

October 27, 2004

Mr. Odili Ojukwu
 City of Oakland Public Works Agency
 Environmental Services Division
 250 Frank H. Ogawa Plaza, Suite 5301
 Oakland, CA 94612



Reference: Fuel Leak Case RO0000293, Alameda County Health Care Services Agency

Subject: Dual-Phase Extraction Work Plan
 City of Oakland Municipal Services Center,
 7101 Edgewater Drive, Oakland, CA

Dear Mr. Ojukwu:

URS Corporation (URS) is pleased to prepare this Dual-Phase Extraction (DPE) Work Plan in accordance with the request from the Alameda County Health Care Services Agency – Environmental Health Services (ACHA-EHS) in a letter to the City of Oakland (the City) dated October 15, 2004. The purpose of this work plan is to summarize DPE implementation progress since it was first recommended by URS in the report of *Evaluation of Free-Phase Product Removal Alternatives for Petroleum Hydrocarbons* (URS, June 2001) and approved by the ACHA-EHS in a letter to the City dated June 29, 2001; and to present a further implementation schedule from November 2004 through December 2006. Site background information has been presented in many other reports generated for this site and will not be repeated here.

DPE Implementation Progress from June 2001 through October 2004

After the DPE was recommended by URS and approved by the ACHA-EHS in June 2001, the City retained Cambria Environmental Technologies, Inc. (Cambria) to prepare a Pilot Test Dual-Phase Extraction Work Plan (Cambria, October 26, 2001). The Cambria October 2001 Work Plan reviewed site geology, hydrogeology and potential capture zones of DPE wells. Based on its review, it recommended the installation of the following wells:

Plume ID	Proposed Well ID	Well Type	Well Diameter	Screen interval (ft, bgs)
A	RW-A1	Recovery well	4"	4-14
	OB-A1	Observation well	2"	4-14

B	RW-B1	Recovery well	4"	5-12
	RW-B2	Recovery well	4"	5-12
	RW-B3	Recovery well	4"	7-17
	RW-B4	Recovery well	4"	7-17
C	RW-C1	Recovery well	4"	5-12
	RW-C2	Recovery well	4"	5-12
	RW-C3	Recovery well	4"	5-12
	RW-C4	Recovery well	4"	5-12
	RW-C5	Recovery well	4"	5-12
	RW-C6	Recovery well	4"	5-12
	OB-C1	Observation well	2"	5-12
D	RW-D1	Recovery well	4"	5-12
	RW-D2	Recovery well	4"	5-12
	RW-D3	Recovery well	4"	5-12
	RW-D4	Recovery well	4"	5-12
	RW-D5	Recovery well	4"	8-10
	OB-D1	Observation well	2"	5-15
	OB-D2	Observation well	2"	5-15

ACHA-EHS approved the Cambria October 2001 Work Plan in a letter to the City dated November 8, 2001. After the approval, the City retained Uribe & Associates to install the wells, which were installed in December 2001. Details of well installation were presented in the report of *Test/Observation Well Installation Report* (Uribe & Associates, April 2, 2002), which was submitted to the ACHA-EHS.

The City then retained URS to conduct a DPE pilot test in Plumes A and B and retained Cambria to conduct a DPE pilot test in Plumes C and D. URS conducted its DPE pilot test over a five-week period from April 29 through May 31, 2002 and presented its results in the report of *Results of Dual-Phase Extraction Pilot Test for Plumes A & B* (URS, August 29, 2002), which was submitted to the ACHA-EHS. URS concluded that DPE is feasible at Plume B, but the soil within Plume A area is too tight for effective DPE and recommended enhanced bioattenuation alternative for Plume A. Cambria conducted its DPE (Cambria later called it Two Phase Extraction – TPE) pilot test from May 31 through June 24, 2002 and presented its results in the report of *TPE Pilot Test and Feasibility Report* (Cambria, August 13, 2002), which was also submitted to the ACHA-EHS. Cambria also presented a feasibility study in the report and through its analysis of remedial alternatives Cambria concluded, “vacuum truck operations is the most cost-effective approach to address removal of SPH (Separate-Phase Petroleum Hydrocarbons) at the site.”

The City further retained Cambria to demonstrate the feasibility of vacuum truck operations, which was conducted in October 2002. Due to logistic difficulties to arrange vacuum trucks and extensive tank cleaning requirement after each use, the actual operation cost was three times of the original estimate. The City abandoned the vacuum truck alternative after this initial trial and decided to move ahead of the DPE alternative in Plumes B, C, and D and hydrogen peroxide injection in Plume A to enhance biodegradation.

In May 2003, the City retained Cambria to design a combined groundwater and soil vapor extraction system for Plume C and D. Final design drawings were submitted to the City in September 10, 2003. A copy of the Cambria's design drawings is attached in Appendix A of this Work Plan. In January 2004, the City also retained Cambria to coordinate work with PG&E to extend electrical power and natural gas supplies to Plume D area. PG&E is currently at planning stage for the power and gas extension work. Once the electrical and gas are available at Plume D, the City plans to extend them to Plume B.

In June 2004, the City also placed an order for a DPE system having 500 CFM Thermal/Catalytic Oxidizer with a 40 hp liquid ring pump, a mobile unit with an oil/water separator and air compressor, and 9 pneumatic pumps for SPH recovery. These are the major remediation equipment specified in the Cambria September 2003 design package and will be delivered to the MSC site in November 2004.

DPE Implementation Schedule from November 2004 through December 2006

The following two major factors control the DPE implementation schedule:

- Availability of funding from the City, and
- PG&E's schedule to extend power and gas to Plume D.

Assuming that adequate funding would be available from the City and PG&E would complete the power and gas extension work by January 2005. The DPE implementation schedule is projected in the attached Figure 1.

Please contact Mr. Xinggang Tong at (510) 874-3060 for questions or comments.

Sincerely,
URS Corporation



Xinggang Tong, Ph.D., P.E.
Project Manager

Attachments:

- Figure 1 DPE Implementation Schedule, November 2004 through December 2006
- Appendix A Design of a Combined Groundwater & Soil Vapor Extraction System
By Cambria Environmental Technologies, Inc., September 2003.

REMEDIAL DESIGN PLANS

Municipal Service Center
7101 Edgewater Drive
Oakland, California

COMBINED GROUNDWATER AND SOIL VAPOR EXTRACTION SYSTEMS

Prepared for:
City of Oakland

Prepared by:
CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.

Municipal Service Center
7101 Edgewater Drive
Oakland, California

TITLE PAGE

Scope of Work

The remedial design will (1) provide separate-phase hydrocarbon (SPH), groundwater, and soil vapor extraction from various wells in Plumes C and D, (2) treat the extracted soil vapors, (3) separate any floating SPH from groundwater, and (4) provide discharge of the extracted groundwater to the treatment system. The system installation scope of work consists of the following:

1. Trench from remediation compound to designated wells as shown on Figure C-1 and referenced details.
2. Install remediation pipe to designated wells in Plumes C & D as shown on Figure C-1 and referenced details.
3. Backfill, compact and resurface trenches as shown on Figure C-2.
4. Install well vaults and wellhead fittings as shown on Figure C-3 & C-4.
5. Install and connect discharge piping to an existing subsurface discharge pipe as shown on Figures C-1 and C-2.
6. Construct a remediation compound as shown on Figure C-5 and C-8, and referenced details.
7. Install process piping as shown on Figures C-5, C-6, C-7, M-1, and referenced details.
8. Install remediation equipment as shown on Figures C-5 and M-1, and referenced details.

Notes

1. The design of this remediation system is based on the 1997 UBC, 1996 NEC, and the 1997 UFC, where applicable. Construction is to comply with the design basis and/or local agency requirements.
2. Treated groundwater is to be discharged to the treatment system operated by others, in compliance with a National Pollutant Discharge Elimination System permit. Soil vapor extraction and abatement is to be operated in compliance with a permit from the Bay Area Air Quality Management District.



FIGURE

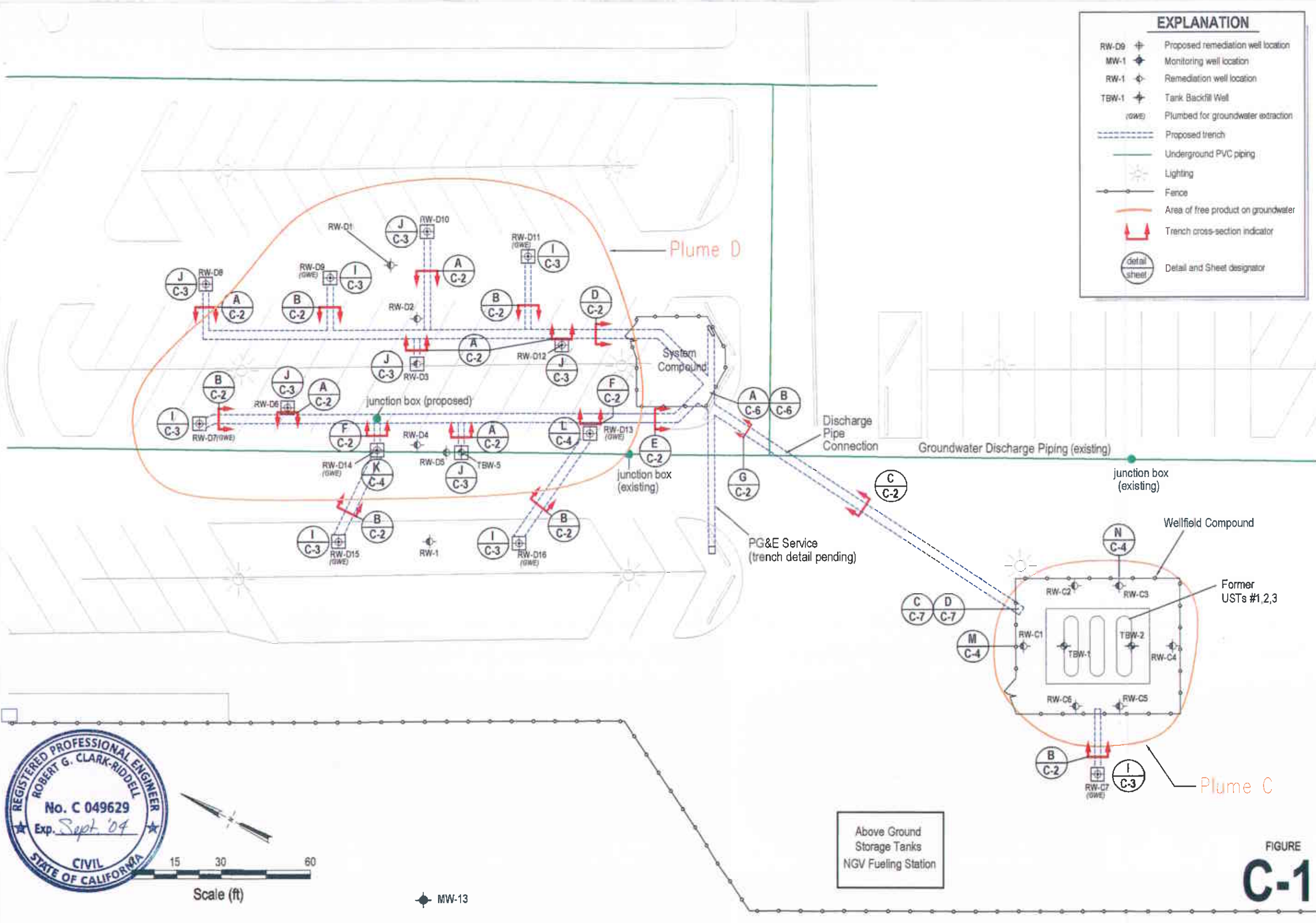
G-1

C A M B R I A



Vicinity Map

EXPLANATION	
RW-D9	Proposed remediation well location
MW-1	Monitoring well location
RW-1	Remediation well location
TBW-1	Tank Backfill Well
(GWE)	Plumbed for groundwater extraction
(dashed line)	Proposed trench
(solid line)	Underground PVC piping
(lightning bolt symbol)	Lighting
(line with cross-ticks)	Fence
(orange outline)	Area of free product on groundwater
(red double arrow)	Trench cross-section indicator
(circle with 'detail sheet')	Detail and Sheet designator



REGISTERED PROFESSIONAL ENGINEER
 ROBERT G. CLARK-RIDDELL
 No. C 049629
 Exp. Sept '09
 CIVIL
 STATE OF CALIFORNIA

Scale (ft)
 15 30 60

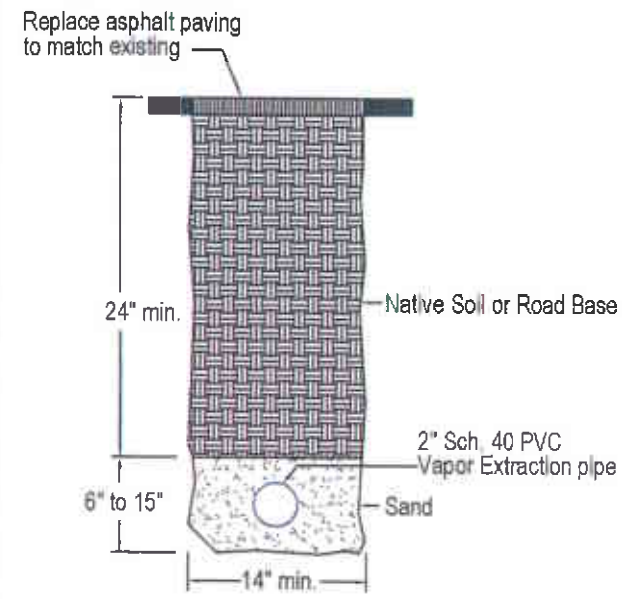
MW-13

FIGURE
C-1

Trench Layout
 (Plume C and D Areas)
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 Oakland, California

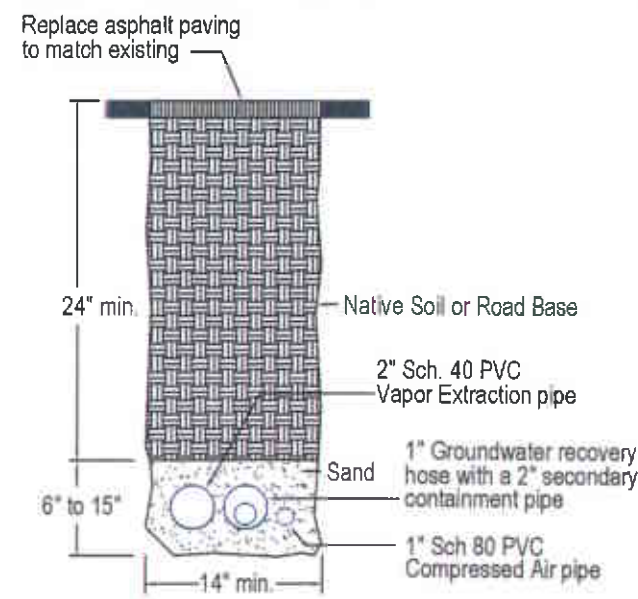
A Trench Cross Section - SVE Well

C-2 Not to Scale (Typical of 6)



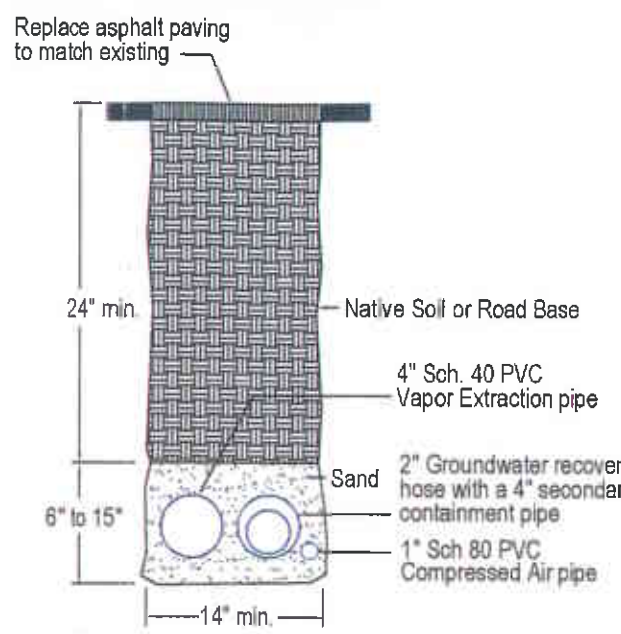
B Trench Cross Section - GWE / SVE Well

C-2 Not to Scale (Typical of 6)



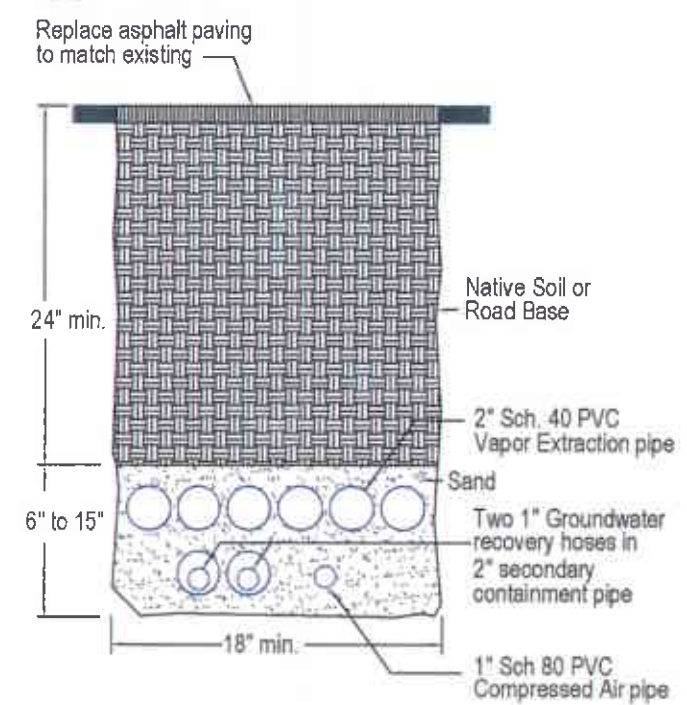
C Trench Cross Section

C-2 Not to Scale



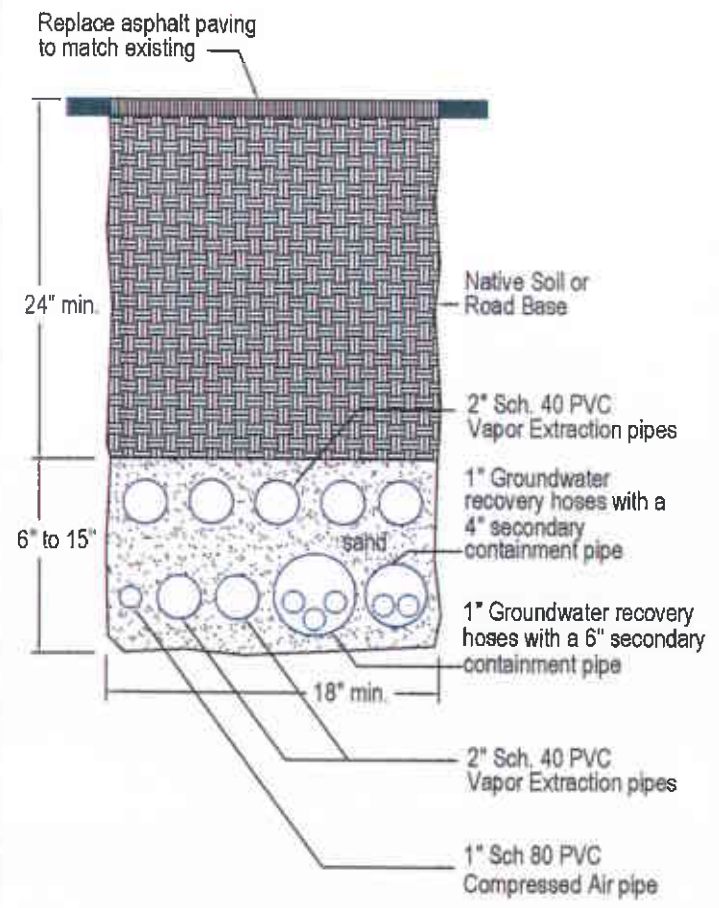
D Trench Cross Section

C-2 Not to Scale



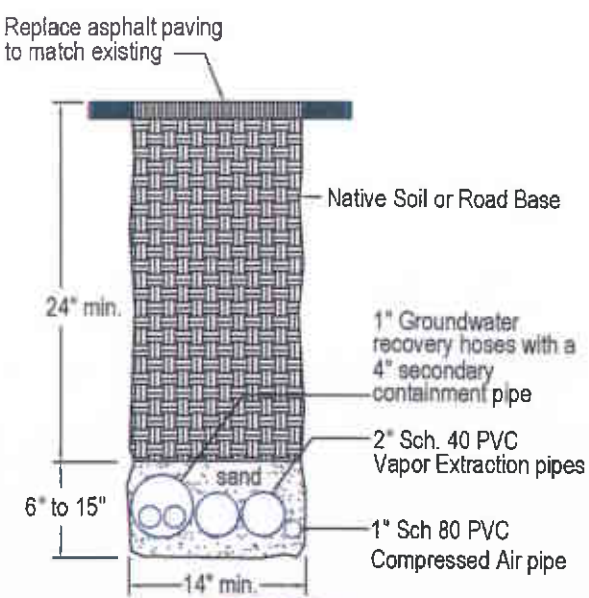
E Trench Cross Section

C-2 Not to Scale



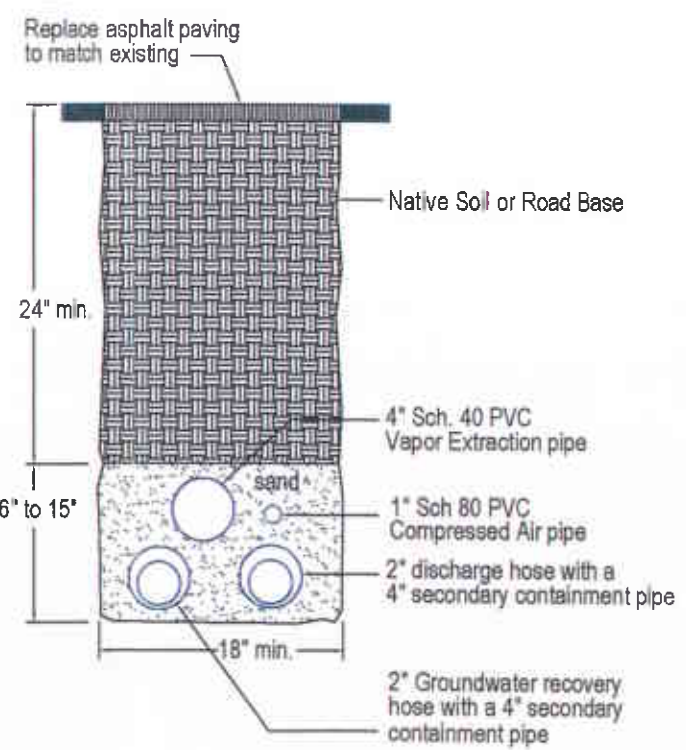
F Trench Cross Section

C-2 Not to Scale



G Trench Cross Section

C-2 Not to Scale



NOTES:
 ALL PROCESS LINES AND CONDUITS SHALL BE FREE OF DIRT AND DEBRIS AFTER INSTALLATION. THE GW SECONDARY CONTAINMENT LINES SHALL BE CLEARED AS NECESSARY PRIOR TO THE INSTALLATION OF THE PRIMARY LINE.
 PRESSURE TEST ALL SVE AND GW SECONDARY LINES TO 5PSI PRIOR TO BACKFILL. PRESSURE TEST GW PRIMARY AND COMPRESSED AIR LINES TO 75% OF THE PROCESS LINE PRESSURE. THERE SHALL BE NO NOTICEABLE CHANGE IN PRESSURE AFTER 1 HOUR OR ANY VISIBLE LEAK INDICATIONS.
 VAPOR EXTRACTION AND GROUNDWATER RECOVERY SECONDARY CONTAINMENT PIPING SHALL BE SLOPED A MINIMUM OF 1/16-INCH PER FOOT DOWNWARDS TOWARDS THE REMEDIATION COMPOUND.



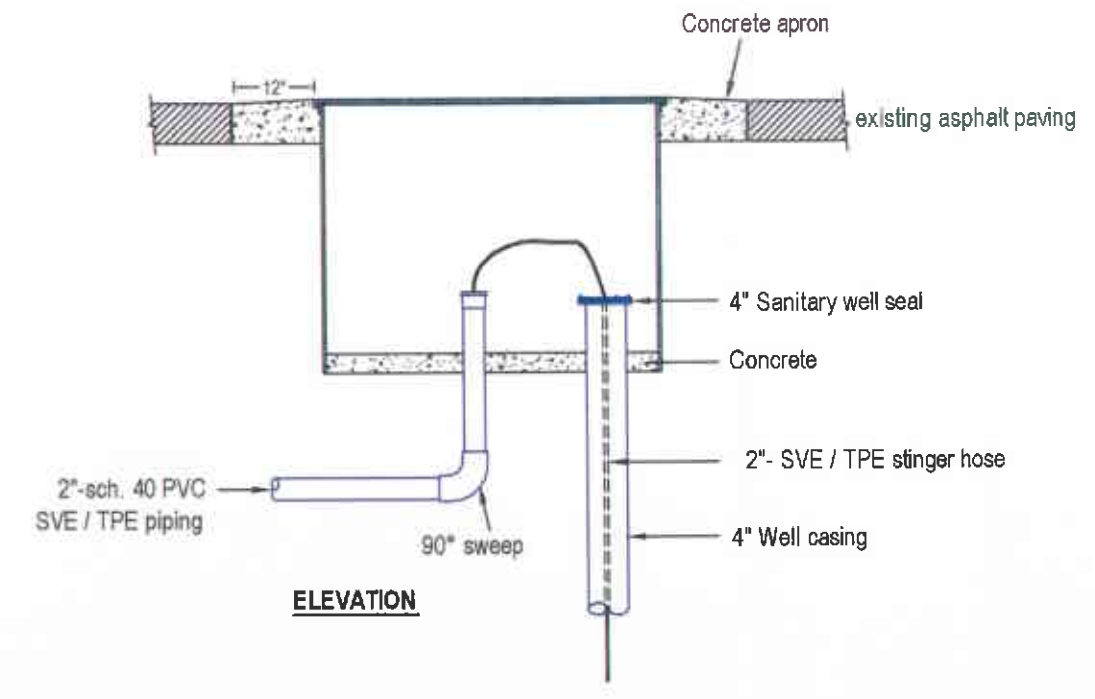
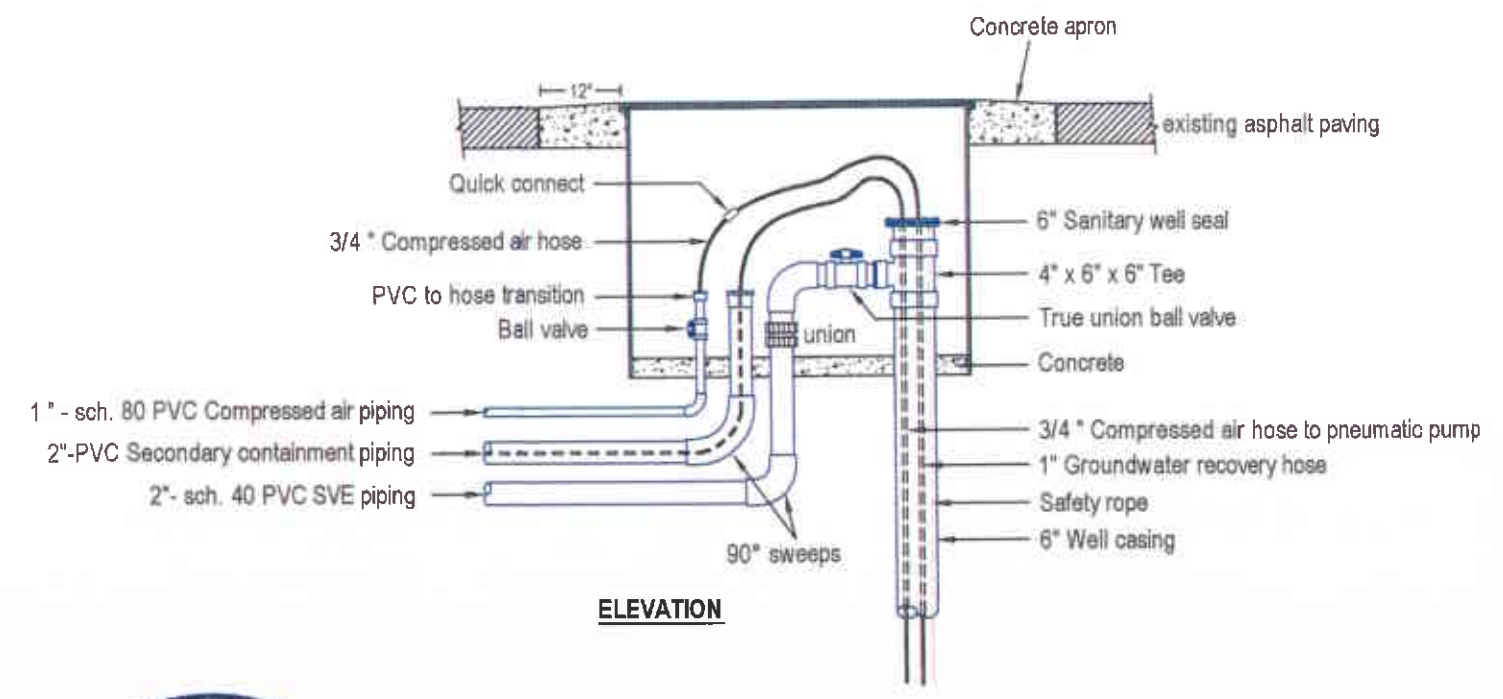
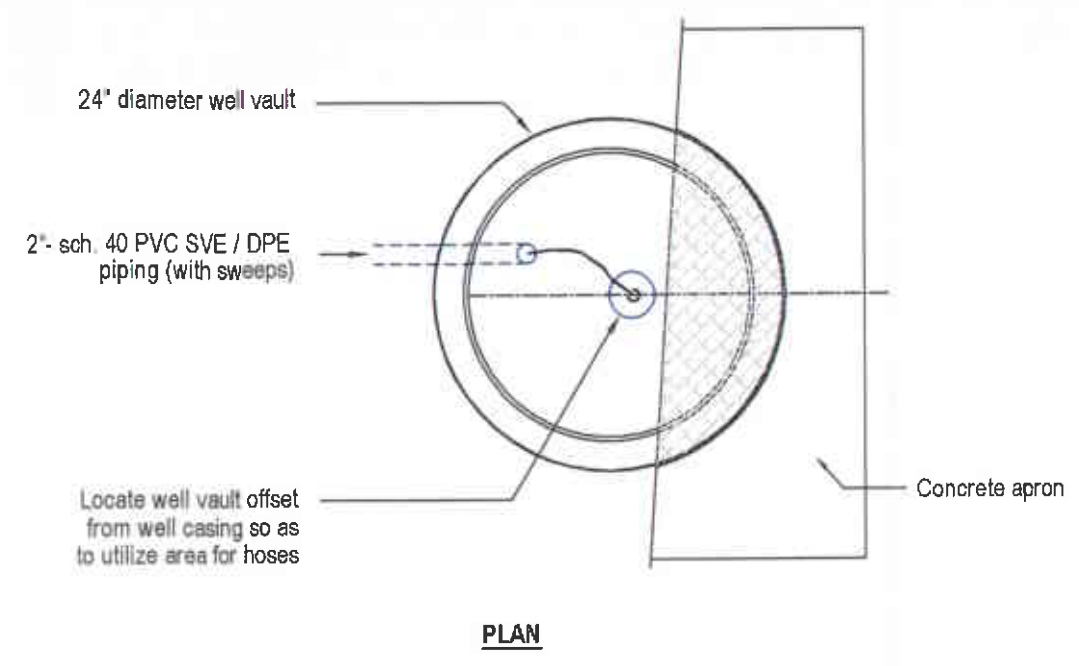
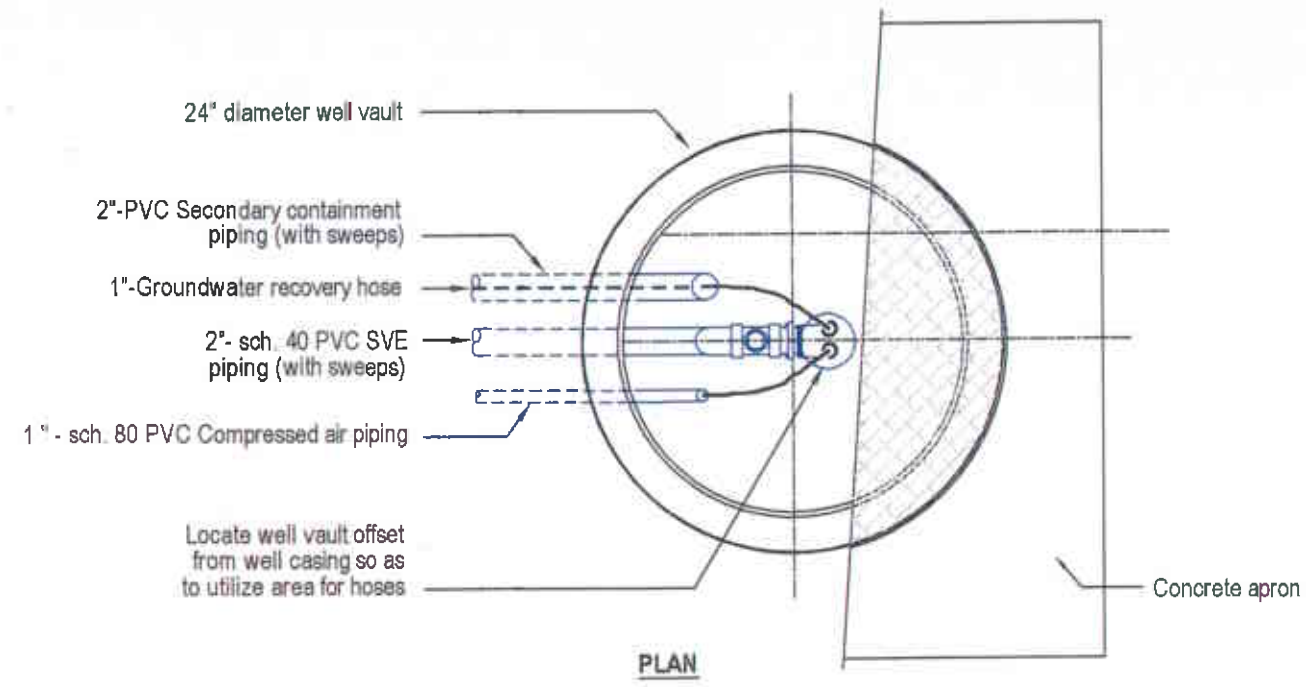
FIGURE
C-2

Trench Cross Sections



C A M B R I A

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I
C-3
Pneumatic Pump and Vapor Extraction Wellhead Detail
Not to Scale
Typical of 8 wells: RW-D7, RW-D9, RW-D11, RW-D13, RW-D14, RW-D15, RW-D16, and RW-C7

Note: SVE can be modified for TPE if groundwater pump is not installed. See details K and L for Plan view details of RW-D13 and RW-D14.

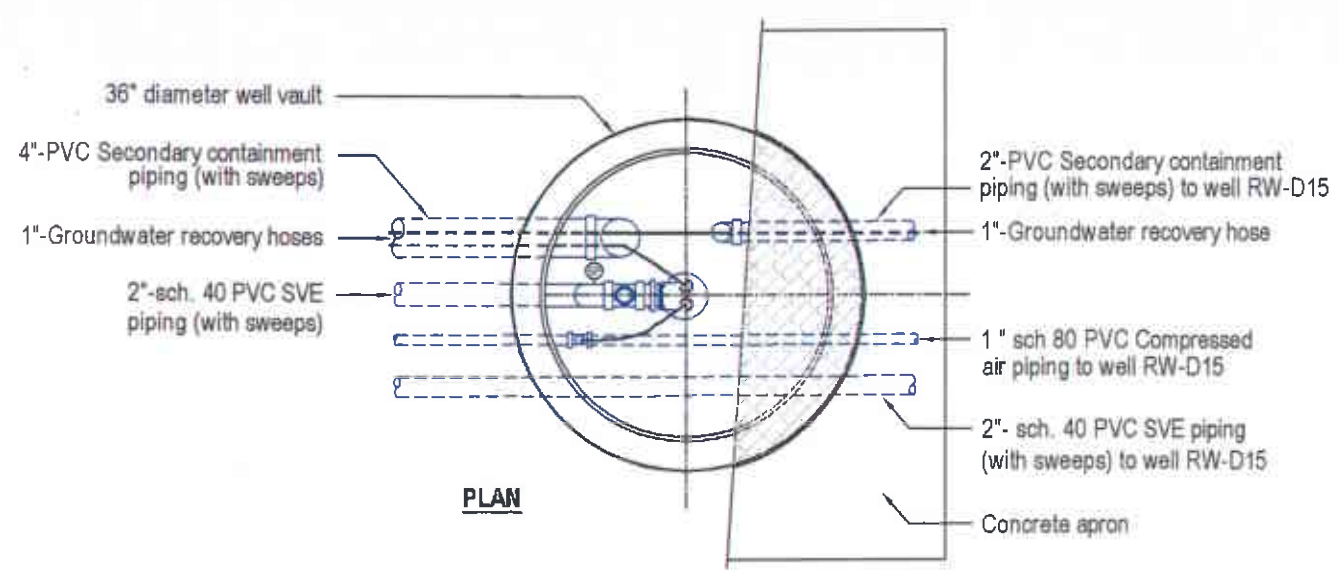
J
C-3
SVE / TPE Wellhead Detail
Not to Scale
Typical of 6 wells: RW-D3, RW-D6, RW-D8, RW-D10, RW-D12, and TBW-5
* Well TBW-5 is a 6" well

FIGURE
C-3



C A M B R I A

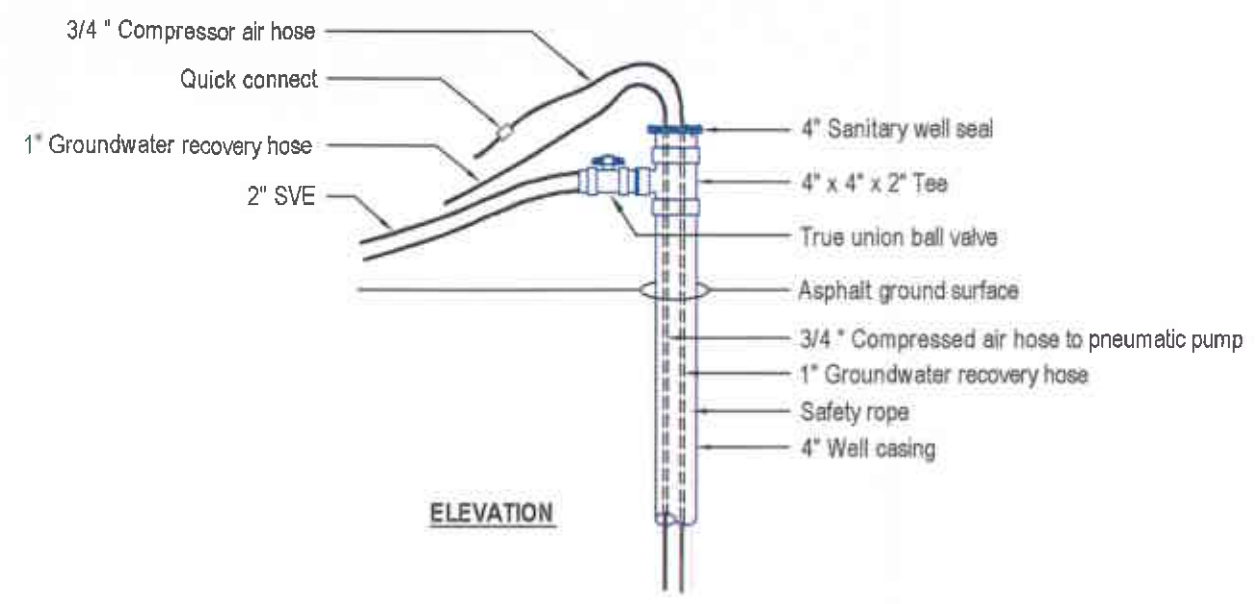
Municipal Service Center
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PLAN

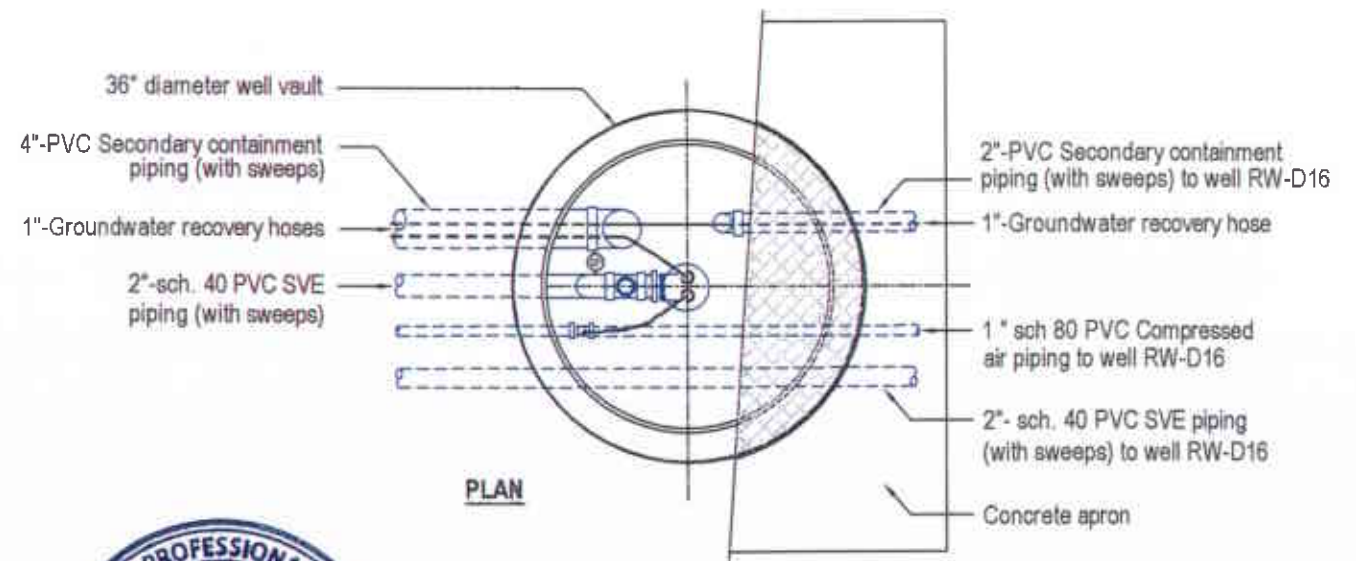
Compressed air and soil vapor extraction piping to well RW-D15 installed in subsurface below vault.

K Well RW-D14 Wellhead Detail
C-4 Not to Scale



ELEVATION

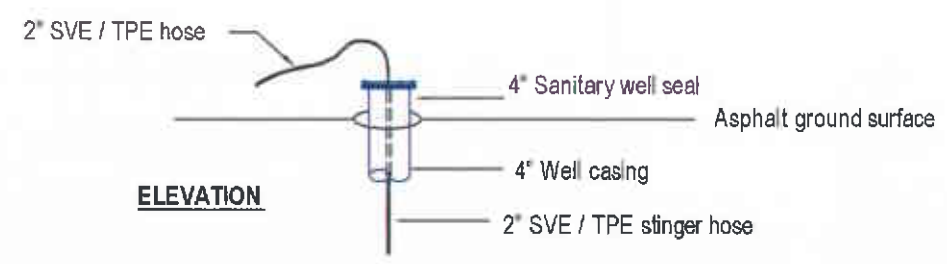
M Pneumatic Pump and Vapor Extraction Wellhead Detail
C-4 Not to Scale
 Typical of 3 wells



PLAN

Compressed air and soil vapor extraction piping to well RW-D16 installed in subsurface below vault.

L Well RW-D13 Wellhead Detail
C-4 Not to Scale



ELEVATION

N SVE / TPE Wellhead Detail
C-4 Not to Scale
 Typical of 3 wells

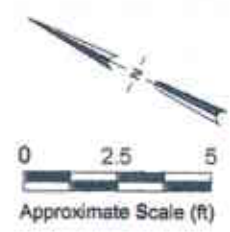


Wellhead Details 2

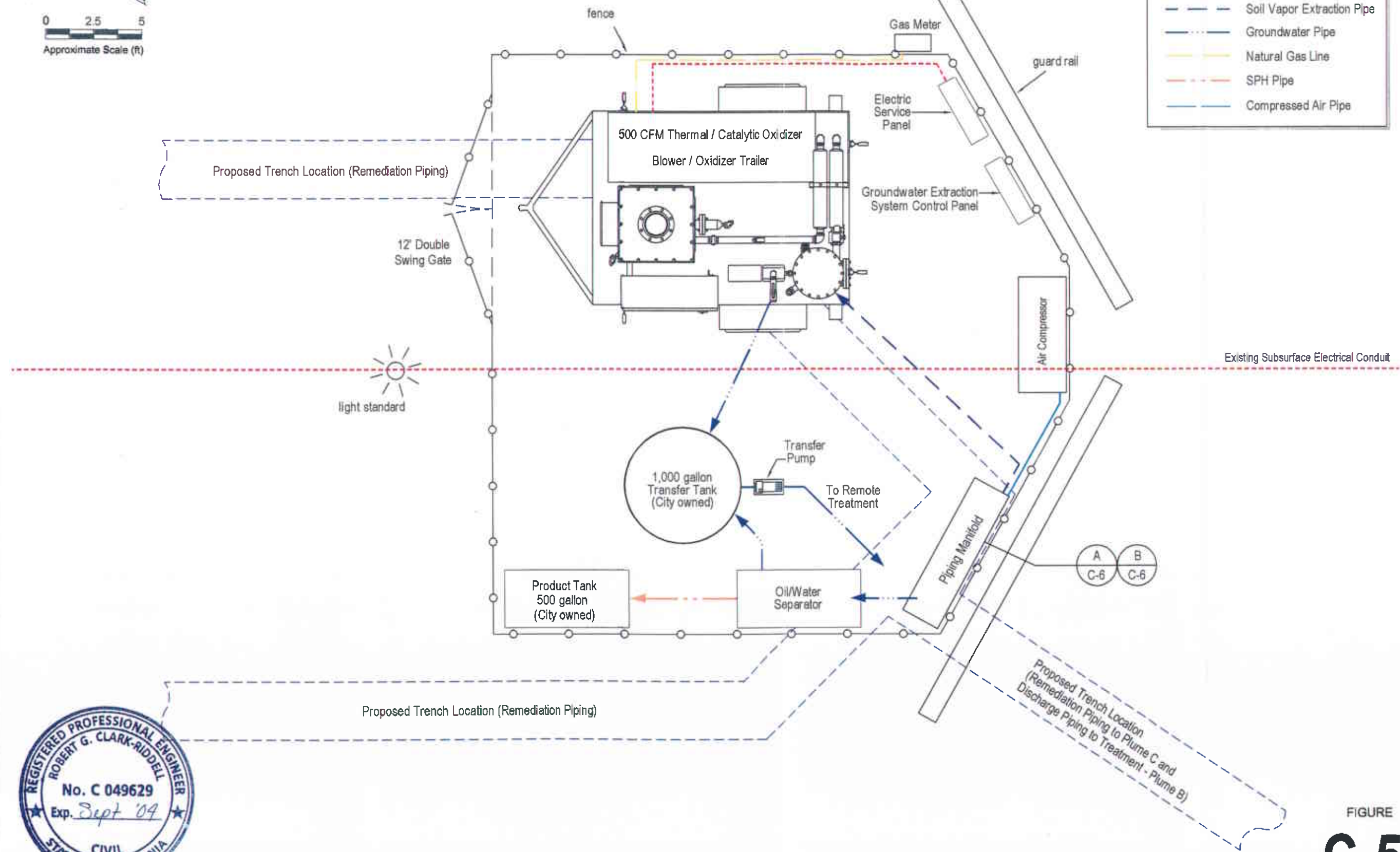
 **CAMBRIA**

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 Oakland, California

FIGURE
C-4



EXPLANATION	
	Electric Service Line
	Soil Vapor Extraction Pipe
	Groundwater Pipe
	Natural Gas Line
	SPH Pipe
	Compressed Air Pipe



Compound Details



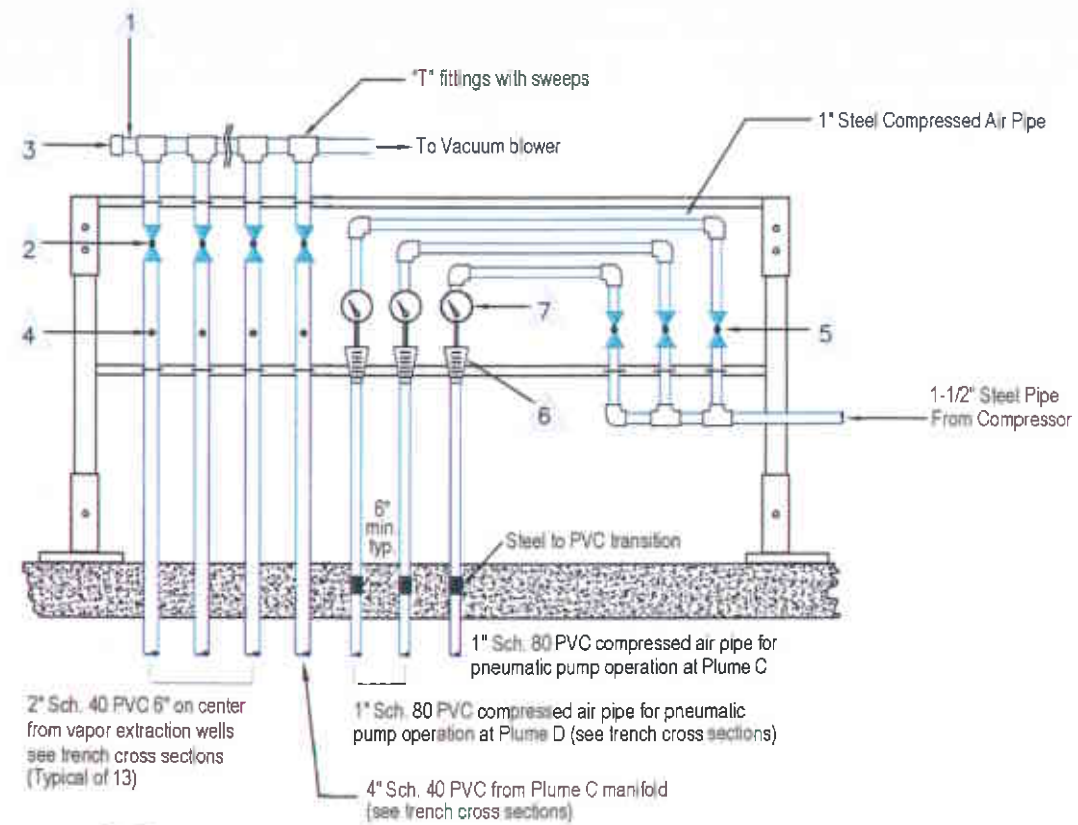
C A M B R I A



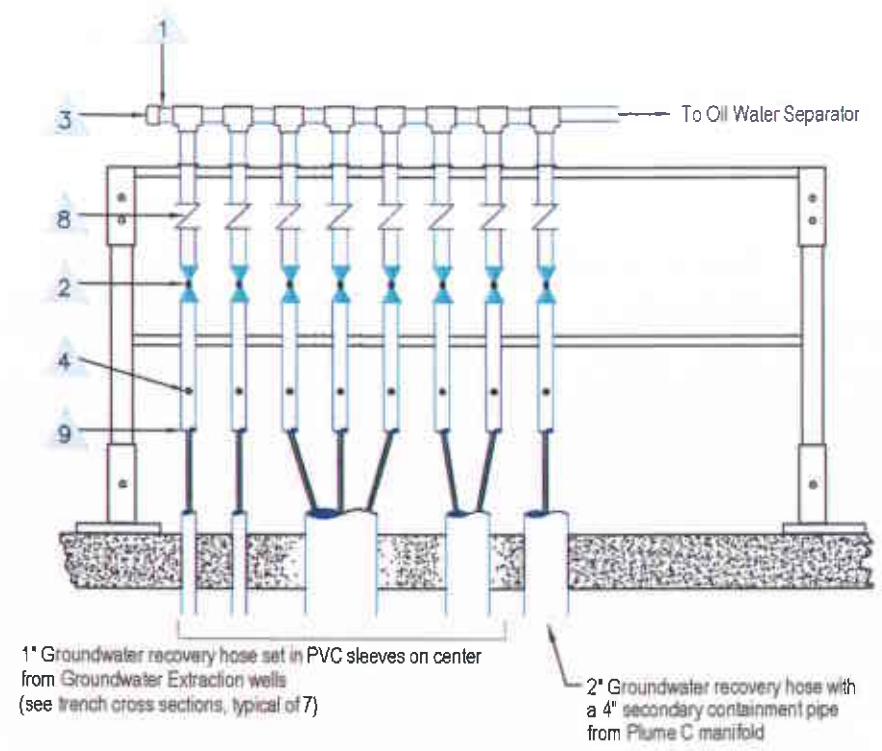
FIGURE
C-5

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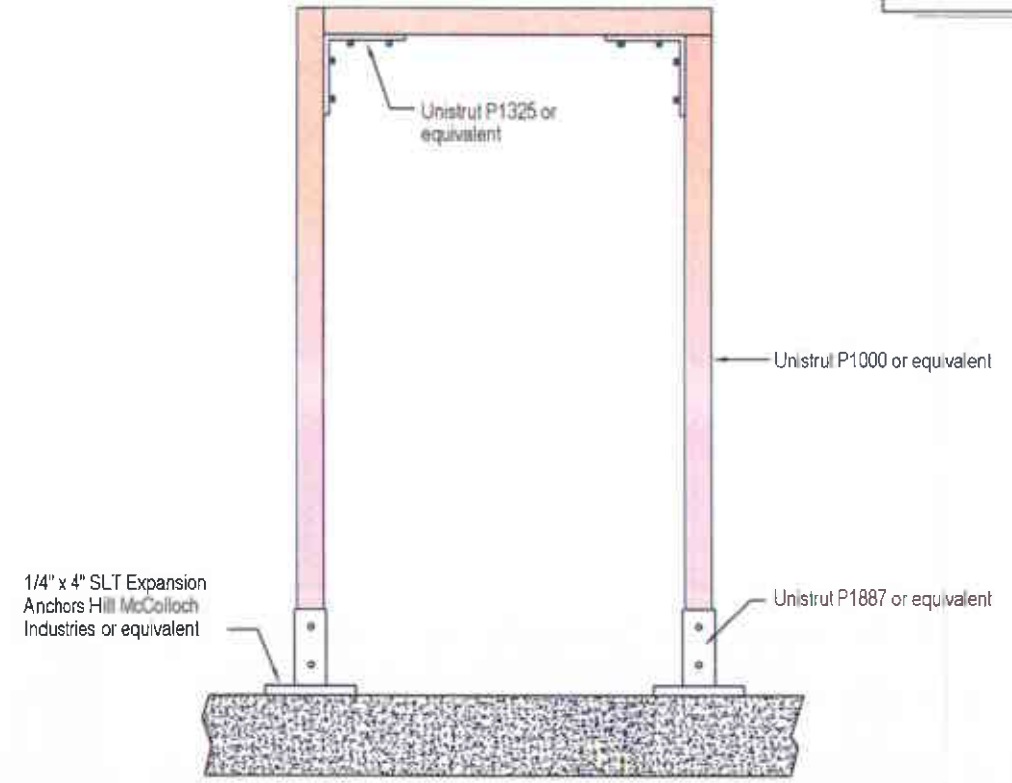
- NOTES:**
- 1 2" or 6" Dia. Sch. 80 PVC piping manifold
 - 2 Sch. 80 PVC Ball Valve
 - 3 Sch. 80 Slip Cap
 - 4 Sample port / lab cock
 - 5 1" brass ball valve
 - 6 Water trap, air filter and regulator, branch air valve (typical of 3)
 - 7 0-60" H₂O pressure guage (typical of 3)
 - 8 PVC check valve (typical of 8)
 - 9 Hose to PVC transition



A
C-6
SVE / TPE & Compressed Air Manifold
Not to Scale



B
C-6
Groundwater Extraction Manifold
Not to Scale

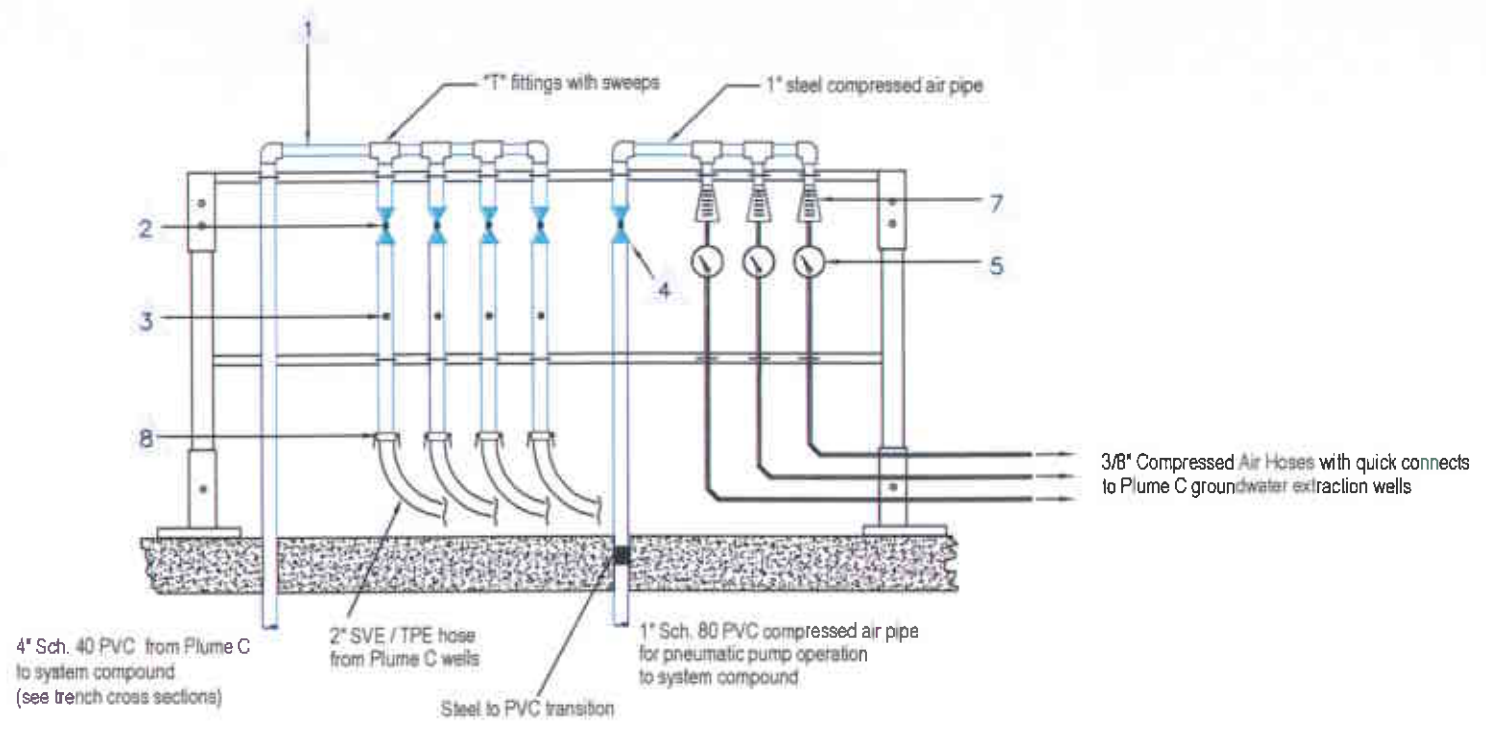


Manifold Support and Anchors
Not to Scale



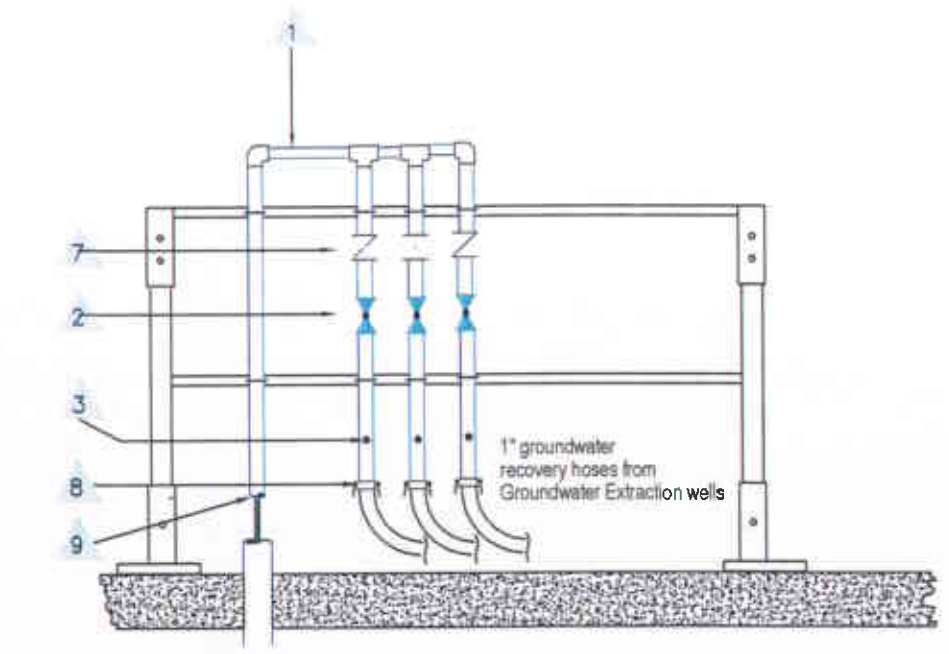
FIGURE
C-6

CITY OF OAKLAND WISCONSIN REMEDIATION MANHOLE DIAG



- NOTES:**
- 1 2" or 4" Dia. Sch. 80 PVC piping manifold
 - 2 Sch. 80 PVC Ball Valve
 - 3 Sample port / lab cock
 - 4 1" brass ball valve
 - 5 Water trap, air filter, and regulator, branch air valve (typical of 3)
 - 6 0-60" H₂O pressure gauge
 - 7 PVC check valve
 - 8 Camlock
 - 9 Hose to PVC transition

C
C-7
Plume C SVE / TPE & Compressed Air Manifold
Not to Scale

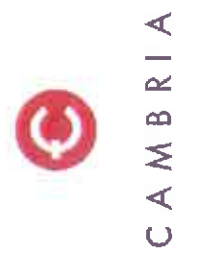


2" Groundwater recovery hose set in PVC sleeve from Plume C to system compound (see trench cross sections)

D
C-7
Plume C Groundwater Extraction Manifold
Not to Scale

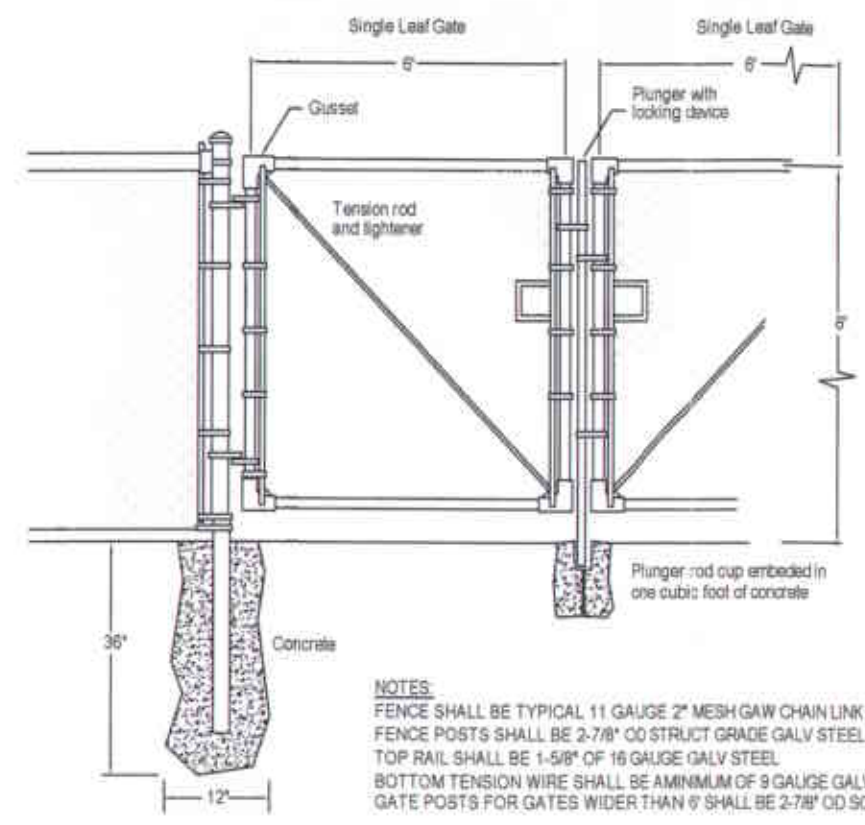


Plume C Manifold Details



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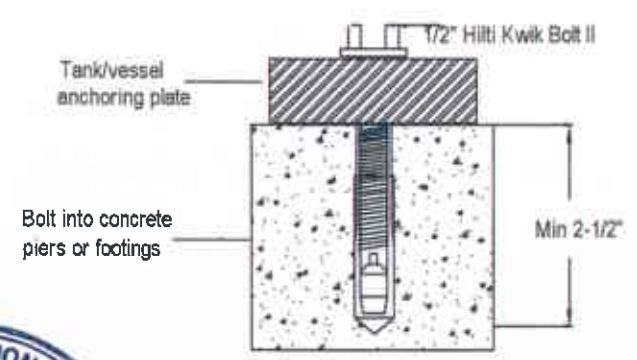
FIGURE
C-7



NOTES
 FENCE SHALL BE TYPICAL 11 GAUGE 2" MESH GAW CHAIN LINK FABRIC
 FENCE POSTS SHALL BE 2-7/8" OD STRUCT GRADE GALV STEEL
 TOP RAIL SHALL BE 1-5/8" OF 16 GAUGE GALV STEEL
 BOTTOM TENSION WIRE SHALL BE AMINIMUM OF 9 GAUGE GALV WIRE
 GATE POSTS FOR GATES WIDER THAN 6' SHALL BE 2-7/8" OD SCH40 STEEL

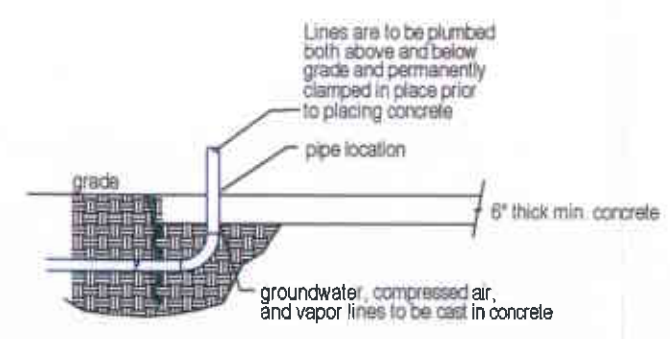
Perimeter Fence Detail

Notes: Not to Scale
 Plume C fence is 6 feet in height
 Plume D fence is 8 feet in height



Anchor Detail

Not to Scale



Stub-Up Detail

(@ piping manifolds)

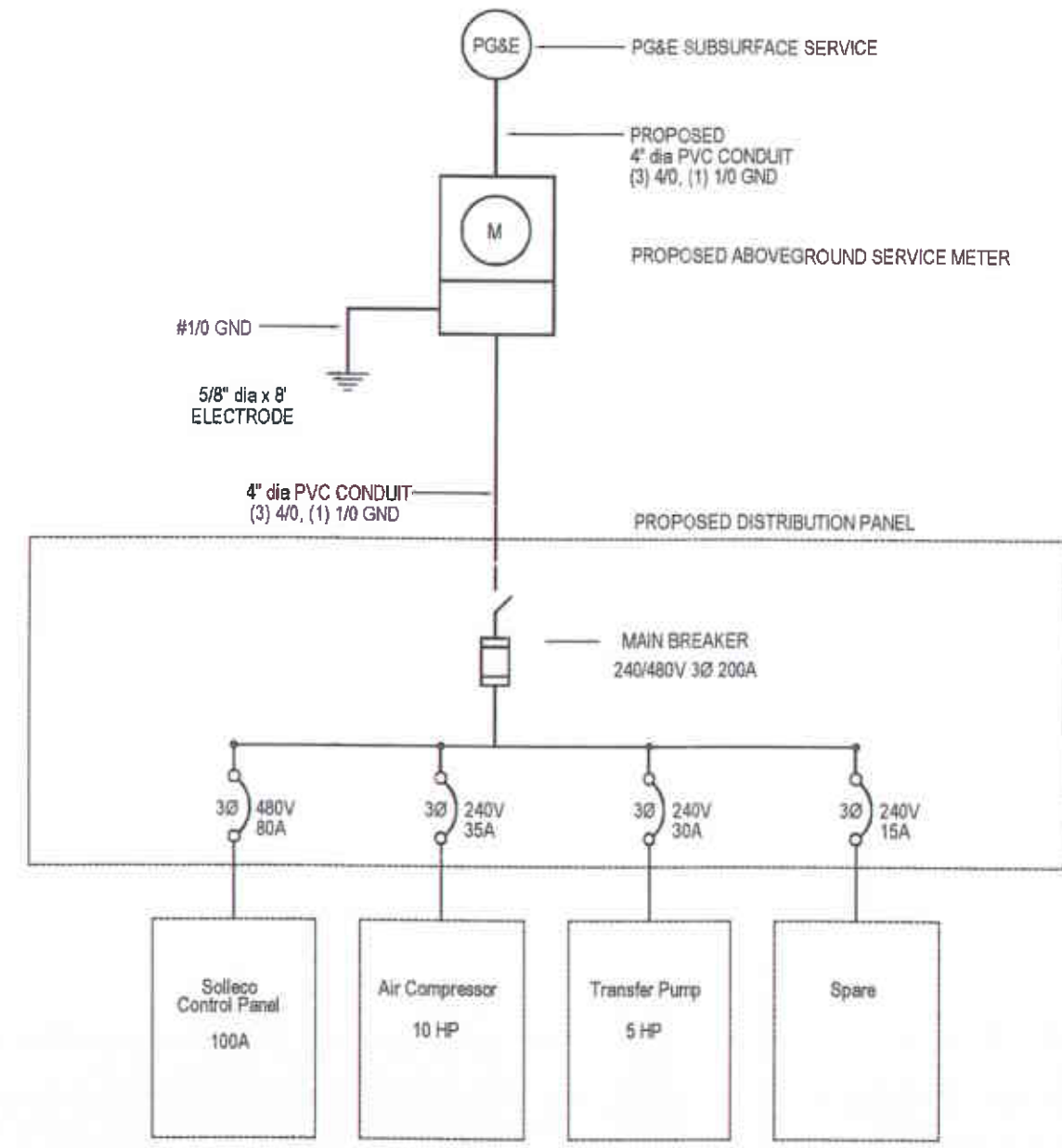


C A M B R I A

Municipal Service Center
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FIGURE
C-8

H:\CITY OF OAKLAND\SCIENCE\REMEDATION\CIVIL DETAILS.DWG



- Notes:
- 1 - Wire shall be copper stranded with THWN or THHN insulation.
 - 2 - Above ground conduit to be rigid galv. steel or EMT.
 - 3 - Below ground conduit to be sch 40 PVC, concrete encased if required.
 - 4 - All equipment to be U.L. listed.
 - 5 - All work to comply with the local, state and federal codes.
All electrical installations at an active fueling facility must comply with article 514 of the 1999 NEC.
 - 6 - Enclosures shall be NEMA 3R or 4 Rated.
 - 7 - All panels shall have a minimum 3-foot clearance per NEC Art. 110-16(a)



FIGURE E-1



CONSTRUCTION NOTES:

PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, STANDARDS AND CODES INCLUDING OSHA AND CALIFORNIA.

EXECUTE WORK SO AS TO MINIMIZE ANY DISRUPTIONS TO THE FACILITY OPERATIONS. PROVIDE AND MAINTAIN ACCESS FOR FACILITY OPERATIONS AS DIRECTED.

CONTRACTOR TO VERIFY THE LOCATION OF TANKS, PIPING, APURTANCES AND UTILITIES. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS WHICH EFFECT THE WORK PRIOR TO BEGINNING CONSTRUCTION. NOTIFY UNDERGROUND SERVICE ALERT (USA) PRIOR TO ANY SUBSURFACE WORK.

PROTECT EXISTING ITEMS WHICH ARE TO REMAIN IN PLACE, BE REUSED OR REMAIN PROPERTY OF THE OWNER. REPAIR ITEMS WHICH ARE TO REMAIN AND WHICH ARE DAMAGED DURING THE PERFORMANCE OF THE WORK TO THEIR ORIGINAL CONDITION OR REPLACE WITH NEW. DO NOT EXCEED LOADING CAPACITIES OF SITE PAVEMENT.

UNSHORED EXCAVATIONS GREATER THAN 4 FEET DEEP SHALL NOT HAVE A SLOPE GREATER THAN 1:1.

STOCKPILED SOIL SHALL BE PROTECTED FROM WEATHER. CONTAMINATED SOIL SHALL BE COVERED. PROVIDE STORMWATER RUN-ON AND RUN-OFF CONTROLS FOR TEMPORARY SOIL STOCKPILES AND OPEN EXCAVATIONS. PREVENT CONSTRUCTION OR DEMOLITION MATERIALS FROM ENTERING STORM DRAINS AND SEWER SYSTEMS.

ALL SOIL AND WATER SAMPLING SHALL BE DONE IN ACCORDANCE WITH LOCAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE CHARACTERIZATION, TRANSPORTATION AND DISPOSAL OF MATERIALS AND WASTEWATERS ASSOCIATED TRENCH EXCAVATION FOR PROPER HANDLING. CONCRETE AND ASPHALT DEBRIS SHALL BE RECYCLED WHERE POSSIBLE.

RESTORE OR PROVIDE ARCHITECTURAL FINISHES IN AREAS AFFECTED BY DEMOLITION TO MATCH PRE-CONSTRUCTION CONDITIONS. WORK TO INCLUDE BUT NOT LIMITED TO PAVEMENT RESTRIPIING, CURB PAINTING, LANDSCAPING AND PATCHING SURFACE IRREGULARITIES. ALL LEFT BEHIND SAW CUTS SHOULD BE KEPT TO AN ABSOLUTE MINIMUM.

ALL PROCESS LINES AND CONDUITS SHALL BE FREE OF DIRT AND DEBRIS AFTER INSTALLATION. THE GV SECONDARY CONTAINMENT LINES SHALL BE CLEARED AS NECESSARY PRIOR TO THE INSTALLATION OF THE PRIMARY LINE.

PRESSURE TEST ALL SVE AND GV SECONDARY LINES TO 5PSI PRIOR TO BACKFILL. PRESSURE TEST GV PRIMARY AND COMPRESSED AIR LINES TO 75% OF THE PROCESS LINE PRESSURE. THERE SHALL BE NO NOTICEABLE CHANGE IN PRESSURE AFTER 1 HOUR OR ANY VISIBLE LEAK INDICATIONS.

VAPOR EXTRACTION AND GROUNDWATER RECOVERY SECONDARY CONTAINMENT PIPING SHALL BE SLOPED A MINIMUM OF 1/16-INCH PER FOOT DOWNWARDS TOWARDS THE REMEDIATION COMPOUND.

ABBREVIATIONS

AC.	ASPHALTIC CONCRETE	MAX.	MAXIMUM
BLDG.	BUILDING	MIN.	MINIMUM
BLVD.	BOLLEVARD	N	NEW
B.V.	BOTH WAYS	NO(S).	NUMBER(S)
CDMC.	CONCRETE	Ø	NOMINAL DIAMETER
CDNTR.	CONTR.	OC	ON CENTER
DIA.	DIAMETER	DWS	OIL WATER SEPARATOR
DBL.	DOUBLE	PSI	POUNDS PER SQUARE INCH
E	EXISTING	RR.	RAILROAD
EA.	EACH	SS	SANITARY SEWER
EL.	ELEVATION	SCH.	SCHEDULE
FIN.	FINISH	STL.	STEEL
FRP	FIBERGLASS REINFORCED PLASTIC	SD	STORM DRAIN
B.G.S.	BELOW GROUND SURFACE	TC	TOP OF CURB
GAL(S).	GALLON(S)	TYP.	TYPICAL
HPFS	HIGH POINT OF FINISHED SURFACE	UG	UNDERGROUND
DWS	OIL WATER SEPARATOR	UST(s)	UNDERGROUND STORAGE TANK(S)
GWE	GROUNDWATER EXTRACTION	WC	INCHES WATER COL PRESS
SVE	SOIL VAPOR EXTRACTION	TPE	TWO-PHASE EXTRACTION
SDV	SOLENOID VALVE		

LEGEND

	VACUUM BREAKER		SAMPLE PORT		CONCRETE
	CHECK VALVE		FLOW TOTALIZING INDICATOR		ASPHALT
	BALL VALVE		LEVEL SV HIGH HIGH		EARTH
	PRESSURE REG		LEVEL SV HIGH		FILL AND BACKFILL
	GLOBE VALVE		LEVEL SV LOW		COARSE AGGREGATE
	FLOW ELEMENT		PRESSURE INDICATOR		PEA GRAVEL
	FILTER		PRESSURE SV HIGH		SAND AND TOPSOIL
	FLOW DIRECTION		FLOW INDICATOR		
	PUMP W/UNIONS		PRESSURE REGULATOR		
	SUMP PUMP				
	LIGHT POLE				

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	C-2	TRENCH CROSS SECTIONS
	C-3	WELLHEAD DETAILS 1
	C-4	WELLHEAD DETAILS 2
	C-5	COMPOUND DETAILS
	C-6	PLUME D MANIFOLD DETAILS
	C-7	PLUME C MANIFOLD DETAILS
	C-8	CIVIL DETAILS
MECHANICAL	M-1	PROCESS AND INSTUMENTATION DIAGRAM
ELECTRICAL	E-1	ELECTRICAL SINGLE LINE DIAGRAM

WELL ID	WELL SIZE	DEPTH	SCREEN INTERVAL	REMEDIAL PIPING
TBW-1	6"	?	?	GWE/SVE
TBW-2	6"	?	?	GWE/SVE
RW-C1	4"	14'	5'-12'	GWE/SVE
RW-C2	4"	14'	5'-12'	GWE/SVE
RW-C3	4"	14'	5'-12'	GWE/SVE
RW-C4	4"	14'	5'-12'	GWE/SVE
RW-C5	4"	14'	5'-12'	GWE/SVE
RW-C6	4"	14'	5'-12'	GWE/SVE
RW-C7	6"	18.5'	5'-18.5'	GWE/SVE
TBW-5	6"	14.8'	4.7'-13.5'	SVE
RW-D3	4"	14'	5'-12'	SVE
RW-D6	4"	18.5'	5'-18.5'	SVE
RW-D7	6"	18.5'	5'-18.5'	GWE/SVE
RW-D8	4"	18.5'	5'-18.5'	SVE
RW-D9	6"	18.5'	5'-18.5'	GWE/SVE
RW-D10	4"	18.5'	5'-18.5'	SVE
RW-D11	6"	18.5'	5'-18.5'	GWE/SVE
RW-D12	4"	18.5'	5'-18.5'	SVE
RW-D13	6"	18.5'	5'-18.5'	GWE/SVE
RW-D14	6"	18.5'	5'-18.5'	GWE/SVE
RW-D15	6"	18.5'	5'-18.5'	GWE/SVE
RW-D16	6"	18.5'	5'-18.5'	GWE/SVE

NOTE:

WELLS RW-D6 THROUGH RW-D14 WILL BE INSTALLED.

WELL OB-C1 WILL BE ENLARGED TO A 6-INCH DIAMETER WELL AND RENAMED RW-C7.

WELLS OB-D1 AND OB-D2 WILL BE ENLARGED TO 6-INCH DIAMETER WELLS AND RENAMED RW-D15 AND RW-D16, RESPECTIVELY.

ALL SVE WELLS WITHOUT DOWN-WELL PUMPS MAY BE OPERATED AS TPE WELLS USING DOWN-WELL STINGERS.



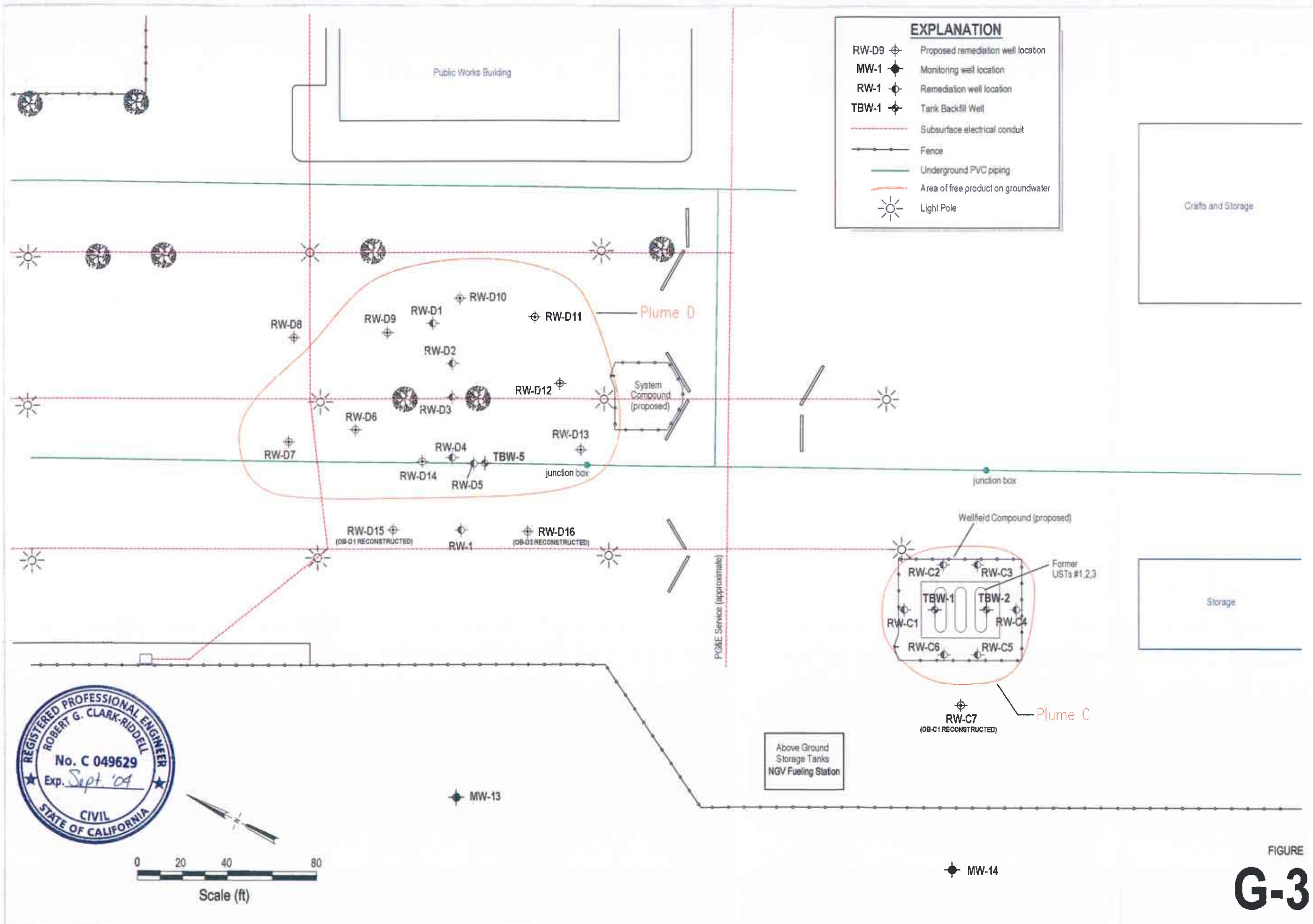
FIGURE
G-2

Drawing Index,
Legend, & Notes



Municipal Service Center

7101 Edgewater Drive
Oakland, California



EXPLANATION	
RW-D9	Proposed remediation well location
MW-1	Monitoring well location
RW-1	Remediation well location
TBW-1	Tank Backfill Well
- - - - -	Subsurface electrical conduit
— — — — —	Fence
— — — — —	Underground PVC piping
— — — — —	Area of free product on groundwater
☀	Light Pole

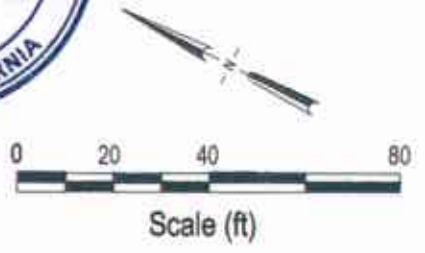
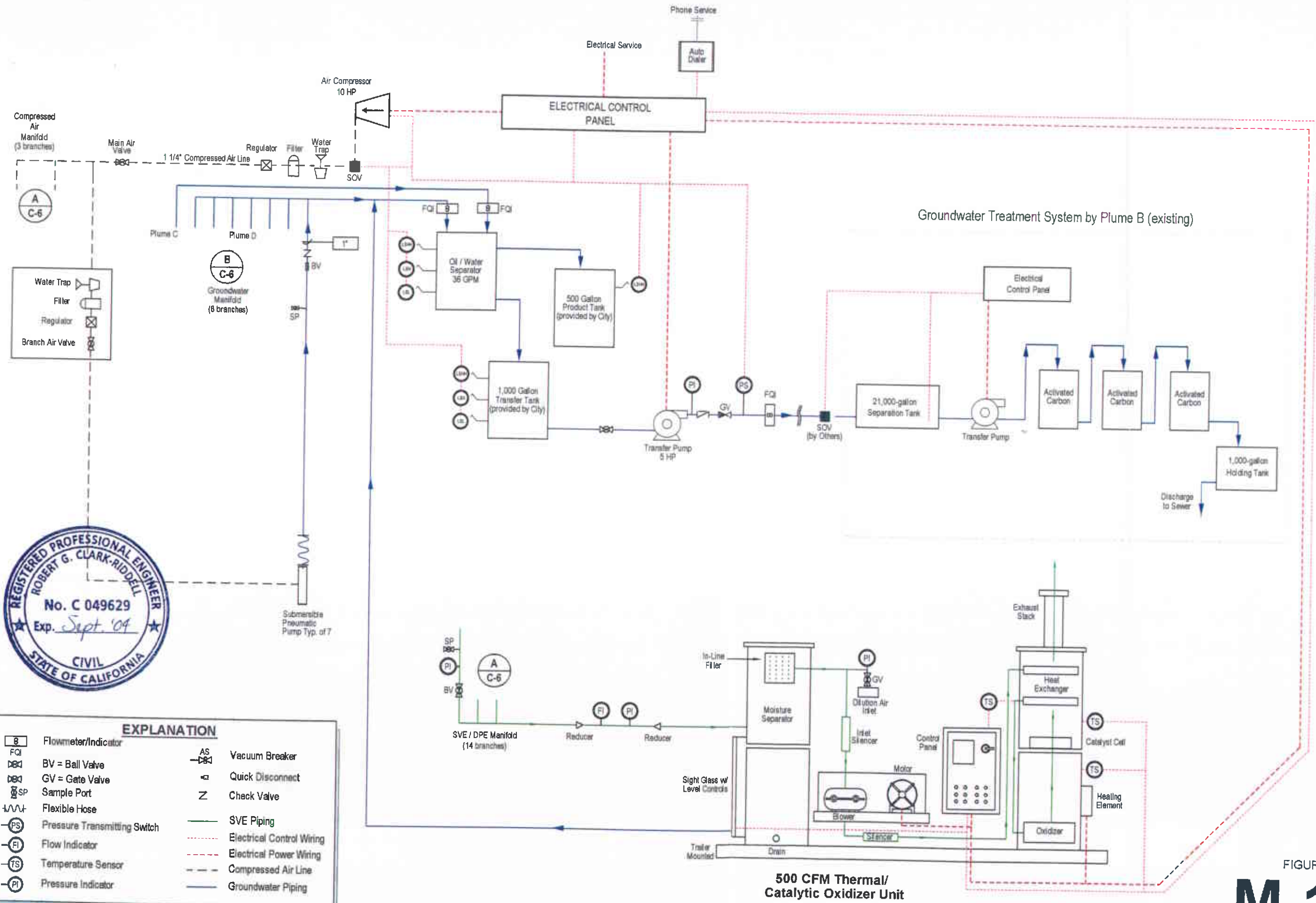


FIGURE
G-3





EXPLANATION

8	Flowmeter/Indicator	AS	Vacuum Breaker
FCI		QD	Quick Disconnect
BV	Ball Valve	Z	Check Valve
GV	Gate Valve	SVE Piping	
SP	Sample Port	Electrical Control Wiring	
Flexible Hose		Electrical Power Wiring	
PS	Pressure Transmitting Switch	Compressed Air Line	
FI	Flow Indicator	Groundwater Piping	
TS	Temperature Sensor		
PI	Pressure Indicator		

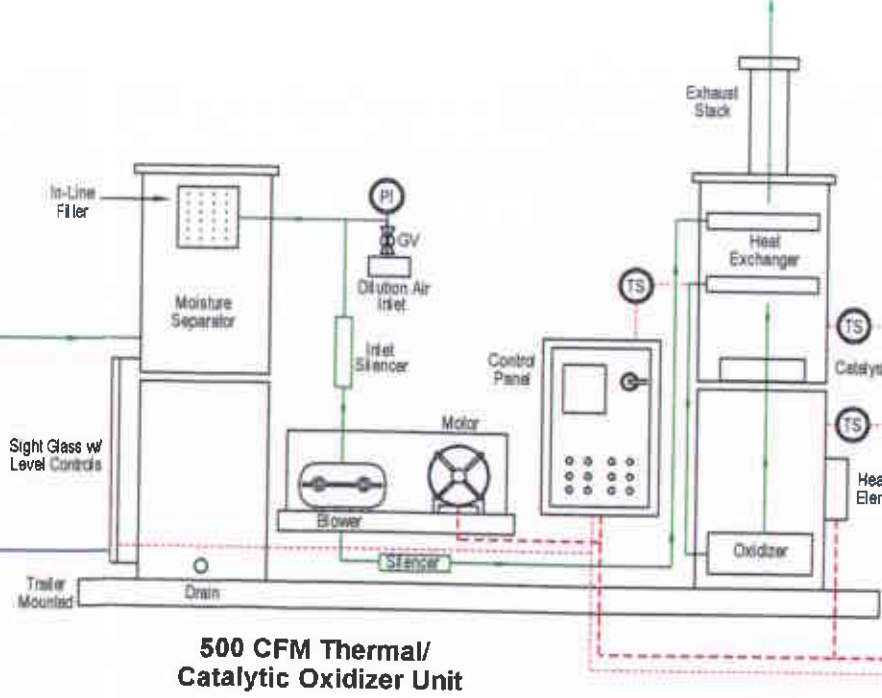


FIGURE
M-1

Process and Instrumentation Diagram



C A M B R I A

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Oakland, California