

# DUAL PHASE EXTRACTION OFF-SITE SYSTEM EXPANSION

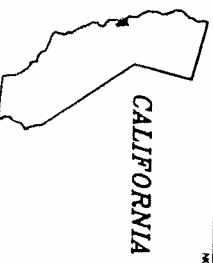
**LOMBARD AND RICHARDSON  
COMMINGLED PLUME  
2 RICHARDSON AVENUE  
SAN FRANCISCO, CALIFORNIA**

**AUGUST 2012**

**LOCATION MAP**



**SITE LOCATION MAP  
NOT TO SCALE**



**CALIFORNIA**

**QUADRANGLE LOCATION**



DRAWING NUMBER	TITLE AND DESCRIPTION
G-1	COVER SHEET
G-2A	CONSTRUCTION NOTES
G-2B	CONSTRUCTION NOTES
G-3	EXISTING SITE PLAN
G-4	EXISTING SITE PLAN WITH PROPOSED REMEDIATION SYSTEM
G-5	TRENCH DETAILS
G-6	WELL VAULT AND WELLHEAD DETAILS

**DRAWING INDEX**

**PROPERTY OWNER:**

CALVIN WOO  
150 MALLORCA WAY  
SAN FRANCISCO, CA 94123

**PARCEL #:** 0934-019  
**APPROXIMATE  
PARCEL AREA:** 7,305 ft<sup>2</sup>

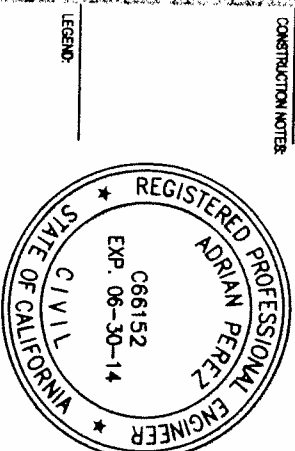


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**CONTRIBUTION NOTES:**



**LEGEND:**

REV	DESCRIPTION	DATE	DATE APPD.

**CLIENT/PROJECT:**  
LOMBARD AND RICHARDSON  
COMMINGLED PLUME  
2 RICHARDSON AVENUE  
SAN FRANCISCO, CALIFORNIA

**TITLE:**  
COVER SHEET

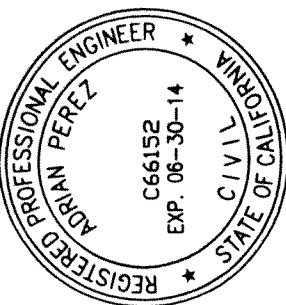
**PROJECT No:** \_\_\_\_\_ **SCALE:** N.T.S.  
**DRAWING No:** \_\_\_\_\_ **SHEET:** \_\_\_\_\_ **Revision:** \_\_\_\_\_



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CONSTRUCTION NOTES:



LEGEND:

## 2.2 PIPING

- ALL UNDERGROUND PROCESS PIPING SHALL BE SCHEDULE 80 PVC (UNLESS OTHERWISE INDICATED) WITH SOLVENT-WELDED SOCKET FITTINGS. ALL ABOVEGROUND PROCESS PIPING SHALL BE SCHEDULE 80 PVC (UNLESS OTHERWISE INDICATED) WITH SOLVENT-WELDED FITTINGS AS INDICATED BY THE DRAWINGS. CONTRACTOR TO USE LOW VOLATILE ORGANIC COMPOUND EMITTING PRIMERS AND SOLVENTS WHEN INSTALLING SOCKET FITTINGS, UNLESS OTHERWISE STATED. ALL VALVES SHALL BE PVC SOCKET-FITTED AS INDICATED BY THE DRAWINGS.
- ALL ABOVE GROUND PIPING SHALL BE PAINTED (ORANGE SOIL VAPOR, BLUE-WATER, GREEN-COMPRESSED AIR) OR LABELED.
- WHEN CONNECTING TO OR BYPASSING EXISTING UNDERGROUND PIPING THE CONTRACTOR SHALL FIRST VERIFY THE EXISTING PIPING PATH.
- WHERE PIPING IS ROUTED ABOVEGROUND INSIDE THE EQUIPMENT ENCLOSURE, THE PIPING SHALL BE SUPPORTED BY UNI-STRUT PIPE SUPPORTS AND CLAMPS. THE UNI-STRUT SUPPORTS SHALL BE FASTENED TO THE WALL OR MOUNTED ON A BASE THAT IS SECURED TO THE GROUND SURFACE.
- ALL PNEUMATIC PROCESS PIPING SHALL BE TESTED AT 50% OF DESIGN PRESSURE FOR 15 MINUTES AND 200% OF DESIGN PRESSURE FOR 1 HOUR OR ACCORDING TO LOCAL SPECIFICATIONS. EXTRACTION CONVEYANCE PIPING SHALL BE VACUUM TESTED AT 50% OF DESIGN VACUUM FOR 15 MINUTES AND 200% OF DESIGN VACUUM FOR 1 HOUR OR ACCORDING TO LOCAL SPECIFICATIONS. ALL TESTING MUST BE WITNESSED BY AN ENGINEER'S REPRESENTATIVE. NO TESTING WILL BE CONDUCTED THROUGH INSTRUMENT OR EQUIPMENT.
- WHENEVER POSSIBLE LATERAL PIPING SHALL BE SLOPED TOWARD WELLHEADS AT A RATIO OF 1:100.

## 2.3 ELECTRICAL

- ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE N.E.C., THE LOCAL BUILDING DEPARTMENT, AND THE LOCAL FIRE DEPARTMENT. ANY DRAWINGS REQUIRED FOR PERMITS OTHER THAN THOSE PRESENTED HEREIN WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REVIEWED BY THE ENGINEER PRIOR TO USE.
- IF NECESSARY, THE INSTALLATION SHALL COMPLY WITH A CLASS I, DIVISION II ENVIRONMENT AS PER N.E.C. AND LOCAL CODES. ALL WIRING CONNECTORS, CONDUIT AND CONTRACTOR SUPPLIED EQUIPMENT SHALL COMPLY WITH CLASS I, DIVISION II REQUIREMENTS, IF REQUIRED BY THE N.E.C. OR LOCAL CODES.
- ELECTRICAL WIRING SHALL BE CONTAINED IN RIGID CONDUIT AND ROUTED ALONG THE COMPOUND FLOOR AND WALLS OR BURIED AS ALLOWED BY LOCAL CODE.
- ALL COMPONENTS NECESSARY TO INSTALL THE REMEDIATION SYSTEM CONTROL PANEL SHALL BE SUPPLIED, CONSTRUCTED, AND INSTALLED BY THE CONTRACTOR.
- ALL ELECTRICAL CONNECTIONS IN SUBSURFACE VAULTS OR PULL BOXES SHALL BE COMPLETED AT A MINIMUM IN WATERTIGHT JUNCTION BOXES. EXPOSED WIRING IS NOT ACCEPTABLE IN VAULTS OR PULL BOXES.

## 2.4 EQUIPMENT ENCLOSURES

- CONTRACTOR SHALL INSTALL TEMPORARY CHAINLINK FENCE DURING CONSTRUCTION. THE FENCE SHALL BE INSTALLED AROUND THE SITE PERIMETER TO LIMIT ACCESS. PERMANENT FENCING SHALL BE INSTALLED AROUND COMPOUND. THE CHAIN LINK FENCING MATERIAL SHALL BE 9 GAUGE WIRE.
- IF SLATS ARE REQUIRED FOR TEMPORARY CHAIN LINK FENCE, CONTRACTOR SHALL PURCHASE AND PAINT SLATS TO MATCH EXISTING BUILDING COLOR SCHEME OR AS DETERMINED BY THE LOCAL BUILDING DEPARTMENT.

## 2.5 CONSTRUCTION

- A CONSTRUCTION SCHEDULE SHALL BE SUBMITTED TO THE ENGINEER OF RECORD TWO WEEKS BEFORE THE START OF CONSTRUCTION AND SHALL BE ADHERED TO UNLESS JUSTIFIED AND AGREED UPON BY ENGINEER AND CONTRACTOR. SCHEDULE SHOULD HAVE A COMPLETE BREAKDOWN OF EACH TASK AND ITS DURATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR COSTS ASSOCIATED WITH DEVIATIONS IN THE CONSTRUCTION SCHEDULE THAT ARE NOT JUSTIFIED.
- THE PROPOSED CONSTRUCTION SCHEDULE SHALL BE PRESENTED IN A TIME LINE FORMAT SHOWING ESTIMATED START DATE, DURATION AND COMPLETION TIMES FOR EACH ACTIVITY. ANY DEVIATION FROM THE ORIGINALLY PROPOSED SCHEDULE MUST BE COMMUNICATED TO THE ENGINEER'S PROJECT MANAGER WITHIN 24 HOURS.
- IF NECESSARY, DURING CONSTRUCTION THE CONTRACTOR SHALL PROVIDE A TEMPORARY LOCATION FOR THE HANDICAP PARKING AT OTHER LOCATION TO REPLACE THE EXISTING ONSITE HANDICAP PARKING LOCATION.

## 2.6 AS-BUILT DRAWINGS

- THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORD DRAWINGS (RED LINES) SHOWING ACTUAL DETAILS, DIMENSIONS AND OTHER PERTINENT FEATURES THAT VARY FROM THE ORIGINAL DESIGN.

## 2.0 GENERAL (CONTINUED)

- CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND APPURTENANCES, U.N.O. CONTRACTOR SHALL INSTALL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH RESPECTIVE MANUFACTURERS INSTALLATION MANUALS AND IN ACCORDANCE WITH 2010 CALIFORNIA PLUMBING CODE (CPC), 2010 CALIFORNIA MECHANICAL CODE (CMC), 2010 CALIFORNIA FIRE CODE (FC), 2010 CALIFORNIA BUILDING CODE (CBC), THE 2010 CALIFORNIA ELECTRICAL CODE (NEC).
- CONTRACTOR SHALL COORDINATE ALL WORK WITH ENGINEER TO MINIMIZE DISRUPTION TO BUSINESS OPERATIONS AND TRAFFIC.
- ALL SITE INSPECTIONS REQUIRE A MINIMUM 24 HOURS NOTICE TO THE ENGINEER OF RECORD.

## 2.1 EXCAVATION

- ALL EXCAVATED SOIL SHALL BE MONITORED BY THE ENGINEER IN ACCORDANCE WITH LOCAL GUIDELINES. IF SOIL WITH PETROLEUM HYDROCARBONS IS DETECTED, THE SOIL SHALL BE STOCKPILED IN A PLASTIC-LINED AND COVERED AREA (OR LINED ROLL OFF BIN) DESIGNATED BY THE ENGINEER. THE ENGINEER WILL SAMPLE THE EXCAVATED SOIL FOR PETROLEUM HYDROCARBONS. CLIENT WILL BE RESPONSIBLE FOR DISPOSAL OF SOIL WITH PETROLEUM HYDROCARBONS. THE CONTRACTOR SHALL DISPOSE OF ALL CLEAN SOIL AND CONSTRUCTION DEBRIS OFF-SITE INCLUDING ANY PAVEMENT REMOVED DURING TRENCHING.
- WHERE PIPING IS INSTALLED BELOW GROUND, THE PIPE SHALL BE BURIED IN A TRENCH OR EXCAVATED AT A MINIMUM DEPTH OF 18-INCHES TO THE TOP OF THE PIPE, UNLESS OTHERWISE STATED. IF CONDITIONS EXIST, THE EXCAVATIONS SHALL BE SAW-CUT TO PROVIDE A SQUARE VERTICAL JOINT FOR REPAIRING. IF EXCAVATIONS MUST REMAIN OPEN AFTER NORMAL WORK HOURS, THEY SHALL BE COVERED WITH METAL PLATES (TRENCH PLATES). AT THE CONTRACTOR'S EXPENSE, CAPABLE OF SUPPORTING VEHICULAR TRAFFIC. EXCAVATIONS SHALL NOT REMAIN OPEN OVER A WEEKEND UNLESS COVERED BY TRENCH PLATES. IN CASES WHERE THE BUSINESS MUST REMAIN OPEN DURING CONSTRUCTION, ALL TRENCH PLATES SHALL BE ASPHALT COLD PATCHED TO PREVENT ACCIDENTAL TRIPS OR SLIPS BY THE GENERAL PUBLIC. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND CLEANING UP ANY STAINS LEFT BY ASPHALT INCLUDING STEAM CLEANING ON SURFACE. CONTRACTOR SHALL BE RESPONSIBLE FOR WATER DISPOSAL FROM STEAM CLEANING (IF USED).
- PIPING TRENCHES AND EXCAVATIONS SHALL BE BACKFILLED WITH IMPORTED SAND FROM 2-INCHES BELOW THE PIPING TO 2-INCHES ABOVE THE PIPING. CONCRETE SLURRY (CONTROL DENSITY FILL) SHALL BE USED AS BACKFILL MATERIAL FROM 2-INCHES ABOVE THE PIPING TO THE BOTTOM OF THE CONCRETE OR ASPHALT AGGREGATE BASE MATERIAL PROCESS. PAVEMENT REMOVED FOR TRENCHES OR OTHER EXCAVATIONS SHALL BE REPLACED WITH NEW MATERIAL TO MATCH EXISTING, UNLESS NOTED OTHERWISE. WHEN RESURFACING WITH ASPHALT, A MINIMUM OF 6-INCHES OF ASPHALTIC BASE MATERIAL SHALL BE USED OVER COMPACTED CLEAN BACKFILL MATERIAL. BASE MATERIAL SHALL BE COMPACTED TO 95% OF THE RELATIVE DRY DENSITY. THE ASPHALT MIX SHALL BE DESIGNED AND INSTALLED TO ALLOW FOR NORMAL COMMERCIAL BUSINESS TRAFFIC INCLUDING DELIVERY TRUCKS (H20 LOADING). WHEN RESURFACING WITH CONCRETE, A MINIMUM OF 6-INCH THICK, 3,500 PSI REINFORCED CONCRETE SHALL BE USED OVER 4-INCHES OF AGGREGATE BASE. BASE MATERIAL SHALL BE COMPACTED TO 95% OF THE RELATIVE DRY DENSITY. REINFORCING SHALL BE NO. 4 REBAR TIED TO AN EXISTING SLAB STAGGERED ON EACH SIDE OF THE TRENCH ON 12-INCH CENTERS PLACED AT MIDHEIGHT. FOR TRENCHES LESS THAN THREE FEET WIDE, A WELDED-WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR. CONCRETE SHALL BE DOWELLED WHERE APPLICABLE.
- CONTRACTOR TO REMOVE AND DISPOSE OF CONCRETE PARKING BLOCKS AS NEEDED.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO UNDERGROUND UTILITIES, PIPING AND ADJOINING STRUCTURES.
- CONTRACTOR SHALL MAKE EVERY EFFORT TO UTILIZE EXISTING EDGES OF PAVEMENT WHEN SAW CUTTING TO REDUCE UNNECESSARY SAW CUTS.
- CONTRACTOR SHALL USE THE AQUA CRETE OR EQUIVALENT SEALANT TO SEAL THE CONCRETE JOINTS, IF INSTALLED.
- CONTRACTOR SHALL RETURN TO THE SITE AFTER ONE WEEK AND APPLY ASPHALT JOINT SEALER TO ALL AREAS THAT WERE TRENCHED AND REPLACED. IF ASPHALT WAS PLACED.
- CONTROL DENSITY BACKFILL SHALL BE A 200 PSI COMPRESSIVE STRENGTH FLOWABLE FILL COMPOSED OF WATER, PORTLAND CEMENT, FINE AGGREGATE AND FLY ASH WITH A 10" SLUMP AND DENSITY RANGING FROM 90 TO 125 PCF.
- ALL TRENCHES LEFT OPEN SHALL BE TRENCH PLATED OR PROPERLY BARRICADED. ALL TRENCH PLATES SHALL BE INSTALLED WITH HIGH VISIBILITY PAINT AROUND THE PERIMETER AND COLD PATCH ASPHALT PACKED AROUND THE PERIMETER OF THE TRENCH PLATE FROM THE RIM OF THE TRENCH PLATE TO A DISTANCE OF AT LEAST 6' OUT. WALKWAYS SHALL BE PROVIDED WHERE EMPLOYEES OR EQUIPMENT ARE REQUIRED OR PERMITTED TO CROSS OVER TRENCHES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING OVERSATURATION OF TRENCHES. IF OVERSATURATION OCCURS, CONTRACTOR SHALL REMEDY AT OWN COST TO MAINTAIN SCHEDULE.
- EXISTING FOOTINGS OR FOUNDATIONS THAT MAY BE AFFECTED BY ANY EXCAVATION SHALL BE UNDERPINNED ADEQUATELY OR OTHERWISE PROTECTED AGAINST SETTLEMENT AND SHALL BE PROTECTED AGAINST LATERAL MOVEMENT PER CBC 3301.1.

## 1.0 INTRODUCTION

THE SCOPE OF WORK INCLUDES INSTALLATION OF CONVEYANCE PIPING AND CONNECTION TO EXISTING REMEDIATION SYSTEM FOR THE PURPOSE OF SOIL REMEDIATION. AN EXISTING REMEDIATION SYSTEM WILL BE CONNECTED TO (2) PROPOSED REMEDIATION WELLS (V-7 AND V-8).

THE WORK UNDER THIS CONTRACT INCLUDES FURNISHING ALL LABOR, MATERIALS, AND EQUIPMENT NOT SUPPLIED BY OTHERS TO CONNECT THE REMEDIATION SYSTEM, INCLUDING WELL HEADWORKS, ELECTRICAL AND MECHANICAL EQUIPMENT, EARTHWORKS, AND OTHER RELATED WORK TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.

CERTAIN SPECIFIED ITEMS WILL BE SUPPLIED BY OTHERS. THE CONTRACTOR SHALL COORDINATE DELIVERY WITH THE ENGINEER AND PROVIDE LABOR AND EQUIPMENT FOR OFFLOADING OF THESE ITEMS TO FACILITATE THE CONSTRUCTION SCHEDULE. THE CONTRACTOR IS RESPONSIBLE FOR RECEIVING, UNLOADING, STAGING, INSTALLATION, AND TESTING OF THESE ITEMS.

SPECIAL CONDITIONS, USE OF TRENCH PLATES, AND HOURS OF OPERATION TO BE ADDRESSED DURING JOB WALK.

ENGINEER - STANTEC CONSULTING SERVICES INC.  
CLIENT - CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY AND ATLANTIC RICHFIELD COMPANY

## 2.0 GENERAL

- THE SELECTED CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER'S PROJECT MANAGER SHALL BE NOTIFIED OF ANY DISCREPANCY.
- ALL MATERIALS USED FOR CONSTRUCTION OF THE SYSTEM SHALL BE NEW UNLESS OTHERWISE NOTED. DOWNHOLE PUMPS FOR EACH REMEDIATION WELL ALONG WITH FITTINGS AND TUBING/HOSING WILL BE PROVIDED BY OTHERS AS NOTED IN THE DRAWINGS.
- EQUIPMENT AND INSTRUMENTS WITHIN THE SYSTEM THAT ARE SPECIFICALLY DEFINED WILL BE PROVIDED BY THE ENGINEER FOR INSTALLATION BY THE CONTRACTOR. ALL MATERIALS NOT SPECIFICALLY DEFINED SHALL BE PROVIDED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL RESTORE ALL EXCAVATED SURFACE AREA TO MATCH EXISTING.
- ALL CONSTRUCTION AREAS SHALL BE CLEARLY MARKED WITH BARRICADES, CONES, TEMPORARY FENCING, PLATES, OR OTHER APPROVED SAFETY MARKERS TO RESTRICT ACCESS AND PROVIDE A SAFE WORK ENVIRONMENT FOR THE CONTRACTOR, STATION CUSTOMERS, AND PROPERTY OWNERS.
- A PRE-CONSTRUCTION MEETING BETWEEN CLIENT(S), THE CONTRACTOR, AND THE ENGINEER WILL BE REQUIRED BEFORE WORK BEGINS. THE MEETING WILL BE HELD AT THE SITE.
- THE MAJOR EQUIPMENT SUPPLIER SHALL PROVIDE A ON-SITE TECHNICIAN DURING START-UP OF THE REMEDIATION SYSTEM EQUIPMENT.
- THE CONTRACTOR SHALL WARRANTY ALL MATERIALS AND CONSTRUCTION FOR A PERIOD OF ONE YEAR. ALL DEFECTS SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL WORK SHALL BE CONDUCTED UNDER CHEVRON'S "PERMIT TO WORK" SYSTEM. NO WORK SHALL BE CONDUCTED WITHOUT A PERMIT TO WORK.
- ANY CONTRADICTIONS OR CONFLICTING STATEMENTS CONTAINED IN THESE NOTES OR BETWEEN THESE AND THE PROJECT DRAWINGS OR GENERAL SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. CONTRACTOR IS TO REVIEW DRAWINGS AND CONDUCT A SITE VISIT PRIOR TO START WORK. ANY CONFLICT BETWEEN THE DRAWINGS AND ACTUAL SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO START OF WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL FIELD DIMENSIONS WITH ENGINEER AND/OR CLIENT BEFORE BEGINNING OF WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY.
- ALL SIDEWALKS AND OTHER IMPROVEMENTS WHICH SURROUND THE PROPERTY SHALL REMAIN UNDISTURBED AND UNDAMAGED AS A RESULT OF THE PROJECT, UNLESS OTHERWISE SPECIFIED ON DRAWINGS.
- BARRICADES AND SECURITY FENCING SHALL BE PROVIDED AS NEEDED AT ALL EXCAVATIONS AND DISTURBED AREAS THROUGHOUT THE PROJECT, TO ENSURE VEHICULAR AND PEDESTRIAN SAFETY.
- CONTRACTOR SHALL BE COVERED BY INSURANCE ADEQUATE TO INDEMNIFY CLIENT AGAINST LOSS, DAMAGE, INJURY CLAIM WHICH MIGHT ARISE AS A RESULT OF THIS PROJECT.
- CONTRACTOR'S FINAL INVOICE WILL BE PROCESSED FOR PAYMENT ONLY AFTER THE SITE HAS BEEN INSPECTED BY ENGINEER IN COMPANY WITH CONTRACTOR AND THE ENGINEER HAS ACCEPTED PROJECT AND AS-BUILT DRAWINGS AS COMPLETE. CONTRACTOR SHALL PROVIDE BOTH ENGINEER AND CLIENT WITH AS-BUILT DRAWINGS. THE AS-BUILT DRAWINGS SHALL BE LEGIBLE AND ACCURATELY MARKED UP COPIES OF THE ORIGINAL DRAWINGS.
- SITE SHALL BE MAINTAINED IN A NEAT AND CLEAN CONDITION THROUGHOUT CONSTRUCTION ACTIVITIES. NO DEBRIS, MOUNDS OF EARTH, ARTICLES, OR EXCESS MATERIAL SHALL REMAIN AFTER COMPLETION OF THE PROJECT.

REV \_\_\_\_\_ DESCRIPTION \_\_\_\_\_ DATE \_\_\_\_\_ DATE APPD. \_\_\_\_\_

FILE NAME \_\_\_\_\_ Date \_\_\_\_\_ Date \_\_\_\_\_ Date \_\_\_\_\_

CLIENT/PROJECT:

LOMBARD AND RICHARDSON  
COMMINGLED PLUME  
2 RICHARDSON AVENUE  
SAN FRANCISCO, CALIFORNIA

TITLE

CONSTRUCTION NOTES

PROJECT No.

DRAWING No.

SHEET

Revision

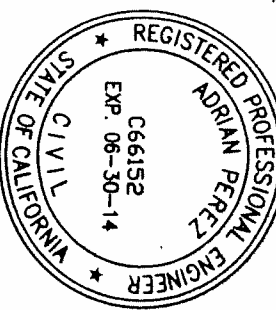


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CONSTRUCTION NOTES:



LEGEND:

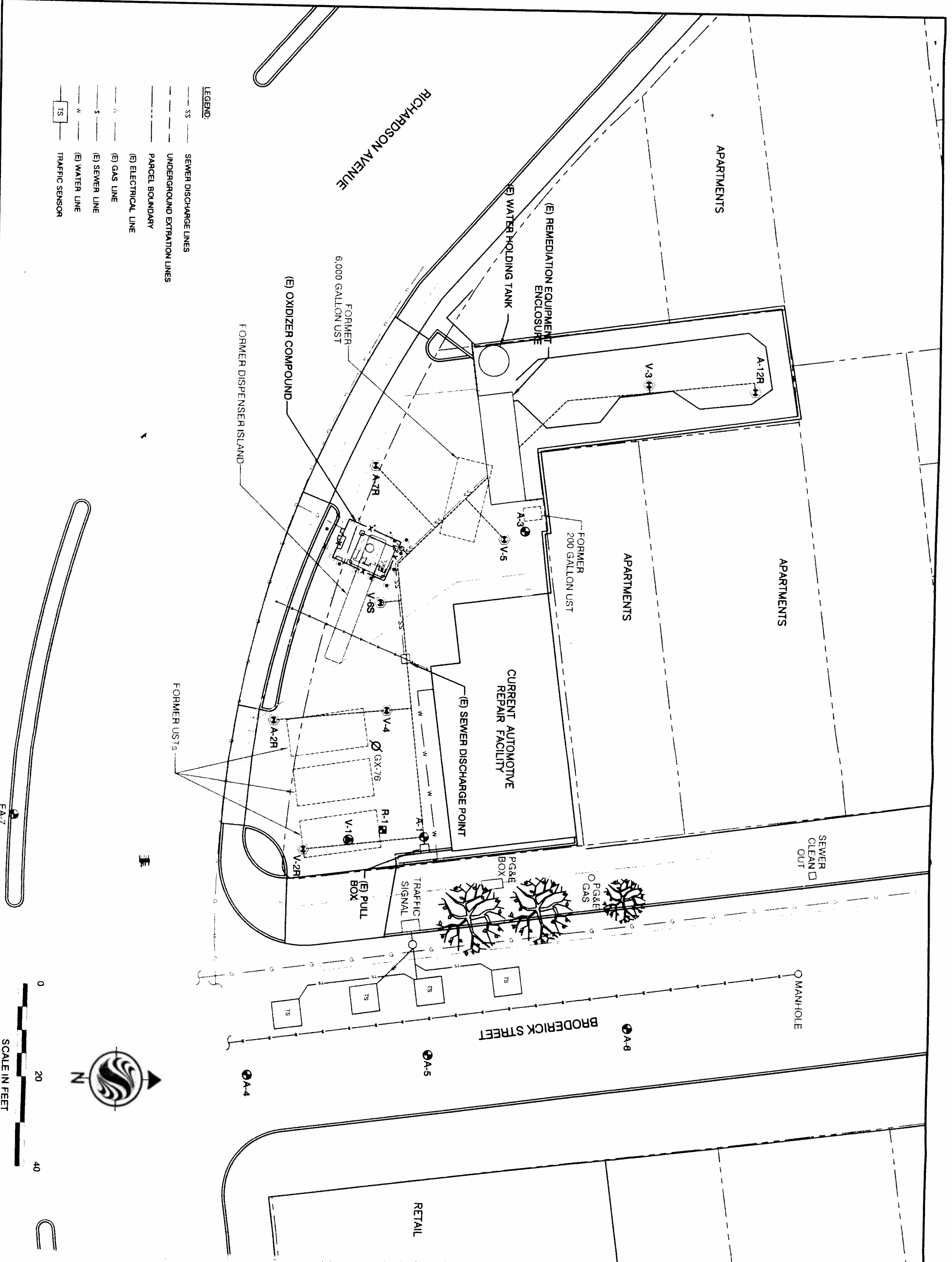
- ⊕ A-3 GROUNDWATER MONITORING WELL LOCATION (FORMER ARCO)
- ⊕ A-1 GROUNDWATER MONITORING WELL LOCATION CONNECTED TO SYSTEM (FORMER ARCO)
- ⊕ V-4 REMEDIATION WELL CONNECTED TO SYSTEM (FORMER ARCO)
- ⊕ R-1 GROUNDWATER RECOVERY WELL LOCATION (FORMER ARCO)
- ⊕ V-1 VAPOR EXTRACTION WELL LOCATION (FORMER ARCO)
- ⊕ GX-76 ABANDONED GROUNDWATER MONITORING WELL LOCATION (FORMER ARCO)

REV	DESCRIPTION	DATE	DATE APPD.

CLIENT/PROJECT:  
 LOMBARD AND RICHARDSON  
 COMMINGLED PLUME  
 2 RICHARDSON AVENUE  
 SAN FRANCISCO, CALIFORNIA

EXISTING SITE PLAN

PROJECT No. \_\_\_\_\_  
 DRAWING No. SHEET \_\_\_\_\_  
 REVISION \_\_\_\_\_



- LEGEND:
- SS SEWER DISCHARGE LINES
  - UNDERGROUND EXTRACTION LINES
  - PARCEL BOUNDARY
  - (E) ELECTRICAL LINE
  - (E) GAS LINE
  - (E) SEWER LINE
  - (E) WATER LINE
  - TS TRAFFIC SENSOR



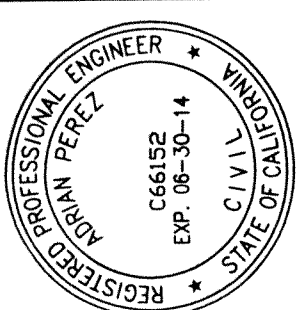
EA-7



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CONSTRUCTION NOTES:



LEGEND:

**5.0 HEALTH AND SAFETY (CONTINUED):**

- FAILURE TO COMPLY WITH ANY OF THE ABOVE STATED IS REASON FOR JOBSITE SHUT DOWN BY THE ENGINEER OR CLIENT AT CONTRACTOR'S EXPENSE TO REPAIR SITUATION.
- ALL CONSTRUCTION AREAS SHALL BE CLEARLY MARKED WITH BARRICADES, CONES, PLATES, OR OTHER APPROVED SAFETY MARKERS TO RESTRICT ACCESS AND PROVIDE A SAFE WORK ENVIRONMENT FOR THE CONTRACTOR AND STATION CUSTOMERS.
- ALL WORK SHALL BE CONDUCTED UNDER THE CLIENTS' "PERMIT TO WORK" SYSTEM. NO WORK SHALL BE CONDUCTED WITHOUT A PERMIT TO WORK.
- ALL SITE WORKERS SHALL HAVE LOSS PREVENTION SYSTEM (LPS) TRAINING AND CERTIFICATION. CONTRACTOR SHALL MEET REQUIREMENTS OF CLIENT'S SHORT SERVICE EMPLOYEE PROCESS (SSE).

**6.0 DESIGN CRITERIA:**

- CALIFORNIA BUILDING CODE 2007
- WIND EXPOSURE B, 70 MPH;
- SITE CLASS B
- LATITUDE: 37° 47' 56.18"
- LONGITUDE: 122° 26' 41.40"

**7.0 CONTACT INFORMATION FOR UTILITY SERVICES:**

- ELECTRICAL & GAS SERVICE - PG&E, SEAN ONEIL (415)-695-3203
- SEWER SERVICE - SAN FRANCISCO PUBLIC UTILITY COMMISSION, GARY ONG (415) 695-7310

**8.0 PERMITS:**

PERMITTING AGENCY	PERMIT APP. SUBMITTED BY	PERMIT FINALIZED BY
BUILDING/PLANNING	ENGINEER	CONTRACTOR
ENCROACHMENT	ENGINEER	CONTRACTOR

**3.0 SAFETY / CLEANUP**

- ALL SITE WORKERS SHALL HAVE LOSS PREVENTION SYSTEM (LPS) TRAINING AND CERTIFICATION. CONTRACTOR SHALL MEET REQUIREMENTS OF CHEVRON'S SHORT SERVICE EMPLOYEE PROCESS (SSE).
- THE CONTRACTOR (INCLUDING WORKERS AND SUBCONTRACTORS) SHALL PREPARE A SITE-SPECIFIC HEALTH AND SAFETY PLAN (HASP) AND JOURNEY MANAGEMENT PLAN (JMP) PRIOR TO BEGINNING ANY WORK, AND SHALL ABIDE BY THE HASP AND JMP DURING ALL SITE WORK. A COPY OF THE HASP AND JMP SHALL BE PROVIDED TO THE ENGINEER PRIOR TO BEGINNING ANY SITE WORK.
- PRIOR TO DEPARTURE FROM THE SITE, THE CONTRACTOR SHALL MAKE SURE THAT THE WORK AREA IS CLEAN AND ORDERLY.
- THE CONTRACTOR SHALL CONTAIN LOOSE DEBRIS AND STORE CONSTRUCTION MATERIALS ON A DAILY BASIS, PRIOR TO DEPARTURE FROM THE SITE TO PROVIDE A CLEAN AND ORDERLY WORK AREA.

**4.0 INSPECTIONS**

- ALL SITE INSPECTIONS REQUIRE A MINIMUM 24 HOURS NOTICE.

**5.0 HEALTH AND SAFETY:**

- CONTRACTOR SHALL SUBMIT A SITE SAFETY PLAN TO ENGINEER AND/OR CLIENT A MINIMUM OF 12 WORKING DAYS PRIOR TO BEGINNING WORK. SITE SAFETY PLAN SHALL BE IN ACCORDANCE WITH U.S. DEPARTMENT OF LABOR, 29 CFR 1910 AND CAL OSHA AND INCLUDE JOB SAFETY ANALYSIS SPECIFIC TO THE GENERAL TASKS TO BE PERFORMED AT THE SITE. CONTRACTOR SHALL SUPPLY EVIDENCE OF 40-HOUR HAZWOPER TRAINING OF ALL FIELD PERSONNEL AND SUBCONTRACTED PERSONNEL PRIOR TO START OF WORK. ALL WORKERS SHALL BE CHEVRON LPS TRAINED AND CONTRACTOR SHALL OBTAIN APPROVAL OF ALL SHORT SERVICE EMPLOYEES FROM THE ENGINEER PRIOR TO START OF WORK.
- THE CONTRACTOR AND THEIR SUBCONTRACTORS SHALL COMPLY AT ALL TIMES WITH THE HEALTH AND SAFETY PLAN PROVIDED BY CONTRACTOR. THE CONTRACTOR MUST DOCUMENT TO THE ENGINEER THAT ALL WORKERS HAVE 40 HOURS OF OSHA TRAINING AS PER 40 CFR 120. THE CONTRACTOR MUST PROVIDE PERSONAL PROTECTIVE EQUIPMENT FOR THEIR PERSONNEL AND SUBCONTRACTOR PERSONNEL AT ALL TIMES. THE CONTRACTOR SHALL OPERATE IN A SAFE AND CONTROLLED MANNER AT ALL TIMES.
- THE CONTRACTOR SHALL CONDUCT AND DOCUMENT A THOROUGH SAFETY TAILGATE MEETING BEFORE EACH DAY BEGINS AND ONCE AFTER LUNCH. THE TAILGATE MEETINGS SHALL INCLUDE DISCUSSION OF CLIENT SAFETY EXPECTATIONS. ALL SUBCONTRACTORS SHALL BE GIVEN A DOCUMENTED SAFETY TAILGATE MEETING PRIOR TO START OF WORK. THE CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE INFORMED OF THE SAFETY PROGRAMS AND BEHAVIOR AND COMPLY WITH THESE NOTES. THE CONTRACTOR SHALL PROVIDE DIRECT OVERSIGHT OF ALL SUBCONTRACTORS USED ON THIS PROJECT. IF TRANSLATION IS REQUIRED FOR ANY EMPLOYEE TO UNDERSTAND THE SITE SAFETY INDOCTRINATION, THAT TRANSLATION SHALL BE PROVIDED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL FURNISH AND MAKE AVAILABLE AT ALL TIMES: FIRE EXTINGUISHER, EYEWASH STATION, FIRST AID KIT, TWO STOP/SLOW HANDHELD TRAFFIC SIGN, AN ADEQUATE NUMBER OF 4' HIGH TRAFFIC DELINEATORS AND SNOW FENCING, A PORTABLE SELF CONTAINED OUTHOUSE, HEARING PROTECTION, EYE PROTECTION AND ADEQUATE DRINKING WATER.
- CONTRACTOR AND SUBCONTRACTOR DRESS CODE ON THE WORK SITE SHALL INCLUDE AT A MINIMUM: ORANGE SAFETY VEST WITH REFLECTIVE STRIPES, HARDHAT, SAFETY GLASSES WITH SIDESHIELDS, APPROPRIATE GLOVES, LONG SLEEVE SHIRT, PANTS, HEARING PROTECTION, AND STEEL TOE BOOTS (TYPICAL LEVEL D). CONTRACTOR SHALL BE PREPARED TO DON LEVEL C PPE BASED ON ON-SITE AIR MONITORING CONDITIONS.
- ALL MECHANICAL EQUIPMENT USED ONSITE SHALL BE INSPECTED AND DOCUMENTED AT THE START OF EACH DAY. EQUIPMENT MAINTENANCE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITH ALL MECHANICAL EQUIPMENT USED ONSITE. ANY EQUIPMENT THAT IS WORN OR OTHERWISE UNSAFE SHALL NOT BE USED AND SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. ANY EMPLOYEE OF THE CONTRACTOR THAT USES A FORKLIFT SHALL PROVIDE EVIDENCE OF FORKLIFT CERTIFICATION AND TRAINING TO THE ENGINEER PRIOR TO USE. SPOTTERS SHALL BE USED FOR ANY EQUIPMENT OPERATING IN REVERSE ON THE SITE. SEATBELTS SHALL BE WORN AT ALL TIMES WHILE OPERATING ANY MECHANICAL EQUIPMENT ON OR OFF THE SITE. CELL PHONE USE IS PROHIBITED WHILE OPERATING ANY MECHANICAL EQUIPMENT AT THE SITE.
- A PRE-JOB CONFERENCE CALL WILL BE HELD TWO WEEKS PRIOR TO THE START OF WORK AND SHALL BE ATTENDED BY A PERSON IN RESPONSIBLE CHARGE OF THIS PROJECT REPRESENTING THE CONTRACTOR.
- ONLY APPROPRIATE CLEVIS SHALL BE USED IN LIFTING APPLICATIONS. LOADS SHALL BE SECURED USING A THREADED U-BOLT.
- CONTRACTOR SHALL USE PROPER AND SAFE LIFTING METHODS TO INCLUDE A 50LB LIMIT PER PERSON. ANKWARD ITEMS >30 POUNDS SHALL BE LIFTED BY MORE THAN ONE PERSON.
- ALL EXCAVATIONS WITHIN 5' LATERAL DISTANCE OF A MARKED UTILITY SHALL BE HAND DUG USING ONLY HAND TOOLS TO BREAK GROUND. MOVE SOIL OR DEBRIS, OR OTHERWISE DISTURB THE EXCAVATION FROM TOP TO BOTTOM.
- CONTRACTOR SHALL PROVIDE AND IDENTIFY ONE PERSON WITH RESPONSIBLE CHARGE AND SUFFICIENT AUTHORITY TO ENFORCE HEALTH AND SAFETY AND ADHERENCE TO THESE NOTES AT ALL TIMES THAT WORK IS IN PROGRESS.

REV	DESCRIPTION	DATE	DATE APPD.

FILE NAME: \_\_\_\_\_  
Drawn: \_\_\_\_\_  
Checked: \_\_\_\_\_  
Date: \_\_\_\_\_

CLIENT/PROJECT:

LOMBARD AND RICHARDSON  
COMMINGLED PLUME  
2 RICHARDSON AVENUE  
SAN FRANCISCO, CALIFORNIA

TITLE:

CONSTRUCTION NOTES

PROJECT No. \_\_\_\_\_

DRAWING No. \_\_\_\_\_ SHEET \_\_\_\_\_ Revisions \_\_\_\_\_

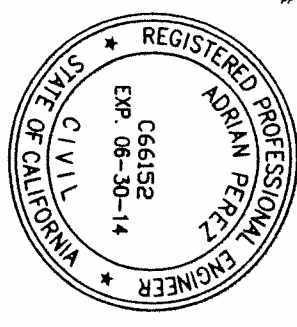




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CONSTRUCTION NOTES

TRENCH SECTION	TOTAL # OF SVE WELLS	TOTAL # OF SECONDARY CONVEYANCE (SC)*	CONDUIT SVE (QTY, #)	MIN TRENCH DIMENSIONS (WIDTH X DEPTH)
1	2	2	(2'-2"Ø); (2'-2"Ø)	2'-0" W x 1'-6" D
2	1	1	(1'-2"Ø); (1'-2"Ø)	1'-0" W x 1'-6" D

\* EACH SECONDARY CONVEYANCE CONDUIT INCLUDES 1"Ø AIR LINE & 1"Ø WATER LINE

NOTES:

- CONTRACTORS SHALL VERIFY LOCATION OF UTILITIES PRIOR TO TRENCHING
- FOR TYPICAL WELL DETAIL REFER TO (G-9)
- FOR DPE WELLS DETAIL REFER TO (G-8)
- BELOW GROUND SVE CONDUIT SHALL BE SCH 40 PVC AND ABOVEGROUND SVE CONDUIT SHALL BE SCH 80 PVC.
- BELOW GROUND AND ABOVEGROUND SECONDARY CONVEYANCE CONDUIT SHALL BE SCH 80 PVC UNLESS OTHERWISE NOTED.
- GWE PUMP TUBING SHALL BE O.D. MODEL STD TUBE JACKETED 3-TUBE SET NYLON-12 ROUNDWATER EXTRACTION SHALL BE 1"Ø O.D. NYLON-12 TUBING RATED FOR COMPRESSED AIR AT 200 PSI. MIN. & AIR SUPPLY LINES SHALL BE 1"Ø O.D. NYLON-12 TUBING RATED FOR COMPRESSED AIR AT 200 PSI. MIN.
- ALL AIR CONVEYANCE CONDUITS SHALL BE RATED AND LABELED FOR COMPRESSED AIR.
- THE FULL CONCRETE SLAB OF ANY SIDEWALK AND/OR DRIVE WAY SECTIONS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED FROM CONSTRUCTION JOINT TO CONSTRUCTION JOINT PER CITY SPECIFICATIONS.
- ALL BENDS CONTRACTORS SHALL INSTALL SWEEPS WITH MIN. 2'-0" RADIUS FOR THE GWE SECONDARY CONTAINMENT.

LEGEND:

- A-3 GROUNDWATER MONITORING WELL LOCATION (FORMER ARCO)
- A-1 GROUNDWATER MONITORING WELL LOCATION CONNECTED TO SYSTEM (FORMER ARCO)
- V-4 REMEDIATION WELL CONNECTED TO SYSTEM (FORMER ARCO)
- R-1 GROUNDWATER RECOVERY WELL LOCATION (FORMER ARCO)
- V-1 VAPOR EXTRACTION WELL LOCATION (FORMER ARCO)
- GX-76 ABANDONED GROUNDWATER MONITORING WELL LOCATION (FORMER ARCO)

REV	DESCRIPTION	DATE	DATE APPR.

FILE NAME	DATE	CHKD	APPR

CLIENT/PROJECT:

LOMBARD AND RICHARDSON  
 COMMINGLED PLUME  
 2 RICHARDSON AVENUE  
 SAN FRANCISCO, CALIFORNIA

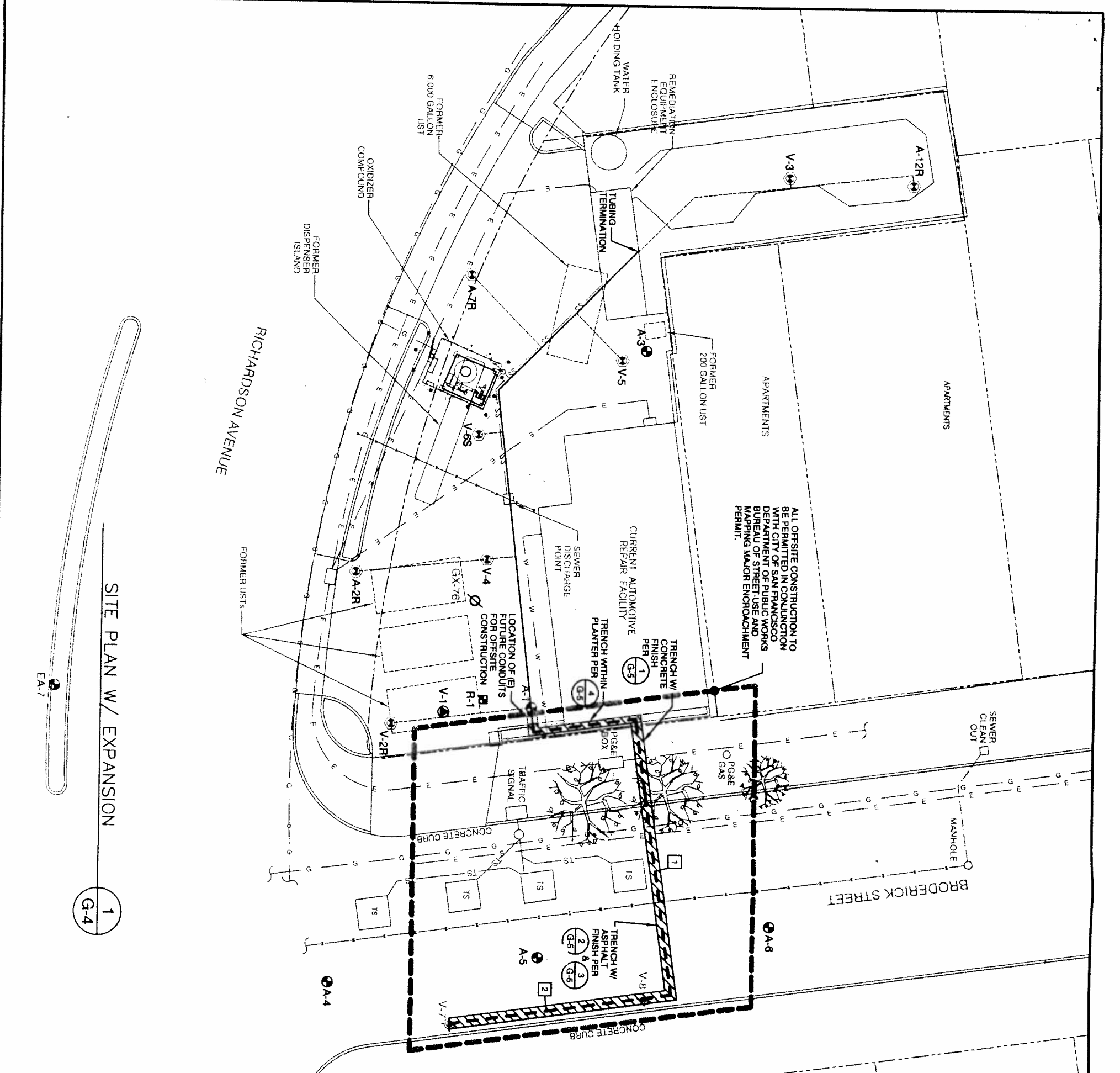
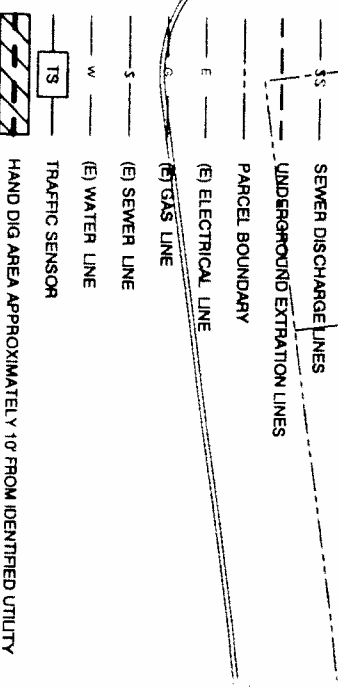
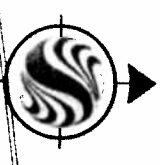
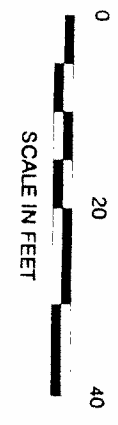
TITLE:

EXISTING SITE PLAN WITH PROPOSED  
 REMEDIATION SYSTEM

PROJECT No. \_\_\_\_\_

DRAWING No. SHEET: \_\_\_\_\_ Revision: \_\_\_\_\_

G-4 OF 6



SITE PLAN W/ EXPANSION

1  
G-4

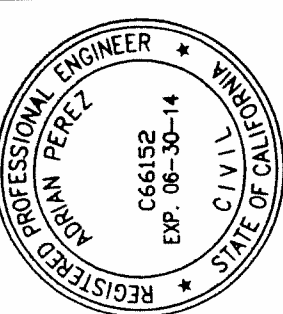
EA-7



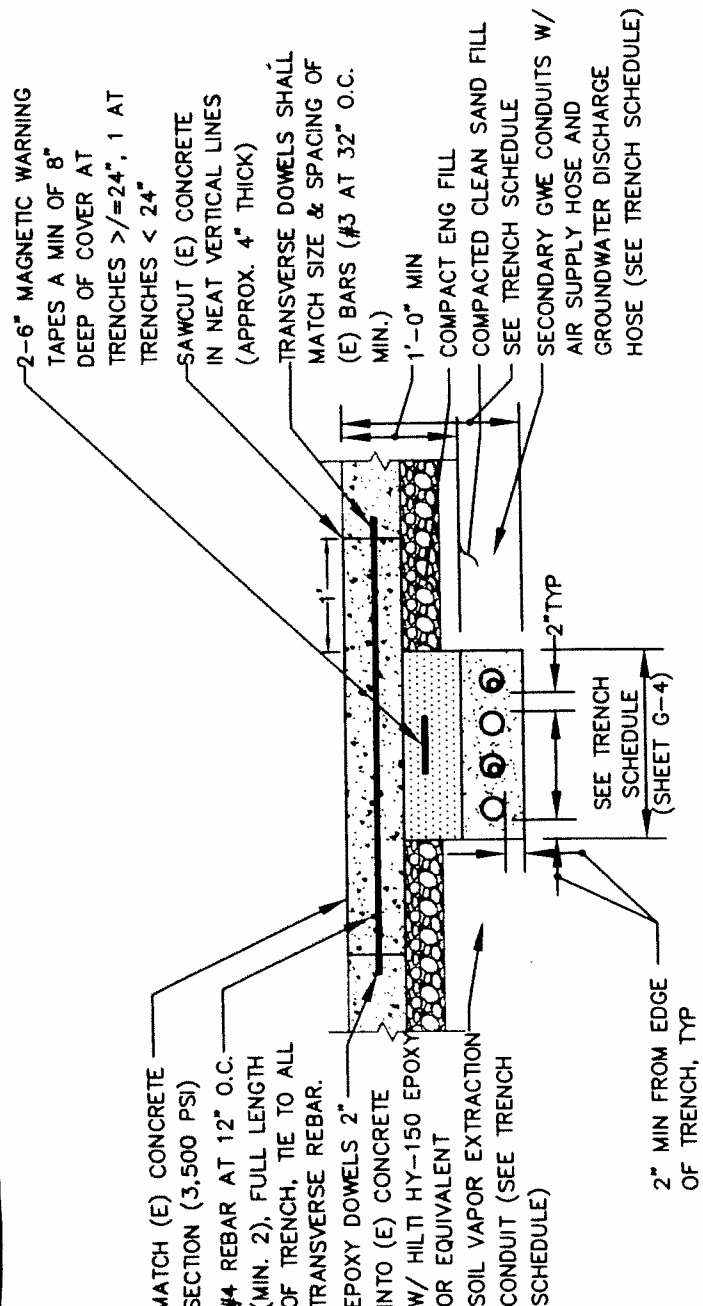
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CONSTRUCTION NOTES



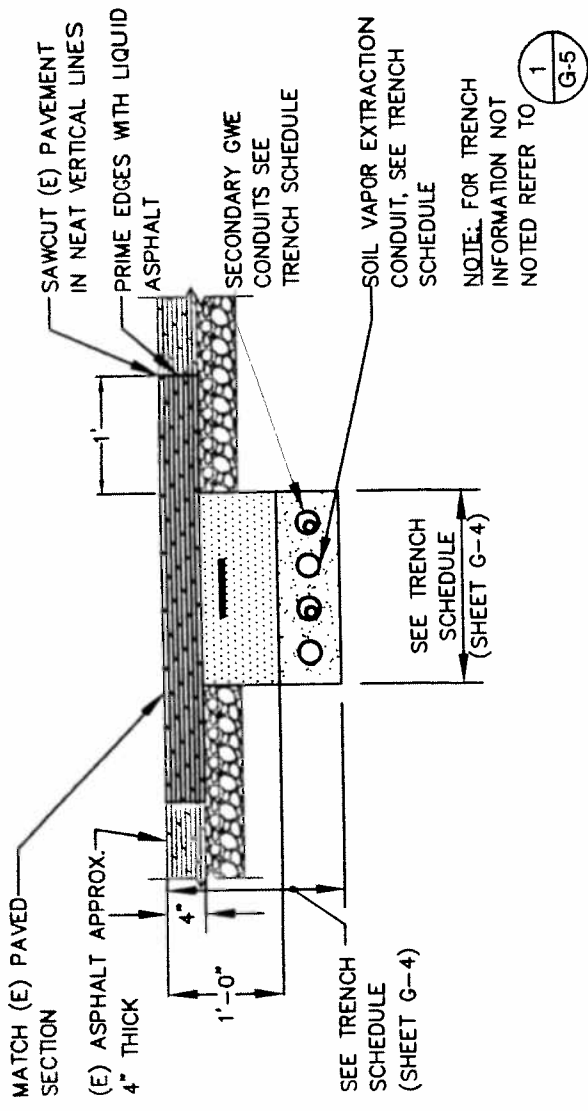
LEGEND:



- NOTES:
1. FOR TRENCH SCHEDULE REFER TO SHEET G-4
  2. FOR AIR SUPPLY & GW DISCHARGE HOSE SPECS REFER TO NOTES ON SHEET G-4

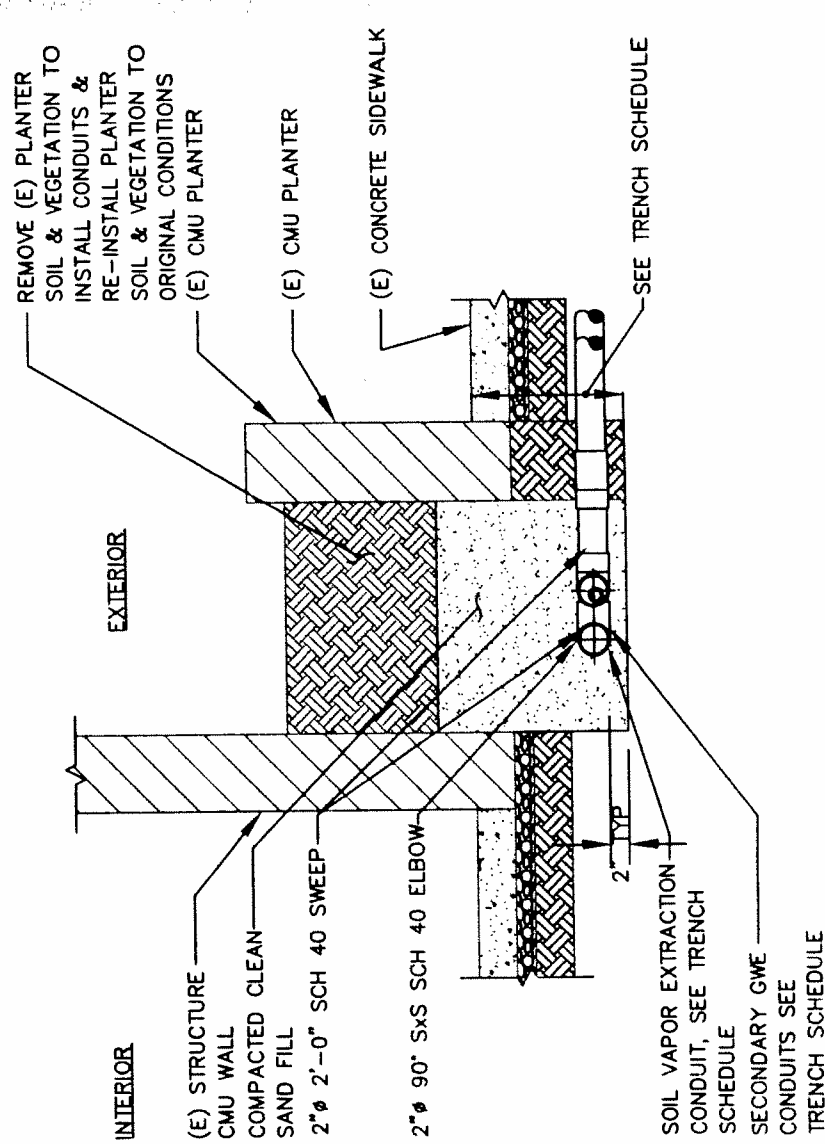
1  
G-5

CONVEYANCE TRENCH W/ CONCRETE FINISH  
NOT TO SCALE



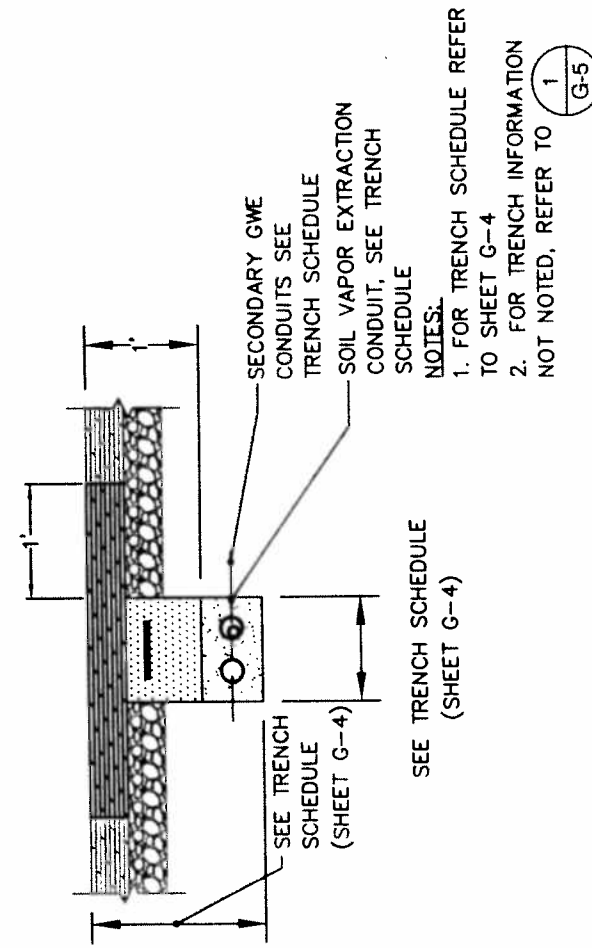
2  
G-5

SHALLOW CONVEYANCE TRENCH W/ ASPHALT FINISH  
NOT TO SCALE



4  
G-5

CONVEYANCE TRENCH AT PLANTER  
NOT TO SCALE



3  
G-5

SHALLOW CONVEYANCE TRENCH W/ ASPHALT FINISH  
NOT TO SCALE

REV	DESCRIPTION	DATE	DATE APPD.

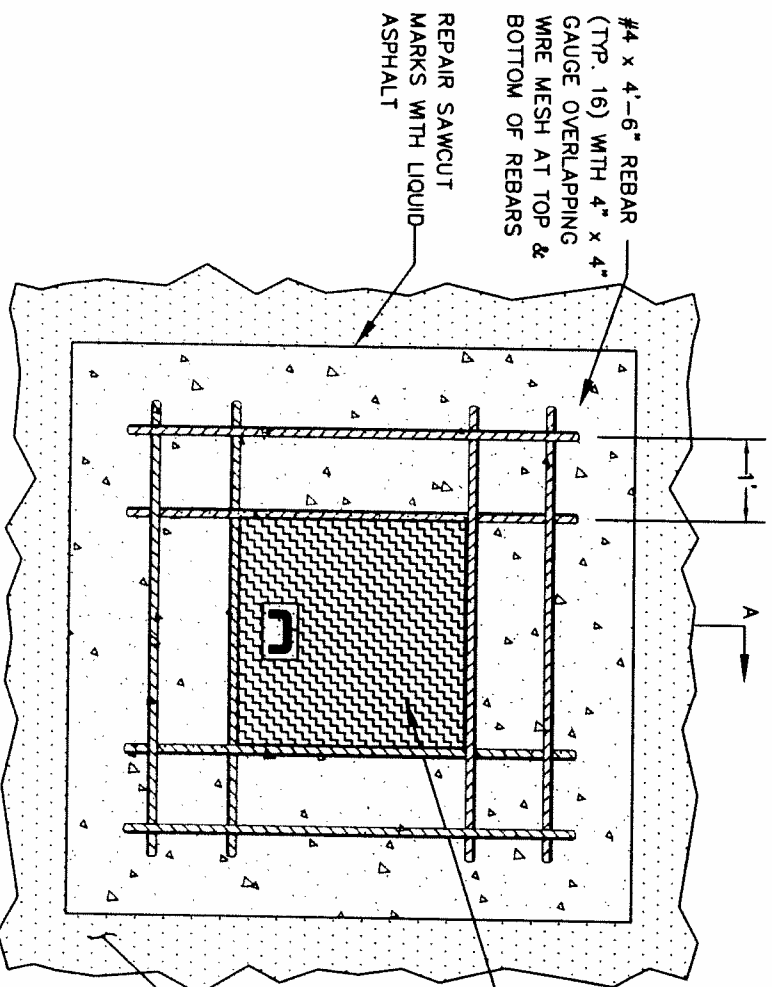
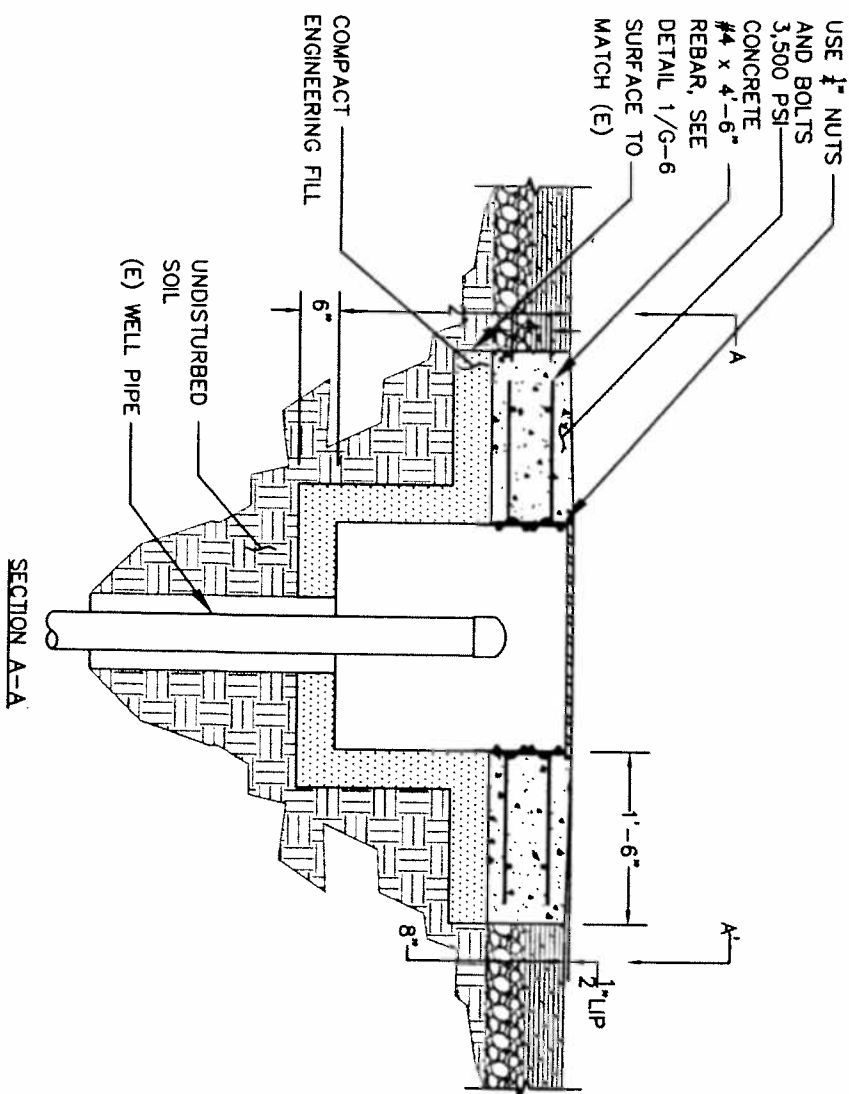
FILE NAME: \_\_\_\_\_  
Dwn: \_\_\_\_\_ Chg: \_\_\_\_\_ Dgn: \_\_\_\_\_

CLIENT/PROJECT: LOMBARD AND RICHARDSON COMMINGLED PLUME 2 RICHARDSON AVENUE SAN FRANCISCO, CALIFORNIA

TITLE: TRENCH DETAILS

PROJECT No. \_\_\_\_\_

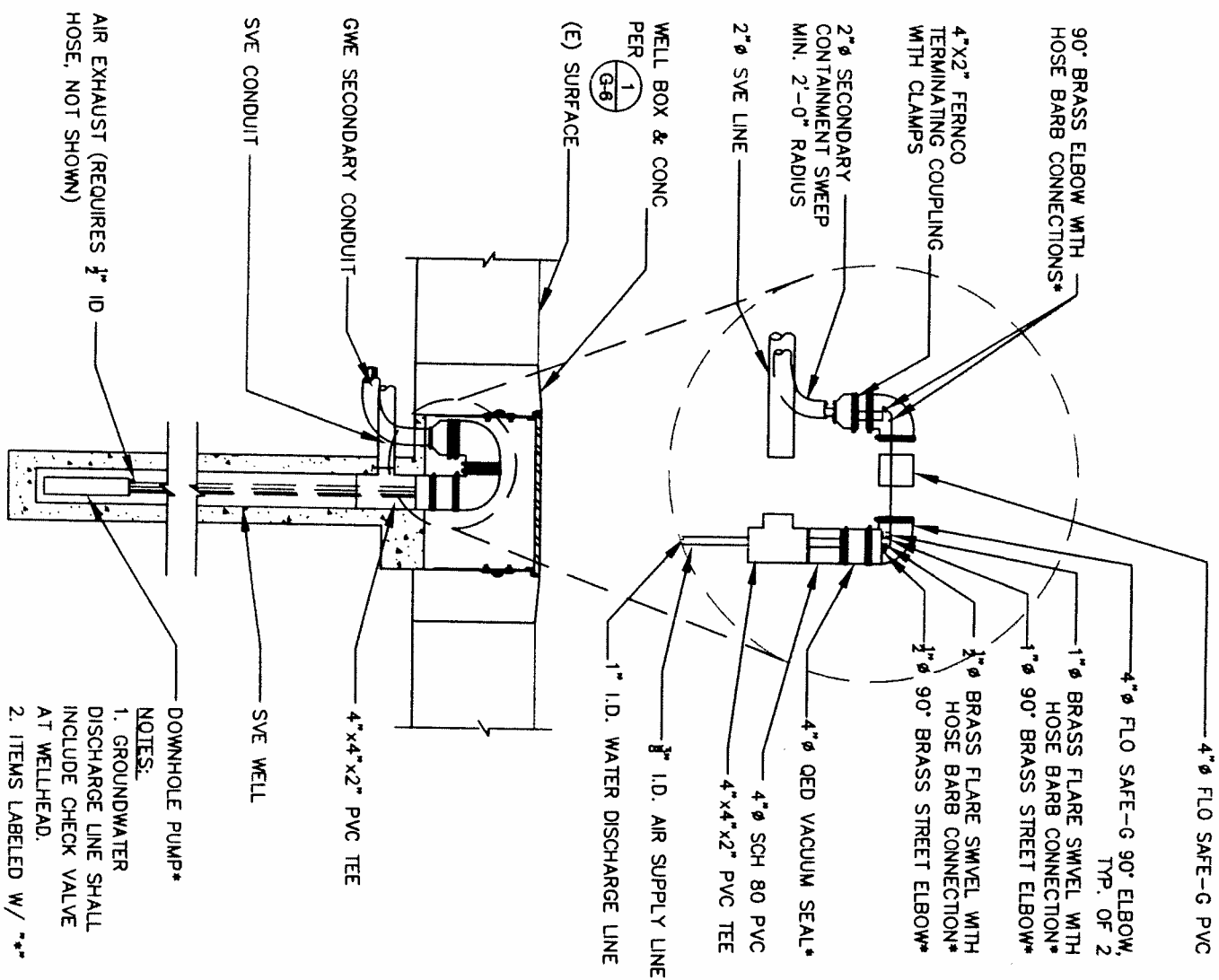
DRAWING No. SHEET: \_\_\_\_\_ Revision: \_\_\_\_\_



24" A0717-724ABW LIFT ASSISTED EMCO-WHEATON VAULT BOX W/ AASHTO H-20 LOAD RATING OR EQUIVALENT W/ STAINLESS STEEL BOLTS

EXISTING SURFACE

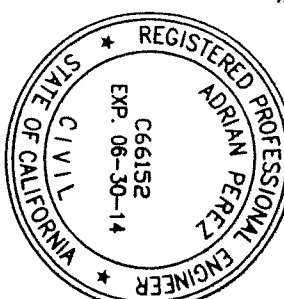
- NOTES:
1. ALL STUBBED UP CONDUITS SHALL BE CAPED USING APPLICABLE DIAMETER PVC SLIP CAP. DO NOT GLUE.
  2. ITEM DESIGNATED \* SHALL BE PROVIDED BY OTHERS



- NOTES:
1. GROUNDWATER DISCHARGE LINE SHALL INCLUDE CHECK VALVE AT WELLHEAD.
  2. ITEMS LABELED W/ \*\* SHALL BE PROVIDED BY OTHERS AND INSTALLED BY THE CONTRACTOR.



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LEGEND:

REV	DESCRIPTION	DATE	DATE	APPRO.

CLIENT/PROJECT:

LOMBARD AND RICHARDSON  
COMMINGLED PLUME  
2 RICHARDSON AVENUE  
SAN FRANCISCO, CALIFORNIA

TITLE:

WELL VAULT AND WELLHEAD DETAILS

PROJECT No. \_\_\_\_\_

DRAWING No. SHEET \_\_\_\_\_ Revision \_\_\_\_\_

