0 | 26 | 0.01 | 79.35 |
| 3 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | OZONE | OS-3 | 2.12 | 232.20 | 1.5 | 26 | 0.12 | 64.19 |
| 40 min run time | SYSTEM | OS-4 | 5.38 | 78.40 | 2.5 | 26 | 0.31 | 131.53 |
| 1 min run time | SHUT DOWN | OS-5 | 0.19 | 342.97 | 2.5 | 26 | 0.01 | 210.62 |
| 5 min run time | | OS-6B | 0.72 | 313.50 | 1.5 | 26 | 0.04 | 137.42 |
| 60 min run time | | RW-10 | 8.30 | 116.03 | 2.5 | 26 | 0.47 | 79.82 |
| | | | | | | Total = | **729.5** | pounds |

**Total Days Since 05 / 03 / 04 =** 727

**Total Days of Operation Since 05 / 03 / 04 =** **533** 73%

| | |
|---|---|
| 33.3 | JULY |
| 30.2 | AUG |
| 1.2 | SEPT |
| 64.6 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

12799 hours

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 10/12/2006 | 0 | OS-1 | 0.00 | 407.20 | 2.5 | 26 | 0.00 | 79.35 |
| 3 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | OZONE | OS-3 | 0.00 | 232.20 | 2.0 | 26 | 0.00 | 64.19 |
| 40 min run time | SYSTEM | OS-4 | 0.00 | 78.40 | 2.5 | 26 | 0.00 | 131.53 |
| 1 min run time | RESTARTED | OS-5 | 0.00 | 342.97 | 2.5 | 26 | 0.00 | 210.62 |
| 5 min run time | | OS-6B | 0.00 | 313.50 | 2.0 | 26 | 0.00 | 137.42 |
| 60 min run time | | RW-10 | 0.00 | 116.03 | 2.5 | 26 | 0.00 | 79.82 |
| 10/25/2006 | 13 | OS-1 | 2.02 | 409.22 | 4.5 | 26 | 0.12 | 79.46 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 30.25 | 262.45 | 3.0 | 26 | 1.72 | 65.91 |
| 40 min run time | | OS-4 | 80.67 | 159.07 | 6.0 | 26 | 4.60 | 136.13 |
| 1 min run time | | OS-5 | 1.62 | 344.59 | 6.0 | 26 | 0.09 | 210.71 |
| 5 min run time | | OS-6B | 10.08 | 323.58 | 3.0 | 26 | 0.57 | 137.99 |
| 60 min run time | | RW-10 | 121.29 | 237.32 | 4.5 | 26 | 6.91 | 86.73 |
| 11/9/2006 | 15 | OS-1 | 2.35 | 411.57 | 1.0 | 26 | 0.13 | 79.59 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 34.98 | 297.43 | 1.0 | 26 | 1.99 | 67.90 |
| 40 min run time | | OS-4 | 92.25 | 251.32 | 1.0 | 26 | 5.26 | 141.39 |
| 1 min run time | | OS-5 | 2.74 | 347.33 | 1.0 | 26 | 0.16 | 210.87 |
| 5 min run time | | OS-6B | 11.64 | 335.22 | 1.0 | 26 | 0.66 | 138.65 |
| 60 min run time | | RW-10 | 139.11 | 376.43 | 1.0 | 26 | 7.93 | 94.66 |
| 11/30/2006 | 21 | OS-1 | 3.65 | 415.22 | 1.0 | 26 | 0.21 | 79.80 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 0.00 | 297.43 | 1.0 | 26 | 0.00 | 67.90 |
| 40 min run time | | OS-4 | 117.53 | 368.85 | 1.0 | 26 | 6.70 | 148.09 |
| 1 min run time | | OS-5 | 3.62 | 350.95 | 1.0 | 26 | 0.21 | 211.07 |
| 20 min run time | | OS-6B | 0.20 | 335.42 | 1.0 | 26 | 0.01 | 138.67 |
| 60 min run time | | RW-10 | 172.50 | 8.93 | 1.0 | 26 | 9.83 | 104.49 |
| 12/7/2006 | 7 | OS-1 | 0.98 | 416.20 | 5.0 | 26 | 0.06 | 79.86 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 0.00 | 297.43 | 5.0 | 26 | 0.00 | 67.90 |
| 40 min run time | | OS-4 | 39.38 | 408.23 | 5.0 | 26 | 2.24 | 150.33 |
| 1 min run time | | OS-5 | 1.00 | 351.95 | 5.0 | 26 | 0.06 | 211.13 |
| 20 min run time | | OS-6B | 0.00 | 335.42 | 5.0 | 26 | 0.00 | 138.67 |
| 60 min run time | | RW-10 | 58.64 | 67.57 | 5.0 | 26 | 3.34 | 107.84 |
| 12/19/2006 | 12 | OS-1 | 1.50 | 417.70 | 7.0 | 26 | 0.09 | 79.94 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 21.53 | 318.96 | 7.5 | 26 | 1.23 | 69.13 |
| 40 min run time | | OS-4 | 58.04 | 466.27 | 7.0 | 26 | 3.31 | 153.64 |
| 1 min run time | | OS-5 | 0.10 | 352.05 | 7.5 | 26 | 0.01 | 211.13 |
| 20 min run time | | OS-6B | 29.35 | 364.77 | 7.0 | 26 | 1.67 | 140.34 |
| 60 min run time | | RW-10 | 86.70 | 154.27 | 7.0 | 26 | 4.94 | 112.78 |
| | | | | | | Total = | **793.6** | pounds |

**Total Days Since 05 / 03 / 04 =** 795

**Total Days of Operation Since 05 / 03 / 04 =** **580** 73%

| | |
|---|---|
| 21.0 | OCT |
| 27.5 | NOV |
| 16.9 | DEC |
| 65.4 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

13,923 hours

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 1/10/2007 | 24 | OS-1 | 2.84 | 420.54 | 7.5 | 26 | 0.16 | 80.11 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 42.27 | 361.23 | 6.0 | 26 | 2.41 | 71.54 |
| 40 min run time | | OS-4 | 106.03 | 32.30 | 7.5 | 26 | 6.04 | 159.68 |
| 10 min run time | | OS-5 | 26.72 | 378.77 | 7.5 | 26 | 1.52 | 212.66 |
| 20 min run time | | OS-6B | 56.33 | 421.10 | 7.5 | 26 | 3.21 | 143.55 |
| 60 min run time | | RW-10 | 169.20 | 323.47 | 7.5 | 26 | 9.64 | 122.42 |
| 1/31/2007 | 21 | OS-1 | 2.81 | 423.35 | 7.5 | 26 | 0.16 | 80.27 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 42.50 | 403.73 | 6.0 | 26 | 2.42 | 73.96 |
| 40 min run time | | OS-4 | 113.37 | 145.67 | 7.5 | 26 | 6.46 | 166.15 |
| 10 min run time | | OS-5 | 28.33 | 407.10 | 7.5 | 26 | 1.61 | 214.27 |
| 20 min run time | | OS-6B | 56.68 | 477.78 | 7.5 | 26 | 3.23 | 146.78 |
| 60 min run time | | RW-10 | 170.03 | 493.50 | 7.5 | 26 | 9.69 | 132.11 |
| 2/16/2007 | 17 | OS-1 | 2.15 | 425.50 | 7.5 | 26 | 0.12 | 80.39 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 32.04 | 435.77 | 6.5 | 26 | 1.83 | 75.79 |
| 40 min run time | | OS-4 | 85.35 | 231.02 | 7.0 | 26 | 4.86 | 171.01 |
| 10 min run time | | OS-5 | 21.35 | 428.45 | 7.5 | 26 | 1.22 | 215.49 |
| 20 min run time | | OS-6B | 42.69 | 520.47 | 7.0 | 26 | 2.43 | 149.21 |
| 60 min run time | | RW-10 | 122.65 | 76.15 | 7.5 | 26 | 6.99 | 139.11 |
| 3/2/2007 | 13 | OS-1 | 1.86 | 427.36 | 7.5 | 26 | 0.11 | 80.49 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 28.03 | 463.80 | 6.5 | 26 | 1.60 | 77.39 |
| 40 min run time | | OS-4 | 74.91 | 305.93 | 6.5 | 26 | 4.27 | 175.28 |
| 10 min run time | | OS-5 | 18.68 | 447.13 | 7.5 | 26 | 1.06 | 216.55 |
| 20 min run time | | OS-6B | 31.31 | 11.78 | 6.5 | 26 | 1.78 | 151.00 |
| 60 min run time | | RW-10 | 111.05 | 187.20 | 7.5 | 26 | 6.33 | 145.43 |
| 3/14/2007 | 12 | OS-1 | 1.61 | 428.97 | 7.5 | 26 | 0.09 | 80.59 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 24.03 | 487.83 | 6.5 | 26 | 1.37 | 78.76 |
| 40 min run time | | OS-4 | 0.04 | 305.97 | 6.5 | 26 | 0.00 | 175.28 |
| 10 min run time | | OS-5 | 16.17 | 463.30 | 7.0 | 26 | 0.92 | 217.48 |
| 20 min run time | | OS-6B | 32.35 | 44.13 | 6.5 | 26 | 1.84 | 152.84 |
| 60 min run time | | RW-10 | 97.02 | 284.22 | 7.0 | 26 | 5.53 | 150.97 |
| | | | | | | Total = | **882.5** | pounds |

**Total Days Since 05 / 03 / 04 =** 882

**Total Days of Operation Since 05 / 03 / 04 =** **645** 73%

| | | |
|---|---|---|
| | 32.6 | JAN |
| | 32.6 | FEB |
| | 21.5 | MAR |
| | 86.7 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

15,483 hours

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 4/9/2007 | 28 | OS-1 | 3.57 | 432.54 | 7.5 | 26 | 0.20 | 80.79 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 52.95 | 540.78 | 7.5 | 26 | 3.02 | 81.78 |
| 40 min run time | | OS-4 | 140.75 | 446.72 | 6.0 | 26 | 8.02 | 183.31 |
| 10 min run time | | OS-5 | 35.23 | 498.53 | 7.5 | 26 | 2.01 | 219.48 |
| 20 min run time | | OS-6B | 70.39 | 114.52 | 6.0 | 26 | 4.01 | 156.85 |
| 60 min run time | | RW-10 | 212.08 | 496.30 | 7.5 | 26 | 12.09 | 163.05 |
| 4/25/2007 | 16 | OS-1 | 0.00 | 432.54 | 0.0 | 26 | 0.00 | 80.79 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 25.69 | 26.47 | 7.0 | 26 | 1.46 | 83.24 |
| 40 min run time | | OS-4 | 84.68 | 531.40 | 6.5 | 26 | 4.83 | 188.13 |
| disabled | | OS-5 | 0.01 | 498.54 | 0.0 | 26 | 0.00 | 219.48 |
| 20 min run time | | OS-6B | 42.36 | 156.88 | 7.0 | 26 | 2.41 | 159.27 |
| 60 min run time | | RW-10 | 121.80 | 78.10 | 7.0 | 26 | 6.94 | 170.00 |
| 5/10/2007 | 15 | OS-1 | 0.00 | 432.54 | 0.0 | 26 | 0.00 | 80.79 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 15 min run time | | OS-3 | 32.18 | 58.65 | 6.0 | 26 | 1.83 | 85.07 |
| 40 min run time | | OS-4 | 79.22 | 70.62 | 6.0 | 26 | 4.52 | 192.65 |
| repaired | | OS-5 | 0.01 | 498.55 | 6.0 | 26 | 0.00 | 219.48 |
| 20 min run time | | OS-6B | 42.67 | 199.55 | 6.0 | 26 | 2.43 | 161.70 |
| 60 min run time | | RW-10 | 128.44 | 206.54 | 8.0 | 26 | 7.32 | 177.32 |
| 5/25/2007 | 15 | OS-1 | 23.78 | 456.32 | 7.0 | 26 | 1.36 | 82.14 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 94.15 | 152.80 | 6.5 | 26 | 5.37 | 90.44 |
| 40 min run time | | OS-4 | 62.68 | 133.30 | 6.5 | 26 | 3.57 | 196.22 |
| 1 min run time | | OS-5 | 1.58 | 500.13 | 6.0 | 26 | 0.09 | 219.57 |
| 20 min run time | | OS-6B | 31.67 | 231.22 | 6.0 | 26 | 1.81 | 163.51 |
| 60 min run time | | RW-10 | 94.09 | 300.63 | 8.0 | 26 | 5.36 | 182.68 |
| 6/4/2007 | 10 | OS-1 | 15.74 | 472.06 | 7.0 | 26 | 0.90 | 83.04 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 63.03 | 215.83 | 6.5 | 26 | 3.59 | 94.03 |
| 40 min run time | | OS-4 | 42.00 | 175.30 | 6.5 | 26 | 2.39 | 198.62 |
| 1 min run time | | OS-5 | 1.07 | 501.20 | 6.0 | 26 | 0.06 | 219.64 |
| 20 min run time | | OS-6B | 21.33 | 252.55 | 6.0 | 26 | 1.22 | 164.72 |
| 60 min run time | | RW-10 | 64.02 | 364.65 | 8.0 | 26 | 3.65 | 186.33 |
| 6/28/2007 | 24 | OS-1 | 36.44 | 508.50 | 8.0 | 26 | 2.08 | 85.12 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 145.00 | 360.83 | 8.0 | 26 | 8.27 | 102.30 |
| 40 min run time | | OS-4 | 96.67 | 271.97 | 7.5 | 26 | 5.51 | 204.13 |
| 1 min run time | | OS-5 | 2.43 | 503.63 | 7.5 | 26 | 0.14 | 219.77 |
| 20 min run time | | OS-6B | 48.33 | 300.88 | 7.0 | 26 | 2.75 | 167.48 |
| 60 min run time | | RW-10 | 145.02 | 509.67 | 8.0 | 26 | 8.27 | 194.60 |
| | | | | | | Total = | 1,000.0 | pounds |

**Total Days Since 05 / 03 / 04 =** 990

**Total Days of Operation Since 05 / 03 / 04 =** **731** 74%

| | | |
|---|---|---|
| | 33.8 | APRIL |
| | 33.7 | MAY |
| | 38.8 | JUNE |
| | 106.2 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

17,544 hours

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 7/5/2007 | 7 | OS-1 | 11.04 | 519.54 | 8.0 | 26 | 0.63 | 85.75 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 44.00 | 404.83 | 8.0 | 26 | 2.51 | 104.81 |
| 40 min run time | | OS-4 | 29.36 | 301.33 | 8.0 | 26 | 1.67 | 205.80 |
| 1 min run time | | OS-5 | 0.72 | 504.35 | 8.0 | 26 | 0.04 | 219.82 |
| 20 min run time | | OS-6B | 14.54 | 315.42 | 8.0 | 26 | 0.83 | 168.31 |
| 60 min run time | | RW-10 | 37.87 | 7.54 | 8.0 | 26 | 2.16 | 196.75 |
| 7/18/2007 | 13 | OS-1 | 20.49 | 540.03 | 8.0 | 26 | 1.17 | 86.92 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 82.00 | 486.83 | 6.5 | 26 | 4.67 | 109.48 |
| 40 min run time | | OS-4 | 54.70 | 356.03 | 6.5 | 26 | 3.12 | 208.92 |
| 1 min run time | | OS-5 | 1.37 | 505.72 | 8.0 | 26 | 0.08 | 219.89 |
| 20 min run time | | OS-6B | 27.68 | 343.10 | 6.0 | 26 | 1.58 | 169.88 |
| 60 min run time | | RW-10 | 82.13 | 89.67 | 8.0 | 26 | 4.68 | 201.44 |
| 8/3/2007 | 16 | OS-1 | 22.15 | 19.18 | 8.0 | 26 | 1.26 | 88.18 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 94.89 | 41.72 | 7.0 | 26 | 5.41 | 114.89 |
| 40 min run time | | OS-4 | 67.34 | 423.37 | 6.0 | 26 | 3.84 | 212.76 |
| 1 min run time | | OS-5 | 1.66 | 507.38 | 7.5 | 26 | 0.09 | 219.99 |
| 20 min run time | | OS-6B | 33.33 | 376.43 | 7.5 | 26 | 1.90 | 171.78 |
| 60 min run time | | RW-10 | 100.08 | 189.75 | 8.0 | 26 | 5.70 | 207.14 |
| 8/27/2007 | 24 | OS-1 | 38.00 | 57.18 | 7.5 | 26 | 2.17 | 90.35 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 152.00 | 193.72 | 7.5 | 26 | 8.66 | 123.55 |
| 40 min run time | | OS-4 | 101.35 | 524.72 | 7.5 | 26 | 5.78 | 218.53 |
| 1 min run time | | OS-5 | 2.55 | 509.93 | 7.5 | 26 | 0.15 | 220.13 |
| 20 min run time | | OS-6B | 51.00 | 427.43 | 7.5 | 26 | 2.91 | 174.69 |
| 60 min run time | | RW-10 | 152.17 | 341.92 | 7.5 | 26 | 8.67 | 215.81 |
| 9/14/2007 | 18 | OS-1 | 28.49 | 85.67 | 7.5 | 26 | 1.62 | 91.97 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 114.03 | 307.75 | 7.5 | 26 | 6.50 | 130.05 |
| 40 min run time | | OS-4 | 69.43 | 54.15 | 7.5 | 26 | 3.96 | 222.49 |
| 1 min run time | | OS-5 | 1.90 | 511.83 | 7.5 | 26 | 0.11 | 220.24 |
| 20 min run time | | OS-6B | 38.00 | 465.43 | 7.5 | 26 | 2.17 | 176.86 |
| 60 min run time | | RW-10 | 113.25 | 455.17 | 7.5 | 26 | 6.46 | 222.27 |
| 9/25/2007 | 11 | OS-1 | 18.76 | 104.43 | 7.5 | 26 | 1.07 | 93.04 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 75.02 | 382.77 | 7.5 | 26 | 4.28 | 134.33 |
| 40 min run time | | OS-4 | 49.42 | 103.57 | 7.5 | 26 | 2.82 | 225.31 |
| 1 min run time | | OS-5 | 1.24 | 513.07 | 7.5 | 26 | 0.07 | 220.31 |
| 20 min run time | | OS-6B | 24.69 | 490.12 | 7.5 | 26 | 1.41 | 178.26 |
| 60 min run time | | RW-10 | 76.81 | 531.98 | 7.5 | 26 | 4.38 | 226.65 |
| | | | | | | Total = | **1,104.5** | pounds |

**Total Days Since 05 / 03 / 04 =** 1,079

**Total Days of Operation Since 05 / 03 / 04 =** **807** 75%

| | | |
|---|---|---|
| | 37.6 | JULY |
| | 35.4 | AUG |
| | 34.8 | SEPT |
| | 107.9 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

19,378 hours

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 10/8/2007 | 13 | OS-1 | 19.02 | 123.45 | 7.0 | 26 | 1.08 | 94.12 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 75.35 | 458.12 | 7.0 | 26 | 4.29 | 138.62 |
| 40 min run time | | OS-4 | 50.60 | 154.17 | 7.0 | 26 | 2.88 | 228.19 |
| 1 min run time | | OS-5 | 1.28 | 514.35 | 7.0 | 26 | 0.07 | 220.39 |
| 20 min run time | | OS-6B | 25.31 | 515.43 | 7.0 | 26 | 1.44 | 179.71 |
| 60 min run time | | RW-10 | 70.90 | 62.88 | 7.0 | 26 | 4.04 | 230.69 |
| 10/24/2007 | 16 | OS-1 | 25.27 | 148.72 | 6.5 | 26 | 1.44 | 95.56 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 94.42 | 12.54 | 5.5 | 26 | 5.38 | 144.01 |
| 40 min run time | | OS-4 | 66.66 | 220.83 | 5.5 | 26 | 3.80 | 231.99 |
| 1 min run time | | OS-5 | 1.67 | 516.02 | 5.5 | 26 | 0.10 | 220.48 |
| 20 min run time | | OS-6B | 27.24 | 2.67 | 5.5 | 26 | 1.55 | 181.26 |
| 60 min run time | | RW-10 | 99.99 | 162.87 | 5.5 | 26 | 5.70 | 236.39 |
| 11/9/2007 | 16 | OS-1 | 23.75 | 172.47 | 6.0 | 26 | 1.35 | 96.92 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 94.06 | 106.60 | 6.0 | 26 | 5.36 | 149.37 |
| 40 min run time | | OS-4 | 62.65 | 283.48 | 6.0 | 26 | 3.57 | 235.56 |
| 1 min run time | | OS-5 | 1.56 | 517.58 | 6.0 | 26 | 0.09 | 220.57 |
| 20 min run time | | OS-6B | 31.66 | 34.33 | 6.0 | 26 | 1.80 | 183.06 |
| 60 min run time | | RW-10 | 95.05 | 257.92 | 6.0 | 26 | 5.42 | 241.81 |
| 11/19/2007 | 10 | OS-1 | 15.78 | 188.25 | 6.5 | 26 | 0.90 | 97.82 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 64.18 | 170.78 | 6.0 | 26 | 3.66 | 153.03 |
| 40 min run time | | OS-4 | 42.75 | 326.23 | 6.0 | 26 | 2.44 | 238.00 |
| 1 min run time | | OS-5 | 1.09 | 518.67 | 6.5 | 26 | 0.06 | 220.63 |
| 20 min run time | | OS-6B | 21.36 | 55.69 | 6.0 | 26 | 1.22 | 184.28 |
| 60 min run time | | RW-10 | 63.75 | 321.67 | 5.0 | 26 | 3.63 | 245.44 |
| 12/5/2007 | 16 | OS-1 | 25.00 | 213.25 | 5.0 | 26 | 1.43 | 99.24 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 99.49 | 270.27 | 5.0 | 26 | 5.67 | 158.70 |
| 40 min run time | | OS-4 | 66.00 | 392.23 | 5.0 | 26 | 3.76 | 241.76 |
| 1 min run time | | OS-5 | 1.65 | 520.32 | 5.0 | 26 | 0.09 | 220.73 |
| 20 min run time | | OS-6B | 33.34 | 89.03 | 5.0 | 26 | 1.90 | 186.18 |
| 60 min run time | | RW-10 | 100.02 | 421.69 | 5.0 | 26 | 5.70 | 251.14 |
| 12/20/2007 | 15 | OS-1 | 23.50 | 236.75 | 4.5 | 26 | 1.34 | 100.58 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 71.07 |
| 60 min run time | | OS-3 | 94.55 | 364.82 | 4.0 | 26 | 5.39 | 164.09 |
| 40 min run time | | OS-4 | 62.90 | 455.13 | 5.0 | 26 | 3.59 | 245.35 |
| 1 min run time | | OS-5 | 1.58 | 521.90 | 4.5 | 26 | 0.09 | 220.82 |
| 20 min run time | | OS-6B | 31.67 | 120.70 | 4.5 | 26 | 1.81 | 187.99 |
| 60 min run time | | RW-10 | 94.48 | 516.17 | 4.5 | 26 | 5.39 | 256.53 |
| | | | | | | Total = | **1,202.0** | pounds |

**Total Days Since 05 / 03 / 04 =** 1,165

**Total Days of Operation Since 05 / 03 / 04 =** **879** 75%

| | | |
|---|---|---|
| | 31.8 | OCT |
| | 29.5 | NOV |
| | 36.1 | DEC |
| | 97.4 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

21,087 hours

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 1/8/2008 | 18 | OS-1 | 1.87 | 238.62 | 4.5 | 26 | 0.11 | 71.17 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | | OS-3 | 6.80 | 371.62 | 4.5 | 26 | 0.39 | 245.73 |
| 40 min run time | | OS-4 | 4.67 | 459.80 | 4.5 | 26 | 0.27 | 221.08 |
| 1 min run time | | OS-5 | 0.12 | 522.02 | 4.5 | 26 | 0.01 | 187.99 |
| 20 min run time | | OS-6B | 2.33 | 123.03 | 4.5 | 26 | 0.13 | 256.66 |
| 60 min run time | | RW-10 | 6.31 | 522.48 | 4.5 | 26 | 0.36 | 0.36 |
| 1/22/2008 | 14 | OS-1 | 23.20 | 261.82 | 4.5 | 26 | 1.32 | 72.49 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | | OS-3 | 87.01 | 458.63 | 4.5 | 26 | 4.96 | 250.69 |
| 40 min run time | | OS-4 | 58.00 | 517.80 | 4.5 | 26 | 3.31 | 224.39 |
| 1 min run time | | OS-5 | 1.46 | 523.48 | 4.5 | 26 | 0.08 | 188.08 |
| 20 min run time | | OS-6B | 29.34 | 152.37 | 4.5 | 26 | 1.67 | 258.33 |
| 60 min run time | | RW-10 | 81.92 | 64.40 | 4.5 | 26 | 4.67 | 5.03 |
| 2/11/2008 | 20 | OS-1 | 33.33 | 295.15 | 4.5 | 26 | 1.90 | 74.39 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | | OS-3 | 118.89 | 37.52 | 4.5 | 26 | 6.78 | 257.47 |
| 40 min run time | | OS-4 | 77.22 | 55.02 | 4.5 | 26 | 4.40 | 228.79 |
| 1 min run time | | OS-5 | 2.08 | 525.56 | 4.5 | 26 | 0.12 | 188.20 |
| 20 min run time | | OS-6B | 41.66 | 194.03 | 4.5 | 26 | 2.37 | 260.71 |
| 60 min run time | | RW-10 | 125.02 | 189.42 | 4.5 | 26 | 7.13 | 12.16 |
| 2/21/2008 | 10 | OS-1 | 17.05 | 312.20 | 8.0 | 26 | 0.97 | 75.37 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | | OS-3 | 63.02 | 100.54 | 8.0 | 26 | 3.59 | 261.06 |
| 40 min run time | | OS-4 | 42.00 | 97.02 | 8.0 | 26 | 2.39 | 231.18 |
| 1 min run time | | OS-5 | 1.06 | 526.62 | 8.0 | 26 | 0.06 | 188.26 |
| 20 min run time | | OS-6B | 21.00 | 215.03 | 8.0 | 26 | 1.20 | 261.90 |
| 60 min run time | | RW-10 | 62.31 | 251.73 | 8.0 | 26 | 3.55 | 15.71 |
| 3/5/2008 | 15 | OS-1 | 21.87 | 334.07 | 6.5 | 26 | 1.25 | 76.61 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | | OS-3 | 81.34 | 181.88 | 6.5 | 26 | 4.64 | 265.70 |
| 40 min run time | | OS-4 | 54.01 | 151.03 | 6.5 | 26 | 3.08 | 234.26 |
| 2 min run time | | OS-5 | 2.70 | 529.32 | 6.5 | 26 | 0.15 | 188.41 |
| 20 min run time | | OS-6B | 27.02 | 242.05 | 6.5 | 26 | 1.54 | 263.44 |
| 60 min run time | | RW-10 | 81.03 | 332.76 | 6.5 | 26 | 4.62 | 20.33 |
| 3/25/2008 | 20 | OS-1 | 33.33 | 367.40 | 6.0 | 26 | 1.90 | 78.51 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | | OS-3 | 125.04 | 306.92 | 6.0 | 26 | 7.13 | 272.83 |
| 40 min run time | | OS-4 | 82.89 | 233.92 | 6.0 | 26 | 4.72 | 238.99 |
| 2 min run time | | OS-5 | 4.65 | 533.97 | 6.0 | 26 | 0.27 | 188.68 |
| 20 min run time | | OS-6B | 41.33 | 283.38 | 6.0 | 26 | 2.36 | 265.80 |
| 60 min run time | | RW-10 | 124.02 | 456.78 | 6.0 | 26 | 7.07 | 27.39 |
| | | | | | | Total = | **1,292.4** | pounds |

**Total Days Since 05 / 03 / 04 =** 1,262

**Total Days of Operation Since 05 / 03 / 04 =** **945** 75%

| | | |
|---|---|---|
| | 21.6 | JAN |
| | 31.0 | FEB |
| | 38.7 | MAR |
| | 91.3 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

22,674 hours

# TABLE 2A
## OZONE SPARGE SYSTEM PERFORMANCE DATA
Tesoro Site No. 67093
2601 Lakeville Highway, Petaluma, California

| DATE MONITORED | PERIODIC DAYS OF OPERATION | Sparge Well | Periodic Operation HOURS | Cumulative Operation HOURS | Air FLOW CFH | Ozone Generated Grams / Hour | Periodic Ozone in Pounds | Cumulative Ozone in Pounds |
|---|---|---|---|---|---|---|---|---|
| 4/8/2008 | 14 | OS-1 | 23.20 | 390.60 | 5.0 | 26 | 1.32 | 79.84 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | | OS-3 | 87.01 | 393.93 | 5.0 | 26 | 4.96 | 277.78 |
| 40 min run time | | OS-4 | 58.03 | 291.95 | 5.0 | 26 | 3.31 | 242.29 |
| 2 min run time | | OS-5 | 3.40 | 537.37 | 5.0 | 26 | 0.19 | 188.87 |
| 20 min run time | | OS-6B | 29.00 | 312.38 | 5.0 | 26 | 1.65 | 267.45 |
| 60 min run time | | RW-10 | 88.00 | 544.78 | 5.0 | 26 | 5.02 | 32.41 |
| 4/17/2008 | 9 | OS-1 | 15.28 | 405.88 | 6.5 | 26 | 0.87 | 80.71 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | | OS-3 | 56.44 | 450.37 | 6.5 | 26 | 3.22 | 281.00 |
| 40 min run time | | OS-4 | 37.35 | 329.30 | 6.0 | 26 | 2.13 | 244.42 |
| 2 min run time | | OS-5 | 1.86 | 539.23 | 6.5 | 26 | 0.11 | 188.97 |
| 20 min run time | | OS-6B | 18.70 | 331.08 | 6.0 | 26 | 1.07 | 268.52 |
| 60 min run time | | RW-10 | 49.29 | 54.07 | 6.5 | 26 | 2.81 | 35.22 |
| 5/16/2008 | 29 | OS-1 | 46.69 | 452.57 | 4.0 | 26 | 2.66 | 83.37 |
| 0 min run time | | OS-2 | 0.00 | 63.02 | 0.0 | 26 | 0.00 | 164.09 |
| 60 min run time | OZONE | OS-3 | 173.66 | 79.03 | 6.0 | 26 | 9.90 | 290.90 |
| 40 min run time | SYSTEM | OS-4 | 116.03 | 445.33 | 6.0 | 26 | 6.61 | 251.04 |
| 2 min run time | SHUT DOWN | OS-5 | 4.80 | 544.03 | 5.0 | 26 | 0.27 | 189.25 |
| 20 min run time | | OS-6B | 58.05 | 389.13 | 6.0 | 26 | 3.31 | 271.83 |
| 60 min run time | | RW-10 | 175.62 | 229.69 | 6.0 | 26 | 10.01 | 45.23 |
| | OZONE | | SYSTEM | | SHUT | DOWN | | |
| | | | | | | Total = | **1,351.8** | pounds |

**Total Days Since 05 / 03 / 04 =** 1,314

**Total Days of Operation Since 05 / 03 / 04 =** **988** 75%

| | | |
|---|---|---|
| | 21.4 | APR |
| | 32.8 | MAY |
| | 54.2 | pounds |

NOTES:
SCFM = Standard Cubic Feet per Minute
CFH = Cubic Feet per Hour

**Calculations:** pounds of ozone = (hours x 26 grams of ozone per hour) / 454 grams per pound
pounds of ozone = # hours x 0.057-pound per hour

23,716 hours

## Table 3A - Dissolved Oxygen (dO) and Oxidation/Reduction (ORP) Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

### Ozone Sparge Wells - Dissolved Oxygen (dO) Measurements

| dO Date | OS-1 (ppm) | OS-2 (ppm) | OS-3 (ppm) | OS-4 (ppm) | OS-5 (ppm) | OS-6B (ppm) | RW-10 (ppm) | Comments |
|---|---|---|---|---|---|---|---|---|
| 05/27/04 | 2.82 | 2.42 | 5.27 | 2.99 | 4.84 | 3.96 | | pre-sparge |
| 06/14/04 | 13.7 | 12.7 | 13.3 | 11.5 | 13.0 | 13.15 | | |
| 01/13/05 | -- | -- | -- | -- | -- | 12.3 | | ppm = parts per million |
| 04/22/05 | 10.0 | 9.4 | 8.8 | 4.1 | 3.8 | 8.4 | | |
| 05/31/05 | 7.2 | 10.6 | 8.5 | 2.5 | 6.2 | 8.2 | | |
| 04/05/06 | 8.0 | 8.9 | 16.8 | 15.7 | 14.5 | 6.2 | | Q2 2006 sampling data |
| 03/14/07 | 11.6 | 6.5 | 10.6 | 9.7 | 9.8 | 12.3 | 11.8 | |

### Monitoring Wells - Dissolved Oxygen (dO) Measurements

| Distance to Ozone Well | 15 feet | 17 feet | 30 feet | 75 feet | 60 feet | 65 feet | 65 feet | 34 feet | 18 feet | 60 feet | 20 feet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dO Date | MW-1 (ppm) | MW-2 (ppm) | MW-3 (ppm) | MW-4 (ppm) | MW-5 (ppm) | MW-6 (ppm) | MW-7 (ppm) | MW-8 (ppm) | RW-9 (ppm) | RW-10 (ppm) | RW-11 (ppm) | Comments |
| 05/27/04 | 1.40 | 1.34 | 1.34 | 1.37 | -- | -- | -- | 1.70 | 1.49 | 1.40 | 0.55 | pre-sparge |
| 06/14/04 | 1.67 | 11.35 | 1.91 | 1.65 | 3.40 | 3.20 | 2.50 | 1.83 | 6.49 | 2.03 | 1.29 | |
| 07/06/04 | 10.30 | 11.53 | 2.33 | 2.62 | 5.41 | 3.07 | 3.10 | 2.52 | 1.67 | 2.71 | 1.99 | |
| 07/21/04 | 5.69 | 13.19 | 3.43 | 3.30 | 5.58 | 5.40 | 4.41 | 4.65 | 4.56 | 2.85 | 4.84 | Q3 sampling |
| 08/18/04 | 11.33 | 13.92 | 1.96 | 2.75 | 3.98 | 3.58 | 2.79 | 2.49 | 1.74 | 1.62 | 2.34 | |
| 09/02/04 | 1.84 | 13.28 | 1.79 | 1.17 | 2.77 | 1.65 | 1.32 | 1.26 | 1.49 | 0.80 | 1.44 | |
| 09/21/04 | 13.75 | 11.71 | 2.99 | 2.06 | 4.58 | 2.71 | 2.10 | 2.37 | 1.91 | 1.57 | 2.01 | |
| 10/08/04 | 11.66 | 12.07 | 5.00 | 1.87 | 2.62 | 1.27 | 0.93 | 1.56 | 2.42 | 1.50 | 1.36 | |
| 10/25/04 | 12.23 | 13.12 | 3.90 | 2.17 | 8.50 | 1.08 | 1.84 | 2.64 | 1.93 | 1.61 | 1.97 | Q4 sampling |
| 12/16/04 | 1.69 | 9.54 | 1.95 | 2.14 | 2.70 | 2.24 | 1.83 | 2.51 | 2.27 | 1.62 | 2.01 | |
| 12/29/04 | 10.05 | 10.24 | 2.01 | 1.37 | 1.63 | 0.89 | 1.61 | 2.58 | 2.25 | 2.10 | 4.72 | |
| 01/13/05 | 4.40 | 10.81 | 3.08 | 1.86 | 1.87 | 2.19 | 2.35 | 2.47 | 1.25 | 1.86 | 1.78 | Q1 sampling |
| 02/11/05 | 6.82 | 14.17 | 7.52 | 6.99 | 5.14 | 2.51 | 3.56 | 6.44 | 5.19 | 4.24 | 0.67 | |
| 03/03/05 | 8.83 | 8.60 | 6.50 | 2.56 | 4.03 | 1.63 | 1.18 | 0.93 | 1.46 | 1.09 | 1.27 | |
| 03/16/05 | 7.98 | 9.72 | 6.88 | 4.35 | 5.82 | 2.86 | 2.61 | 2.46 | 2.74 | 2.26 | 1.90 | |
| 03/23/05 | 6.89 | 8.12 | 7.50 | 2.86 | -- | 1.80 | 2.14 | 1.85 | 1.90 | 1.21 | 3.49 | |
| 04/07/05 | 8.47 | 8.13 | 8.19 | 2.59 | 2.15 | 2.89 | 3.24 | 3.69 | 1.36 | 2.80 | 3.89 | Q2 sampling |
| 04/21/05 | 2.78 | 8.83 | 2.25 | 1.32 | 1.76 | 2.78 | 2.54 | 1.66 | 1.40 | 1.16 | 1.38 | |

ppm = parts per million

## Table 3A - Dissolved Oxygen (dO) and Oxidation/Reduction (ORP) Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

### Monitoring Wells - Dissolved Oxygen (dO) Measurements

| Distance to Ozone Well | 15 feet | 17 feet | 30 feet | 75 feet | 60 feet | 65 feet | 65 feet | 34 feet | 18 feet | 60 feet | 20 feet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dO Date | MW-1 (ppm) | MW-2 (ppm) | MW-3 (ppm) | MW-4 (ppm) | MW-5 (ppm) | MW-6 (ppm) | MW-7 (ppm) | MW-8 (ppm) | RW-9 (ppm) | RW-10 (ppm) | RW-11 (ppm) | Comments |
| 05/16/05 | 7.56 | 10.07 | 7.13 | 1.88 | 4.28 | 3.27 | 4.09 | 1.53 | 1.23 | 2.07 | 4.15 | |
| 05/31/05 | 1.70 | 11.05 | 6.35 | 2.88 | 4.45 | 1.26 | 2.04 | 1.64 | 1.36 | 2.43 | 0.59 | System OFF |
| 06/14/05 | 3.62 | 3.87 | 3.38 | 0.90 | 1.59 | 1.52 | 1.75 | 2.13 | 1.52 | 1.44 | 2.37 | System OFF |
| 08/09/05 | 2.02 | 3.74 | 1.90 | 1.75 | 2.61 | 1.31 | 2.10 | 3.02 | 2.50 | 1.12 | 1.52 | System OFF |
| 08/17/05 | 5.36 | 5.68 | 3.03 | 0.80 | 3.86 | 2.79 | 2.54 | 0.75 | 1.13 | 1.29 | 0.78 | |
| 09/13/05 | 5.78 | 8.61 | 3.13 | 2.91 | 3.33 | 2.81 | 2.13 | 3.77 | 2.41 | 1.12 | 3.43 | |
| 09/29/05 | 2.8 | 7.5 | 4.0 | 2.0 | 4.2 | 3.0 | 2.4 | 1.7 | 2.7 | 1.9 | 1.8 | |
| 10/27/05 | 2.7 | 7.0 | 4.0 | 2.1 | 4.3 | 3.0 | 2.0 | 1.6 | 2.3 | 2.0 | 1.6 | Q4 sampling |
| 11/09/05 | 2.8 | 7.5 | 4.0 | 2.0 | 4.2 | 3.0 | 2.4 | 1.7 | 2.7 | 1.9 | 1.8 | |
| 11/21/05 | 3.2 | 6.6 | 4.3 | 2.4 | 4.3 | 3.2 | 2.3 | 1.4 | 3.0 | 2.2 | 1.8 | |
| 12/08/05 | 3.3 | 6.4 | 4.2 | 2.2 | 4.4 | 3.4 | 2.4 | 1.6 | 3.2 | 2.4 | 2.0 | |
| 12/19/05 | 3.4 | 6.0 | 4.4 | 2.4 | 4.2 | 3.2 | 2.3 | 1.4 | 3.0 | 2.2 | 2.4 | |
| 01/06/06 | 3.5 | 5.8 | 4.6 | 2.6 | 4.4 | 3.3 | 2.5 | 1.6 | 3.2 | 2.4 | 2.2 | |
| 01/23/06 | 3.7 | 6.0 | 4.4 | 2.8 | 4.6 | 3.5 | 2.7 | 1.8 | 3.4 | 2.6 | 2.4 | Q1 sampling |
| 02/08/06 | 3.4 | 5.7 | 4.2 | 3.0 | 4.3 | 3.3 | 2.4 | 2.0 | 3.6 | 2.8 | 2.6 | |
| 02/22/06 | 3.6 | 5.5 | 4.5 | 3.3 | 4.5 | 3.2 | 2.3 | 2.2 | 3.4 | 3.0 | 2.4 | |
| 03/09/06 | 4.1 | 4.9 | 4.8 | 4.3 | 4.0 | 2.3 | 1.9 | 2.0 | 3.7 | 3.1 | 2.6 | |
| 03/20/06 | 3.9 | 5.8 | 5.2 | 3.8 | 4.1 | 2.7 | 2.2 | 2.6 | 4.0 | 2.8 | 3.8 | |
| 04/04/06 | 3.6 | 5.0 | 5.5 | 4.3 | 4.5 | 2.2 | 2.7 | 2.4 | 4.0 | 3.0 | 3.3 | Q2 sampling |
| 04/20/06 | 4.5 | 7.2 | 4.8 | 2.9 | 4.1 | 2.9 | 2.7 | 3.2 | 3.8 | 2.6 | 3.3 | |
| 05/03/06 | 5.3 | 6.6 | 6.2 | 4.5 | 5.0 | 2.7 | 2.3 | 2.9 | 4.6 | Ozone Well | 4.1 | |
| 05/16/06 | 3.0 | 5.5 | 3.7 | 2.3 | 3.2 | 2.9 | 3.0 | 1.9 | 3.5 | 7.3 | 2.9 | RW-10 added |
| 06/07/06 | 2.4 | 7.3 | 4.9 | 1.8 | 2.8 | 3.0 | 2.9 | 2.1 | 2.7 | 8.7 | 3.5 | |
| 06/20/06 | 0.9 | 1.2 | 0.6 | 1.3 | 1.8 | 1.5 | 1.7 | 1.3 | 0.8 | 6.1 | 0.7 | System OFF |
| 07/08/06 | 1.7 | 2.0 | 1.4 | 1.5 | 1.4 | 0.2 | 0.3 | 1.1 | 0.9 | nm | 1.4 | System ON |
| 07/16/06 | 1.4 | 5.7 | 1.3 | 0.8 | 2.0 | 1.7 | 1.6 | 1.3 | 1.5 | 6.0 | 0.6 | Q3 sampling |
| 07/27/06 | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | |
| 08/08/06 | 2.2 | 7.4 | 1.7 | 0.8 | 4.7 | 1.4 | 1.8 | 1.2 | 2.2 | 20 | 0.9 | |
| 08/23/06 | 1.1 | 7.6 | 1.9 | 1.1 | 4.2 | 2.0 | 1.8 | 1.7 | 0.8 | 6.9 | 1.0 | OSS shut down |
| 09/11/06 | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | OSS restarted |
| 09/12/06 | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | OSS shut down |

ppm = parts per million

## Table 3A - Dissolved Oxygen (dO) and Oxidation/Reduction (ORP) Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

**Monitoring Wells - Dissolved Oxygen (dO) Measurements**

| Distance to Ozone Well | 15 feet | 17 feet | 30 feet | 75 feet | 60 feet | 65 feet | 65 feet | 34 feet | 18 feet | 0 feet | 20 feet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dO Date | MW-1 (ppm) | MW-2 (ppm) | MW-3 (ppm) | MW-4 (ppm) | MW-5 (ppm) | MW-6 (ppm) | MW-7 (ppm) | MW-8 (ppm) | RW-9 (ppm) | RW-10 (ppm) | RW-11 (ppm) | Comments |
| 10/12/06 | 1.3 | 1.6 | 1.7 | 1.0 | 3.0 | 2.2 | 1.6 | 1.3 | 1.1 | 2.0 | 1.4 | System ON |
| 10/25/06 | 1.4 | 4.5 | 1.6 | 1.6 | 4.2 | 2.6 | 3.2 | 1.1 | 2.6 | 20 | 2.2 | Q4 sampling |
| 11/09/06 | 0.7 | 3.1 | 1.4 | 0.5 | 1.9 | 2.4 | 2.9 | 1.7 | 1.9 | 10.1 | 2.6 | oxy mode |
| 11/30/06 | 1.2 | 3.2 | 1.8 | 1.1 | 2.7 | 1.5 | 1.9 | 2.0 | 1.3 | 5.2 | 2.9 | oxy mode |
| 12/07/06 | 9.2 | 5.1 | 2.3 | 1.3 | 3.2 | 1.8 | 2.0 | 3.4 | 1.1 | 11.2 | 3.3 | oxy mode |
| 12/19/06 | 9.2 | 5.6 | 2.6 | 1.5 | 3.0 | 2.0 | 1.9 | 3.8 | 2.9 | 10.5 | 3.5 | oz mode |
| 01/04/07 | 1.3 | 1.8 | 1.9 | 1.9 | 2.9 | 1.5 | 1.4 | 1.5 | 2.5 | nm | 1.5 | Q1 sampling |
| 01/10/07 | 7.0 | 5.3 | 3.1 | 1.9 | 3.5 | 2.2 | 2.2 | 3.9 | 4.2 | 12.2 | 3.3 | oz mode |
| 02/16/07 | 5.0 | 11.3 | 4.5 | 1.2 | 1.1 | 2.2 | 2.6 | 4.4 | 1.8 | 12.3 | 4.1 | oz mode |
| 03/02/07 | 4.6 | 8.5 | 3.9 | 1.6 | 1.8 | 2.4 | 2.3 | 1.4 | 2.4 | 12.7 | 2.2 | oz mode |
| 03/14/07 | 4.3 | 8.0 | 4.2 | 1.4 | 0.9 | 2.0 | 2.0 | 1.7 | 2.8 | 11.8 | 2.5 | oz mode |
| 04/09/07 | 2.3 | 3.8 | 3.9 | 2.6 | 2.0 | 3.2 | 3.7 | 3.4 | 3.1 | 5.5 | 2.1 | Q2 sampling |
| 04/25/07 | 3.0 | 4.8 | 3.6 | 1.9 | 2.2 | 2.4 | 2.3 | 2.6 | 3.3 | 8.7 | 3.0 | oz mode |
| 05/10/07 | 2.7 | 4.0 | 3.1 | 3.0 | 3.3 | 2.7 | 2.9 | 2.9 | 1.2 | 10.4 | 2.7 | oz mode |
| 05/25/07 | 2.6 | 2.9 | 2.8 | 2.7 | 4.2 | 3.0 | 2.9 | 2.5 | 1.2 | 11.3 | 2.4 | oz mode |
| 06/04/07 | 3.0 | 2.2 | 2.6 | 2.0 | 5.5 | 2.8 | 2.7 | 1.8 | 1.4 | 9.9 | 2.7 | oz mode |
| 06/28/07 | 1.6 | nm | nm | 2.7 | 3.8 | nm | nm | nm | 1.4 | 8.6 | nm | oz mode |
| 07/05/07 | 3.1 | 0.9 | 3.2 | 3.5 | 4.0 | 3.4 | 3.8 | 3.9 | 3.4 | 3.8 | 3.1 | Q3 sampling |
| 07/18/07 | 3.6 | 3.0 | 2.4 | 1.9 | 3.3 | 2.2 | 2.7 | 3.2 | 1.7 | 8.8 | 1.5 | oz mode |
| 08/03/07 | 2.9 | 2.7 | 2.4 | 2.0 | 3.9 | 2.3 | 2.4 | 3.1 | 2.7 | 7.6 | 1.0 | oz mode |
| 08/27/07 | 0.4 | 2.6 | 1.1 | 2.2 | 3.1 | 2.5 | 2.8 | 2.9 | 0.7 | 10.1 | 1.0 | oz mode |
| 09/14/07 | 0.4 | 2.5 | 1.2 | 1.1 | 3.7 | 2.0 | 2.4 | 1.9 | 0.6 | 10.7 | 1.2 | oz mode |
| 09/25/07 | 0.5 | 2.3 | 1.5 | 2.8 | 1.3 | 1.4 | 1.9 | 1.2 | 1.6 | 8.4 | 1.0 | oz mode |
| 10/08/07 | 1.0 | 2.2 | 1.4 | 2.6 | 3.7 | 2.2 | 2.3 | 2.7 | 0.9 | 11.6 | 1.3 | oz mode |
| 10/24/07 | 1.1 | 2.6 | 1.8 | 0.8 | 2.6 | 2.0 | 2.5 | 0.7 | 1.8 | 9.1 | 0.9 | oz mode |
| 11/09/07 | 2.4 | 1.6 | 1.2 | 1.2 | 1.0 | 1.3 | 1.0 | 1.8 | 1.7 | 5.5 | nm | Q4 sampling |
| 11/19/07 | 1.1 | 1.2 | 0.9 | 0.7 | 3.2 | 1.5 | 1.9 | 1.2 | 0.8 | 8.0 | 1.0 | oz mode |
| 12/05/07 | 1.3 | 0.9 | 1.2 | 1.1 | 3.4 | 1.8 | 1.8 | 1.6 | 1.5 | 9.5 | 2.5 | oz mode |
| 12/20/07 | 1.1 | 1.0 | 2.1 | 3.5 | 5.6 | 1.9 | 1.2 | 1.1 | 1.7 | 8.2 | 4.7 | OSS shut down |

ppm = parts per million

## Table 3A - Dissolved Oxygen (dO) and Oxidation/Reduction (ORP) Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

**Monitoring Wells - Dissolved Oxygen (dO) Measurements**

| Distance to Ozone Well | 15 feet | 17 feet | 30 feet | 75 feet | 60 feet | 65 feet | 65 feet | 34 feet | 18 feet | 0 feet | 20 feet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dO Date | MW-1 (ppm) | MW-2 (ppm) | MW-3 (ppm) | MW-4 (ppm) | MW-5 (ppm) | MW-6 (ppm) | MW-7 (ppm) | MW-8 (ppm) | RW-9 (ppm) | RW-10 (ppm) | RW-11 (ppm) | Comments |
| 01/04/08 | 1.9 | 1.1 | 3.0 | 1.7 | 1.7 | 1.2 | 1.1 | 1.2 | 1.5 | 3.2 | 1.7 | Q1 sampling |
| 01/08/08 | 0.5 | 0.7 | 0.7 | 1.9 | 3.6 | 1.1 | 1.3 | 1.2 | 1.0 | 11.6 | 1.5 | OSS restarted |
| 01/22/08 | 0.8 | 1.0 | 0.9 | 1.6 | 2.9 | 1.2 | 1.1 | 1.4 | 1.2 | 9.9 | 1.0 | oz mode |
| 02/11/08 | 1.0 | 1.1 | 2.5 | 1.5 | 1.9 | 1.4 | 1.5 | 1.8 | 0.8 | 5.6 | 1.7 | oz mode |
| 02/21/08 | 1.4 | 2.5 | 1.3 | 2.9 | 4.2 | 3.2 | 2.7 | 3.3 | 1.9 | 10.8 | 2.6 | oz mode |
| 03/05/08 | 1.2 | 2.0 | 1.0 | 2.1 | 3.6 | 2.4 | 2.2 | 1.9 | 1.4 | 3.8 | 1.8 | oz mode |
| 03/25/08 | 0.8 | 1.1 | 1.2 | 2.5 | 3.6 | 1.9 | 2.4 | 2.0 | 1.9 | 7.3 | 1.0 | oz mode |
| 04/08/08 | 0.7 | 0.9 | 1.3 | 2.0 | 3.8 | 2.1 | 2.0 | 1.7 | 1.4 | 6.3 | 0.8 | oz mode |
| 04/17/08 | 0.9 | 0.9 | 1.0 | 2.4 | 3.7 | 1.7 | 1.9 | 1.4 | 1.0 | 11.3 | 1.2 | oz mode |
| 04/24/08 | 2.0 | 2.2 | 1.6 | 2.0 | 2.0 | 2.9 | 1.6 | 3.6 | 1.5 | 3.3 | 1.5 | Q2 sampling |
| 05/16/08 | 1.0 | 2.3 | 2.9 | 1.8 | 3.3 | 1.5 | 1.7 | 1.9 | 1.2 | 6.8 | 1.6 | OSS shut down |
| 05/29/08 | 0.8 | 1.8 | 1.0 | 1.9 | 3.6 | 1.7 | 1.4 | 2.2 | 0.7 | 2.6 | 0.9 | OSS off |

ppm = parts per million

## Table 3A - Dissolved Oxygen (dO) and Oxidation/Reduction (ORP) Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

### Ozone Sparge Wells - Oxidation Reduction Potential (ORP) Measurements

| ORP Date | OS-1 (mV) | OS-2 (mV) | OS-3 (mV) | OS-4 (mV) | OS-5 (mV) | OS-6B (mV) | OS-6B (mV) | Comments |
|---|---|---|---|---|---|---|---|---|
| 01/13/05 | | | | | | | | |
| 04/22/05 | 194 | 201 | 201 | 208 | 209 | 199 | | mV = millivolts |
| 05/31/05 | 22 | 50 | 47 | 40 | 75 | 80 | | |
| 04/05/06 | 42 | 51 | 86 | 68 | 53 | 45 | | Q2 2006 sampling data |
| 03/14/07 | -22 | -14 | -38 | -75 | -41 | -27 | -4.0 | |

### Monitoring Wells - Oxidation Reduction Potential (ORP) Measurements

| Distance to Ozone Well | 15 feet | 17 feet | 30 feet | 75 feet | 60 feet | 65 feet | 65 feet | 34 feet | 18 feet | 60 feet | 20 feet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ORP Date | MW-1 (mV) | MW-2 (mV) | MW-3 (mV) | MW-4 (mV) | MW-5 (mV) | MW-6 (mV) | MW-7 (mV) | MW-8 (mV) | RW-9 (mV) | RW-10 (mV) | RW-11 (mV) | Comments |
| 03/03/05 | 245 | 358 | 333 | 46 | 298 | 305 | 116 | -20 | -12 | 47 | 170 | |
| 03/16/05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 03/23/05 | 190 | 135 | 170 | 17 | -- | 121 | 109 | 107 | -3 | 16 | 147 | |
| 04/07/05 | 377 | 392 | 433 | -39 | 137 | 136 | 152 | 143 | -54 | 21 | 360 | Q2 sampling |
| 04/21/05 | 16 | 117 | 125 | -62 | 168 | 32 | 71 | 46 | -25 | 19 | -26 | |
| 05/16/05 | 51 | 34 | -16 | -43 | 6 | 20 | 113 | -19 | -21 | -27 | -97 | |
| 05/31/05 | -32 | 76 | 31 | 38 | -68 | -35 | -41 | -37 | -34 | -29 | -51 | System OFF |
| 06/14/05 | 39 | 30 | 22 | -6 | 38 | 7 | 4 | -20 | 3 | -22 | 0 | System OFF |
| 08/09/05 | 40 | 20 | 76 | -16 | 0 | -4 | 26 | 20 | -3 | 47 | 68 | System OFF |
| 08/17/05 | 27 | 11 | 5 | -12 | 105 | 25 | 0 | -36 | 18 | 77 | -58 | |
| 09/13/05 | 117 | 83 | 125 | 23 | 71 | 101 | 150 | 123 | 5 | 0 | 79 | |
| 09/29/05 | -14 | 17 | 12 | -6 | 95 | 16 | 23 | -19 | 24 | -30 | -6 | |
| 10/27/05 | -11 | 14 | 10 | -3 | 98 | 16 | 19 | -15 | 23 | -26 | -9 | Q4 sampling |
| 11/09/05 | -14 | 17 | 12 | -6 | 95 | 16 | 23 | -19 | 24 | -30 | -6 | |
| 11/21/05 | -13 | 20 | 15 | -11 | 90 | 15 | 27 | -22 | 23 | -27 | -13 | |
| 12/19/05 | -22 | -19 | -17 | -26 | 55 | -30 | -28 | -33 | -25 | -31 | -29 | |

mV = millivolts

## Table 3A - Dissolved Oxygen (dO) and Oxidation/Reduction (ORP) Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

**Monitoring Wells - Oxidation Reduction Potential (ORP) Measurements**

| Distance to Ozone Well | 15 feet | 17 feet | 30 feet | 75 feet | 60 feet | 65 feet | 65 feet | 34 feet | 18 feet | 0 feet | 20 feet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ORP Date | MW-1 (mV) | MW-2 (mV) | MW-3 (mV) | MW-4 (mV) | MW-5 (mV) | MW-6 (mV) | MW-7 (mV) | MW-8 (mV) | RW-9 (mV) | RW-10 (mV) | RW-11 (mV) | Comments |
| 01/06/06 | 99 | 106 | 112 | 103 | 98 | 81 | 79 | 83 | 112 | 93 | 101 | new ORP meter |
| 01/23/06 | 101 | 108 | 109 | 105 | 100 | 85 | 83 | 85 | 114 | 96 | 103 | Q1 sampling |
| 02/08/06 | 98 | 104 | 106 | 107 | 96 | 87 | 85 | 87 | 116 | 99 | 105 | |
| 02/22/06 | 100 | 101 | 108 | 108 | 99 | 85 | 83 | 88 | 114 | 101 | 107 | |
| 03/09/06 | 29 | 43 | 45 | 38 | 38 | 8 | 6 | 10 | 31 | 22 | 18 | new ORP meter |
| 03/20/06 | 31 | 50 | 42 | 27 | 35 | 13 | 4 | 13 | 24 | 17 | 20 | |
| 04/04/06 | 27 | 39 | 49 | 32 | 28 | 8 | 8 | 5 | 19 | 26 | 25 | Q2 sampling |
| 04/20/06 | 39 | 66 | 45 | 12 | 30 | 8 | 7 | 16 | 32 | 4 | 21 | |
| 05/03/06 | 56 | 74 | 83 | 52 | 40 | 16 | 7 | 22 | 39 | Ozone Well | 29 | |
| 05/16/06 | 13 | 22 | 20 | 27 | 31 | -9 | -4 | -2 | 22 | 9 | 15 | RW-10 added |
| 06/07/06 | 19 | -10 | 22 | 53 | 26 | 5 | 13 | 17 | 25 | -14 | 16 | |
| 06/20/06 | -2 | -4 | -2 | 17 | -10 | 8 | -1 | 5 | 4 | -32 | -3 | System OFF |
| 07/08/06 | -2 | 16 | 24 | -73 | -91 | -22 | -10 | -48 | -49 | nm | 8 | System ON |
| 07/16/06 | -3 | 8 | -6 | 35 | -12 | 9 | 4 | -7 | 19 | 10 | -25 | Q3 sampling |
| 07/27/06 | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | |
| 08/08/06 | 5 | -11 | -2 | 45 | 0 | -3 | 8 | -6 | 16 | 22 | -11 | |
| 08/23/06 | 10 | -14 | -13 | 78 | 4 | 3 | 13 | 2 | 29 | -34 | -19 | OSS shut down |
| 09/11/06 | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | OSS restarted |
| 09/12/06 | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | nm | OSS shut down |
| 10/12/06 | 19 | 6 | -4 | 63 | -8 | -2 | 21 | 9 | 36 | -20 | -16 | System ON |
| 10/25/06 | 26 | 144 | 5 | 18 | 145 | 81 | 121 | 37 | 61 | 42 | -6 | Q4 sampling |
| 11/09/06 | 39 | 22 | -7 | 97 | -2 | 2 | 13 | 25 | 18 | -13 | 9 | oxy mode |
| 11/30/06 | 30 | 16 | -5 | 46 | -7 | 12 | 18 | 28 | 25 | -26 | 3 | oxy mode |
| 12/07/06 | -3 | 12 | 0 | 56 | -12 | 13 | 17 | 16 | 28 | -29 | 7 | oxy mode |
| 12/19/06 | -12 | 16 | -1 | 64 | -28 | 8 | 2 | 10 | 3 | -37 | 14 | oz mode |

mV = millivolts

## Table 3A - Dissolved Oxygen (dO) and Oxidation/Reduction (ORP) Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

**Monitoring Wells - Oxidation Reduction Potential (ORP) Measurements**

| Distance to Ozone Well | 15 feet | 17 feet | 30 feet | 75 feet | 60 feet | 65 feet | 65 feet | 34 feet | 18 feet | 0 feet | 20 feet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ORP Date | MW-1 (mV) | MW-2 (mV) | MW-3 (mV) | MW-4 (mV) | MW-5 (mV) | MW-6 (mV) | MW-7 (mV) | MW-8 (mV) | RW-9 (mV) | RW-10 (mV) | RW-11 (mV) | Comments |
| 01/04/07 | 47 | 81 | 106 | 67 | 97 | 116 | 91 | 101 | 89 | nm | 78 | Q1 sampling |
| 01/10/07 | 44 | 61 | 50 | 92 | 40 | 36 | 27 | 48 | 56 | 64 | 45 | oz mode |
| 02/16/07 | 13 | -4 | -2 | 18 | 5 | 16 | 10 | 13 | 22 | -17 | 8 | oz mode |
| 03/02/07 | 9 | -6 | 5 | 12 | -6 | 11 | 4 | 27 | 18 | -11 | 7 | oz mode |
| 03/14/07 | 14 | -3 | 10 | 27 | -11 | 2 | -3 | 21 | 20 | -4 | 9 | oz mode |
| 04/09/07 | 26 | 46 | 7 | 2 | 13 | 16 | 31 | 33 | 14 | 13 | 3 | Q2 sampling |
| 04/25/07 | 22 | 14 | 19 | 23 | 11 | 22 | 27 | 23 | 10 | 6 | 9 | oz mode |
| 05/10/07 | 33 | 38 | 10 | 47 | 21 | 18 | 19 | 34 | 23 | -21 | 9 | oz mode |
| 05/25/07 | 31 | 26 | 20 | 38 | 17 | 22 | 22 | 27 | 37 | -9 | 19 | oz mode |
| 06/04/07 | 41 | 29 | 14 | 32 | 12 | 27 | 18 | 26 | 41 | -2 | 29 | oz mode |
| 06/28/07 | 21 | nm | nm | 38 | 27 | nm | nm | nm | 6 | -12 | nm | oz mode |
| 07/05/07 | 38 | 20 | 71 | 50 | 24 | 56 | 31 | 18 | 61 | 46 | 27 | Q3 sampling |
| 07/18/07 | -22 | -16 | -10 | 34 | 2 | -9 | -14 | -16 | -13 | 7 | -14 | oz mode |
| 08/03/07 | 9 | 6 | 2 | -4 | 9 | 12 | 5 | 11 | -11 | 19 | -12 | oz mode |
| 08/27/07 | 12 | 17 | 19 | 17 | -19 | -2 | 0 | 11 | 31 | -46 | 18 | oz mode |
| 09/14/07 | 15 | 5 | 6 | 17 | -6 | 4 | 11 | 5 | 27 | -20 | 12 | oz mode |
| 09/25/07 | 12 | 3 | 1 | -42 | 15 | 10 | -15 | 5 | 19 | -27 | 14 | oz mode |
| 10/08/07 | 6 | 12 | 11 | 33 | 5 | 10 | 1 | 13 | 20 | -18 | 14 | oz mode |
| 10/24/07 | 12 | -6 | 1 | 36 | 9 | -3 | 16 | 13 | 19 | -17 | 14 | oz mode |
| 11/09/07 | 56 | 52 | 46 | 36 | 40 | 22 | 49 | 31 | 39 | 76 | nm | Q4 sampling |
| 11/19/07 | 16 | 4 | -6 | 30 | -7 | -13 | -2 | -10 | -8 | 12 | 3 | oz mode |
| 12/05/07 | 13 | 11 | 8 | 20 | 16 | -2 | 10 | 3 | 6 | 18 | 21 | oz mode |
| 12/20/07 | 19 | 22 | 47 | 39 | 26 | 29 | 31 | 42 | 36 | 19 | 21 | OSS shut down |
| 01/04/08 | 17 | 12 | 17 | 14 | 24 | 19 | 19 | 11 | -45 | 18 | 21 | Q1 sampling |
| 01/08/08 | -4 | -8 | -2 | 19 | 5 | -9 | -1 | -6 | -4 | -3 | 9 | **OSS restarted** |
| 02/11/08 | -5 | 31 | 45 | 16 | 2 | 27 | 31 | 43 | -7 | 68 | 39 | oz mode |
| 02/21/08 | 11 | 16 | 18 | 2 | 29 | 20 | 8 | 23 | 17 | 34 | 15 | oz mode |
| 03/05/08 | 33 | 45 | 40 | 63 | 53 | 46 | 38 | 54 | 37 | 56 | 46 | oz mode |
| 03/25/08 | 20 | 9 | 36 | 44 | 16 | 10 | 12 | 23 | 22 | 36 | 19 | oz mode |

mV = millivolts

## Table 3A - Dissolved Oxygen (dO) and Oxidation/Reduction (ORP) Monitoring Data
## Tesoro Site No. 67093
## 2601 Lakeville Highway
## Petaluma, California

**Monitoring Wells - Oxidation Reduction Potential (ORP) Measurements**

| Distance to Ozone Well | 15 feet | 17 feet | 30 feet | 75 feet | 60 feet | 65 feet | 65 feet | 34 feet | 18 feet | 0 feet | 20 feet | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ORP Date** | **MW-1** (mV) | **MW-2** (mV) | **MW-3** (mV) | **MW-4** (mV) | **MW-5** (mV) | **MW-6** (mV) | **MW-7** (mV) | **MW-8** (mV) | **RW-9** (mV) | **RW-10** (mV) | **RW-11** (mV) | **Comments** |
| 04/08/08 | 33 | 14 | 29 | 56 | 19 | 15 | 9 | 20 | 18 | 25 | 24 | oz mode |
| 04/17/08 | 17 | 25 | 26 | 47 | 22 | 24 | 10 | 20 | 23 | 14 | 18 | oz mode |
| 04/24/08 | 6 | 31 | 13 | 2 | 11 | 3 | 11 | -2 | 15 | 2 | 21 | **Q2 sampling** |
| 05/16/08 | 15 | 16 | 6 | 37 | 10 | 12 | 19 | 4 | 13 | 20 | -3 | **OSS shut down** |
| 05/29/08 | 11 | 11 | 9 | 33 | -4 | -2 | 5 | -1 | 4 | 9 | 6 | **OSS off** |
| | | | | | | | | | | | | |

mV = millivolts

# APPENDIX H

# QUALIFICATIONS

## Kathryn Smith – Project Manager

BS – Science, Technology & Society with concentration in Environment & Sustainability, Stanford University

Ms. Smith provides project management to ensure ASTM compliance and satisfaction of client requirements for Phase I Environmental Assessments, Environmental Transaction Screens, Regulatory Database Review, and Historical Records Review.

Project experience for Ms. Smith includes:

- Phase I Environmental Site Assessments (PHI ESA)
- Environmental Transaction Screens (ETS)
- Regulatory Database Review
- Historical Records Review

In addition, prior to joining the environmental consulting industry, Ms. Smith spent five years studying a diverse range of environmental disciplines including: Civil and Environmental Engineering, Building Information Modeling (BIM), Energy Systems, Pollution and Climate Change, Ecology, Geographic Information Systems (GIS), Environmental Policy, and Sustainable Development and Environmental Planning.

## Richard D. Fehler – National Client Manager

B.S. – Zoology, University of California, Davis

California Registered Environmental Assessor (REA I)

Mr. Fehler has over twenty-five years of environmental management experience gained as an environmental consultant; in the chemical manufacturing industry; in the hazardous waste management industry; and as an environmental regulator. He specializes in all aspects of environmental due diligence, regulatory compliance and negotiations, hazardous waste management, and auditing. Mr. Fehler has also received training in Greenhouse Gas and Sustainability Verification.

Mr. Fehler has served as project principal on hundreds of projects with wide-ranging scopes, including peer reviews and desktop reviews; due diligence on large portfolios (200 sites+), as well as single assets; investigation and management of lead, asbestos, mold, and *Legionella*; investigation, remediation and management of contamination in groundwater, soil and soil vapor; regulatory compliance and auditing; and representing clients with regulators to negotiate site closure/No Further Action and/or to develop effective remediation strategies and budgets.

Project experience for Mr. Fehler includes:

- Multiple Site Due Diligence - Managed and designed projects for many large portfolios (100-plus) of varied properties spread across various states. The scopes of work frequently include Indoor Air Quality/mold issues, lead-based paint, asbestos, and radon testing. The design of appropriate Phase II sampling is frequently required to resolve and close issues.

- Environmental Compliance Reviews – Designed and managed many environmental compliance audits for single or multiple assets. Project activities usually involve inspections, interviews, reviewing environmental permits, past environmental reports, standard operating procedures, material safety data sheets (MSDS), and other information related to regulatory compliance in the areas of hazardous materials, hazardous and non-hazardous waste management, workplace health & safety, air permitting and emission reporting, waste water permitting and monitoring, storm water management, underground storage tanks, and aboveground storage tanks.

- Regulatory Negotiation – Managed many Phase II investigations conducted in response to regulatory requirements or to resolve issues and/or to obtain case closure or No Further Action. Represented clients with regulators to negotiate appropriate scopes of work and move projects to successful completion.

# APPENDIX I

# LIST OF COMMONLY USED ABBREVIATIONS

## UNITS

| | | | |
|---|---|---|---|
| **µg/L** | Micrograms per Liter | **pCi/L** | PicoCuries per Liter |
| **mg/kg** | Milligrams per Kilogram | **ppb** | Parts per Billion |
| **mg/L** | Milligrams per Liter | **ppm** | Parts per Million |

## ABBREVIATIONS AND ACRONYMS

| | | | |
|---|---|---|---|
| **ACM** | Asbestos-Containing Material | **NESHAP** | National Emission Standards for Hazardous Air Pollutants |
| **ADJ** | Adjacent site | **NFA** | No Further Action |
| **AEI** | AEI Consultants | **NFRAP** | No Further Remedial Action Planned |
| **AHERA** | Asbestos Hazard Emergency Response Act | **NLR** | No Longer Reporting |
| **APN** | Assessor's Parcel Number | **NOV** | Notice of Violation |
| **AST** | Aboveground Storage Tank | **NPL** | National Priorities List |
| **AUL** | Activity and Use Limitation | **O&M** | Operations and Maintenance |
| **bgs** | Below Ground Surface | **OEC** | Other Environmental Considerations |
| **BTEX** | Benzene, Toluene, Ethylbenzene, and Xylenes | **OSHA** | Occupational Safety and Health Administration |
| **CERCLA** | Comprehensive Environmental Response Compensation and Liability Act | **PCB** | Polychlorinated Biphenyl |
| **CERCLIS** | Comprehensive Environmental Response Compensation and Liability Information System | **PCE, PERC** | Perchloroethylene, Tetrachloroethylene, Tetrachloroethene |
| **CESQGs** | Conditionally Exempt Small Quantity Generators | **RCRA** | Resource Conservation and Recovery Act |
| **COC** | Contaminant of Concern | **REC** | Recognized Environmental Condition |
| **CREC** | Controlled Recognized Environmental Condition | **RP** | Responsible Party |
| **EC** | Engineering Controls | **SDS** | Safety Data Sheet |
| **EDR** | Environmental Data Resources, Inc. | **SEMS** | Superfund Enterprise Management System |
| **EPA** | Environmental Protection Agency | **SF** | Square Footage/Square Feet |
| **ERIS** | Environmental Risk Information Services | **SP** | Subject Property |
| **ERNS** | Emergency Response Notification System | **SQG** | Small Quantity Generator |
| **ESA** | Environmental Site Assessment | **SWLF** | Solid Waste Landfill |
| **GPR** | Ground-Penetrating Radar | **SVOC** | Semi-Volatile Organic Compound |
| **HREC** | Historical Recognized Environmental Condition | **TCE** | Trichloroethylene, Trichloroethene |
| **HVAC** | Heating, Ventilation and Air Conditioning | **TPH** | Total Petroleum Hydrocarbons |
| **HWS** | Hazardous Waste Site | **TPHd** | Total Petroleum Hydrocarbons (diesel range) |
| **IC** | Institutional Controls | **TPHg** | Total Petroleum Hydrocarbons (gasoline range) |
| **LBP** | Lead-Based Paint | **TPHo** | Total Petroleum Hydrocarbons (oil range) |
| **LCP** | Lead-Containing Paint | **TRPH** | Total Recoverable Petroleum Hydrocarbons |
| **LLP** | Landowner Liability Protection | **TSDF** | Treatment, Storage, and Disposal Facility |
| **LQG** | Large Quantity Generator | **USDA** | United States Department of Agriculture |
| **LUST** | Leaking Underground Storage Tank | **USGS** | United States Geological Survey |
| **MCL** | Maximum Contaminant Level | **UST** | Underground Storage Tank |
| **MTBE** | Methyl Tertiary Butyl Ether | **VCP** | Voluntary Cleanup Program |
| **ND** | None Detected | **VOC** | Volatile Organic Compound |