Delta
Environmental
Consultants, Inc.

3164 Gold Camp Drive
Suite 200
Rancho Cordova, CA 95670-6021
U.S.A.
916/638-2085
FAX: 916/638-8385

October 3, 2000

Response
10/12/2000

Mr. Amir Gholami, REHS
Hazardous Materials Specialist
Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: *Destruction of Vapor Extraction Well VW-4 and*
Proposed Installation of Remediation Piping for Possible Future Use
ARCO Station No. 2111
1156 Davis Street
San Leandro, California
Delta Project No. D000-306

Dear Mr.: Gholami:

On behalf of the Atlantic Richfield Company, Delta Environmental Consultants, Inc. (Delta) is submitting this letter to present the information you requested during your telephone conversation with Mr. Trevor Atkinson of Delta on September 27, 2000. This letter also presents the proposed installation of remediation piping at the subject site (Figure 1).

Due to the location of vapor well VW-4 that lies in the proposed extended tank field at the subject site, Delta proposes to abandon the vapor well during the underground storage tank (UST) removal activities scheduled to begin on October 9, 2000. As discussed, VW-4 is not part of the quarterly ground water monitoring program and has not been used as a vapor extraction point. Delta proposes to destroy the well by excavating and removing the casing and filter pack material when the tank basin is extended. The boring log and well detail for this well indicate a four-inch casing and a total depth of 20 feet below surface grade. The boring and well details are provided in Enclosure A.

The proposed remediation piping is scheduled for installation during the site upgrade activities in an effort to reduce extensive trenching costs at a later date. The actual above ground remediation system is currently being evaluated. The proposed remediation piping plans have been provided in Enclosure B for your reference.

If you have any questions concerning this project, please contact me at (916) 536-2613.

Sincerely,

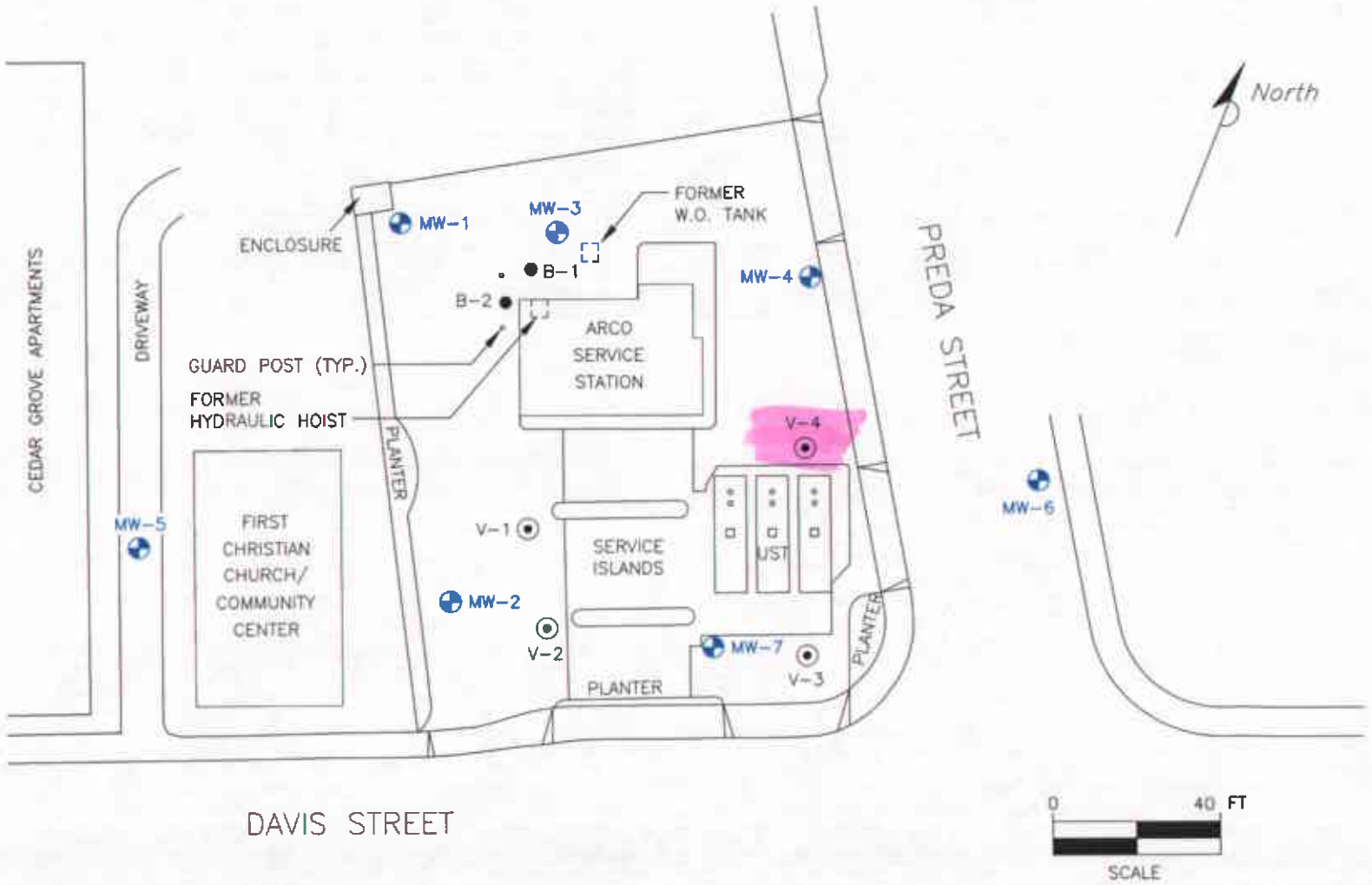
DELTA ENVIRONMENTAL CONSULTANTS, INC.

Steven W. Meeks, P.E.
Project Manager

SWM (Cl001.306.doc)
Enclosures

cc: Mr. Paul Supple – ARCO Products Company
Mr. Mike Bakaldin – San Leandro Fire Department - HAZMAT Division

00 OCT 11 PM 4:27
ENVIRONMENTAL PROTECTION



LEGEND:

- MW-1 MONITORING WELL LOCATION
- V-1 VAPOR EXTRACTION WELL LOCATION
- B-1 SOIL BORING LOCATION

FIGURE 1

SITE MAP

ARCO SERVICE STATION NO. 2111

1156 DAVIS STREET

SAN LEANDRO, CALIFORNIA

PROJECT NO. 0000-306	DRAWN BY TLA 8/31/00
FILE NO. 2111-1	PREPARED BY TLA
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.

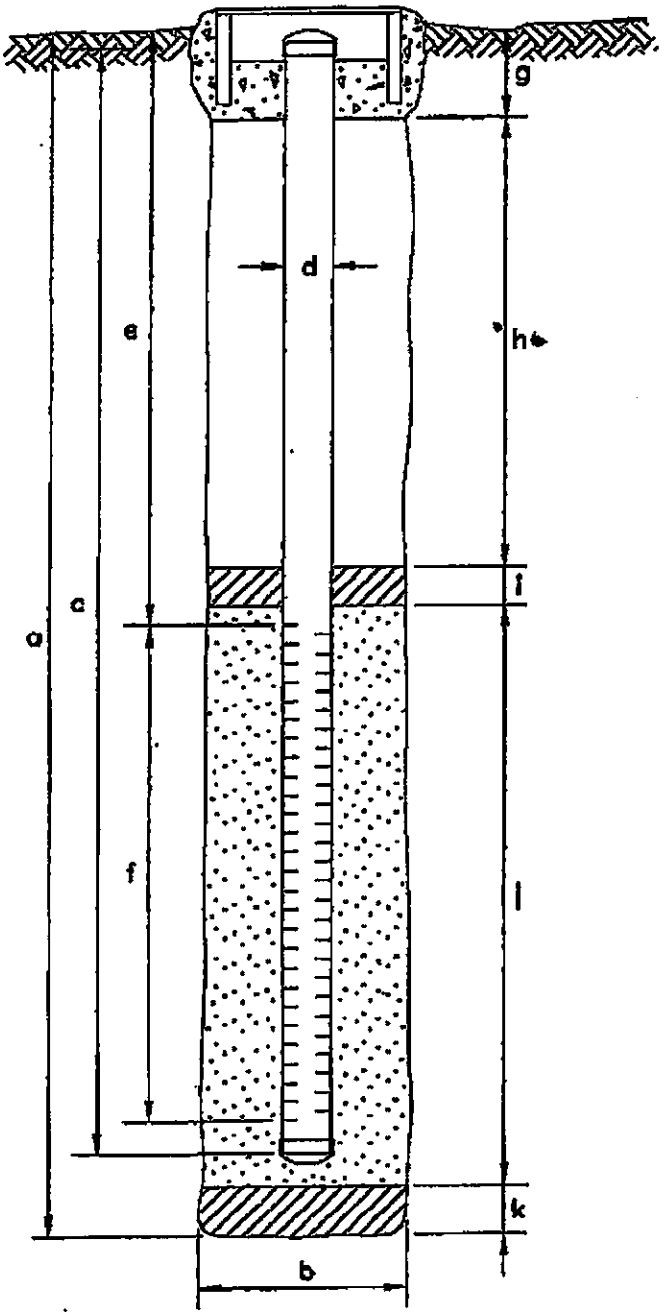
\\Sacramento\CAD Files\Sacramento\ARCO\2111\2111-1

WELL DETAILS

EMCON

PROJECT NUMBER 20805-127.001
PROJECT NAME Arco Station #2111
COUNTY San Leandro
WELL PERMIT NO. 96126 (ZONE 7)

BORING/WELL NO. VW-4
TOP OF CASING ELEV. 38.38
GROUND SURFACE ELEV. 39.23
DATUM MSL
INSTALLATION DATE 2/28/96



EXPLORATORY BORING

a. Total depth 20 ft.
b. Diameter 10 in.
Drilling method HOLLOW STEM AUGER

WELL CONSTRUCTION

c. Total casing length 19.5 ft.
Material SCH 40 PVC
d. Diameter 4 in.
e. Depth to top perforations 6.5 ft.
f. Perforated length 13 ft.
Perforated interval from 6.5 to 19.5 ft.
Perforation type MACHINE SLOTTED
Perforation size 0.020 INCH
g. Surface seal 0.5 ft.
Seal material CONCRETE
h. Backfill 4.5 ft.
Backfill material CEMENT
i. Seal 1.5 ft.
Seal material BENTONITE CHIPS
j. Gravel pack 13.5 ft.
Pack material #2/12 SAND
k. Bottom seal NA ft.
Seal material NA

DETAILCB.DWG

LOG OF EXPLORATORY BORING

PROJECT NUMBER 20805-127.001 BORING NO. VW-4

PROJECT NAME Arco Service Station #2111, San Leandro, California PAGE 1 OF 1

BY R. Davis DATE 2/28/96 SURFACE ELEV. 39.23 ft.

PID Reading (ppm)	Sample Recovery (ft./ft.)	Penetration (Blows per 6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WEL DET/
0.5							ASPHALT. CONCRETE. FILL: SANDY CLAY (CL), brown; 70% medium-plasticity fines; 30% fine to coarse-grained sand; damp; no hydrocarbon odor.	
7.0	1.2/1.5	9 15 16		5			FILL: SILTY CLAY (CL), very dark gray (5Y, 3/1) with olive (5Y, 4/4) mottling; 95-100% medium-plasticity fines; trace to 5% fine-grained sand; very stiff; damp; hydrocarbon odor.	
23.1	0.8/1.5	22 25 29		10			FILL: CLAYEY SAND (SC), dark gray to yellowish brown; 30-40% medium-plasticity fines; 60-70% fine to coarse-grained sand; trace fine gravel; very dense; damp; hydrocarbon odor.	
92.3	1.2/1.5	6 9 15	▽	15			CLAYEY SAND (SC), very dark gray (5Y, 3/1); 30-35% medium-plasticity fines; 40-45% fine to coarse-grained sand; 25% fine gravel; medium dense; moist; hydrocarbon odor. @15.5': wet (moisture in voids).	
281.0	1.5/1.5	9 12 16					SILTY CLAY (CL), light olive brown (2.5Y, 5/4); 90-95% low to medium-plasticity fines; trace to 5% fine-grained sand; 5% fine gravel; very stiff; wet; hydrocarbon odor.	
878.0	1.5/1.5	6 7 15		20			BORING TERMINATED AT 20 FBG.	

EMCON

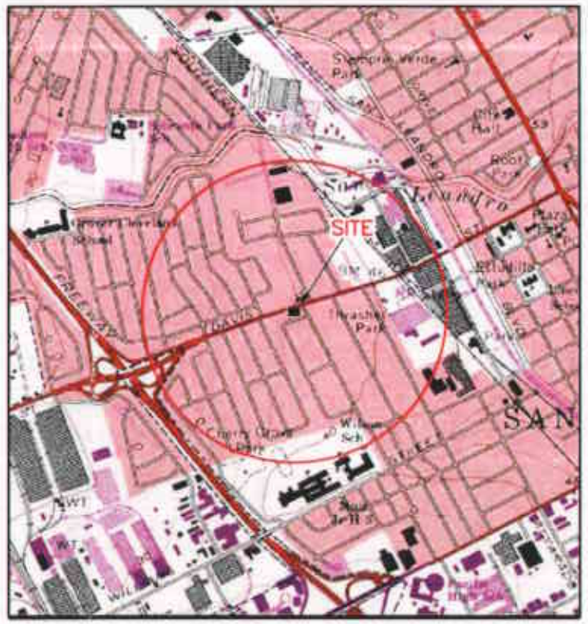
REMARKS

Boring drilled to a depth of 20 feet below grade (fbg) by West Hazmat using 10" dia. hollow-stem auger equipment. Boring completed as a 4" dia. PVC vapor extraction well screened from 6.5 to 19.5 fbg. Groundwater was encountered at 15.5 fbg.

ENCLOSURE B

Proposed Remediation Piping Plans

PIPING LAYOUT FOR EXTRACTION SYSTEM ARCO FACILITY NO. 2111 1156 DAVIS STREET SAN LEANDRO, CALIFORNIA



NORTH

SITE VICINITY MAP

0 1000 FT 2000 FT

SCALE: 1 : 24,000

CONTENTS

PREPARED FOR:
ARCO PRODUCTS COMPANY
4 CENTERPOINTE DRIVE
LA PALMA, CALIFORNIA 90623-1066

REV	DATE	DESCRIPTION	DRAWN	REVIEW

PREPARED BY: T. ATKINSON	REVIEWED BY:
DATE: 9/13/00	DATE:

Delta Environmental Consultants, Inc.

PROJECT NUMBER: 0000-306	FILE NAME: 2111 C-1	DRAWING NO.: TS

1.0 INTRODUCTION

The enclosed drawings and specifications contain information for the construction and installation of piping for a Dual Phase Extraction and Groundwater Extraction system. The following drawings depicting the piping layout for the system are required for construction and installation:

Drawing No.	Revision	Title
G-1	0	Specifications
P-1	0	Site Layout
P-2	0	Cross Sections
P-3	0	Site Details

This package also contains the following specifications required for construction and installation:

- General
- Excavation
- Piping
- Construction Schedule
- Safety/Clean-up

2.0 SPECIFICATIONS

2.1 General

1. The selected Contractor shall verify all dimensions and site conditions before starting work. The Consultant's Project Manager shall be notified of any discrepancy.
2. All materials used for construction of the system piping shall be provided by the Contractor, all materials used shall be new unless otherwise noted.
3. Only equipment and instruments within the system that are specifically defined will be provided by the Consultant or ARCO for installation by the Contractor. All materials not specifically defined shall be provided by the Contractor.
4. All necessary construction permits and inspections shall be obtained and paid for by the Contractor, including permits for electrical, mechanical, and civil construction.
5. The Contractor shall restore all excavated surface areas to match existing.
6. 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.
7. A pre-construction meeting between ARCO, the Contractor, and Consultant will be required before any work begins. The meeting will be held at the site.
8. The Contractor shall warranty all materials and construction for a period of one year. All defects shall be corrected at the Contractor's expense.

2.2 Excavation

1. All excavated soil shall be monitored by the consultant in accordance with the Bay Area Air Quality Management District (BAAQMD) Rules. If hydrocarbon-impacted soil is detected, the soil shall be stockpiled in an area designated by the Consultant and covered with plastic sheets if necessary. The Consultant will sample the excavated soil for hydrocarbons. ARCO will be responsible for disposal of hydrocarbon-impacted soils. The Contractor shall dispose of all hydrocarbon-free soil and construction debris off-site including any pavement removed during trenching.
2. Where piping is installed below ground, the pipe shall be buried in a trench or excavation at a minimum depth of 24-inches to the top of the pipe, unless otherwise stated. The excavations shall be saw cut to provide a square vertical joint for repaving. If excavations must remain open after normal work hours, they shall be covered with metal plates capable of supporting vehicular traffic. Excavations shall not remain open over a weekend.
3. Process piping trenches and excavations shall be backfilled with imported sand from 4-inches below the piping to 4-inches above the piping. Upon approval by the consultant, native soil may be used as backfill material from 4-inches above the piping to the bottom of the concrete or asphalt base material. The backfill material shall be compacted to 90% of the relative dry density. Pavement removed for trenches or other excavations shall be replaced with new material to match existing. When resurfacing with asphalt, a minimum of 4 inches of asphaltic base material shall be used. Base material shall be compacted to 95% of the relative dry density. The asphalt mix shall be designed and installed to allow for normal service station traffic including fuel delivery trucks. When resurfacing with concrete, a minimum of 6-inch thick, 2,500 psi reinforced concrete shall be used. Reinforcing shall be No. 4 rebar tied into the existing slab staggered on each side of the trench on 24-inch centers placed at mid-height.
4. Contractor to remove and dispose of concrete parking blocks as needed.
5. The Contractor shall take all necessary precautions to prevent damage to underground utilities, piping and adjoining structures.

2.3 Piping

1. All underground process piping shall be schedule 40 PVC with glued slip fittings, all aboveground process piping shall be schedule 40 PVC with glued slip fittings as indicated on the drawings. Contractor to use low volatile organic compound emitting primers and solvents when installing glued slip fittings. Unless otherwise stated, all valves shall be PVC slip fitted as indicated in the drawings.
2. When connecting to or bypassing existing underground piping the Contractor shall first verify the existing piping path.
3. 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.
4. All process piping shall be pressure tested according to local specifications and witnessed by a Consultant's representative. No testing will be conducted through instruments or equipment.
5. Whenever possible lateral piping shall be sloped toward wellheads at a ratio of 1:100. If a trench depth of greater than 4 feet is needed to achieve the required slope, then clean-out tees (stubbed up and capped within traffic rated wellhead protection boxes) may be substituted. The clean-out tees to be installed at low point of piping run.
6. 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 Consultant prior to use.

2.4 Construction Schedule

1. The Contractor shall confirm a construction schedule with the Consultant's Project Manager at least 72-hours prior to any work at the site.
2. 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 Consultant's Project Manager within 24-hours.

3.0 SAFETY/CLEAN-UP

The Contractor shall read, sign and abide by the Consultant's Site-Specific Health and Safety Plan prior to beginning any 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.

REV	DATE	DESCRIPTION	DRAWN	REVIEW

PREPARED BY: T. ATKINSON	REVIEWED BY:
DATE: 9/22/00	DATE:

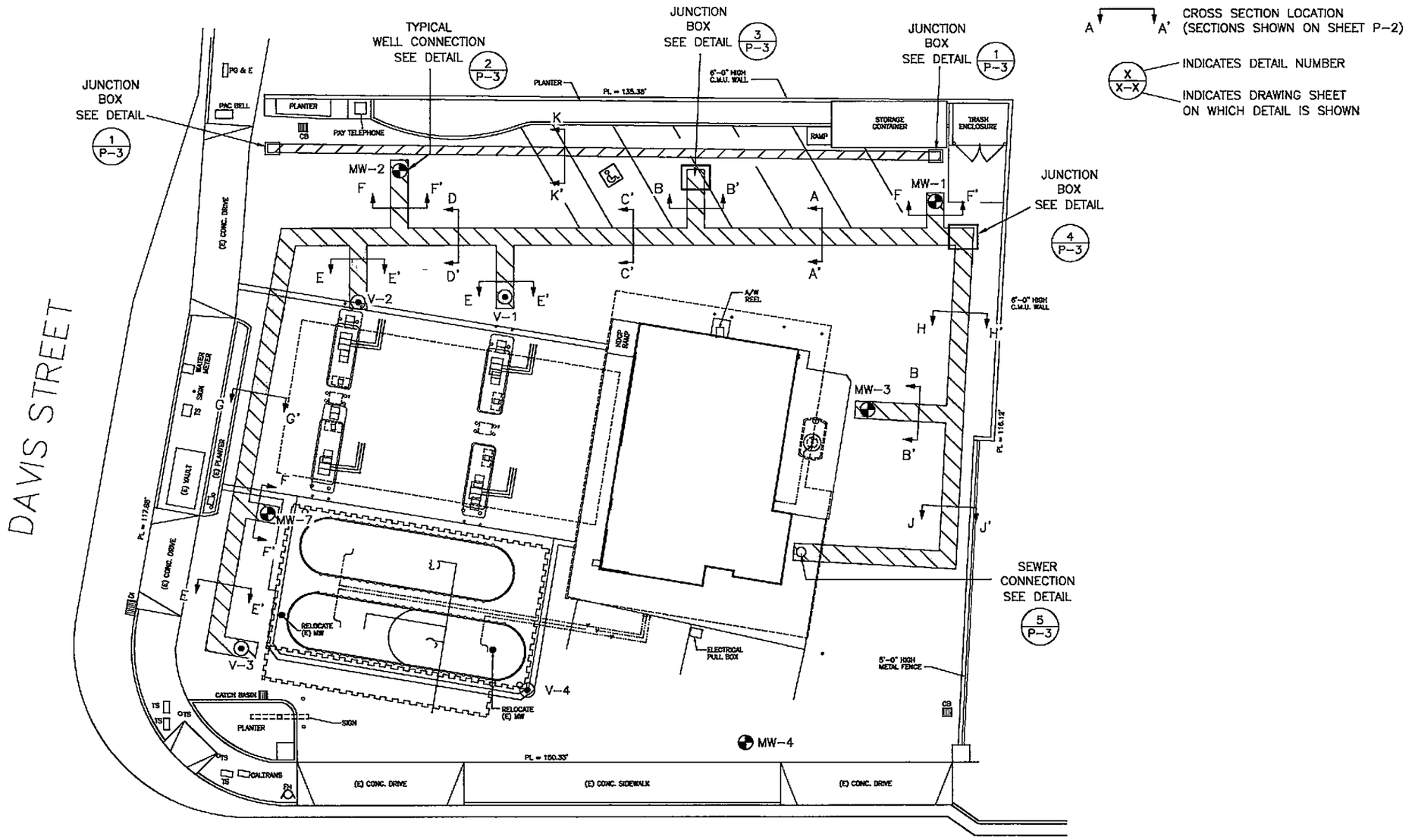
DRAWING G-1
SPECIFICATIONS

PIPING LAYOUT FOR
EXTRACTION SYSTEM

ARCO FACILITY NO. 2111
1156 DAVIS STREET
SAN LEANDRO, CALIFORNIA

Delta Environmental Consultants, Inc.

PROJECT NUMBER	FILE NAME	DRAWING NO.
D000-306	2111 G-1	G-1



North

0 20 FT

SCALE

REV	DATE	DESCRIPTION	DRAWN	REVIEW

PREPARED BY: T. ATKINSON	REVIEWED BY:
DATE: 9/25/00	DATE:

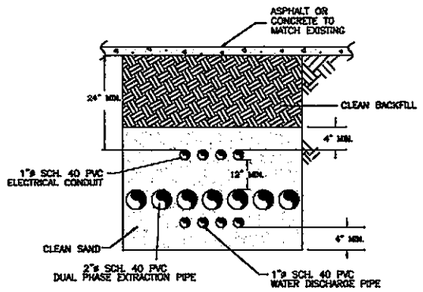
DRAWING P–1
SITE LAYOUT

PIPING LAYOUT FOR EXTRACTION SYSTEM

ARCO FACILITY NO. 2111
1156 DAVIS STREET
SAN LEANDRO, CALIFORNIA

Delta Environmental Consultants, Inc.

PROJECT NUMBER	FILE NAME	DRAWING NO.
D000–308	2111 P–1	P–1



A P-1 **TRENCH CROSS SECTION A-A'**
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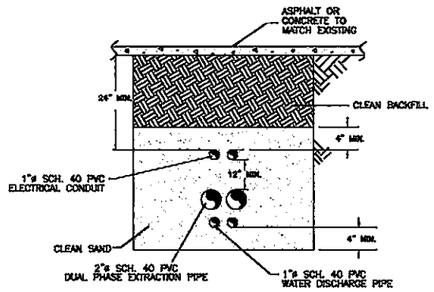

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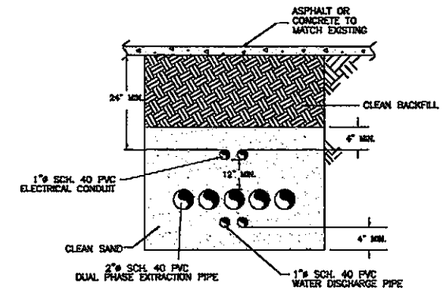

C P-1 **TRENCH CROSS SECTION C-C'**
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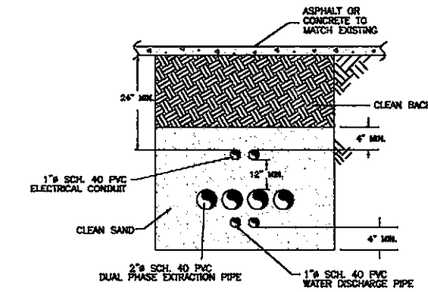
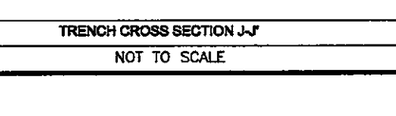


D P-1 **TRENCH CROSS SECTION D-D'**
NOT TO SCALE

NOTES:

1. PROPOSED SEWER CONNECTION PIPE WILL BE SLOPED 2% TOWARD CONNECTION TO SANITARY SEWER CLEANOUT.
2. NO CONNECTIONS ARE TO BE MADE TO WELLS OR SEWER CLEANOUT ONLY STUB UPS.
3. CONTRACTOR TO MAINTAIN A VERTICAL 12" SEPARATION BETWEEN ELECTRICAL CONDUIT AND OTHER PIPES WHEN LAYING TRENCHES.
4. CONTRACTOR TO INSTALL ALL ELECTRICAL CONDUITS, CONDUCTORS, AND EQUIPMENT IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE NATIONAL ELECTRIC CODE.



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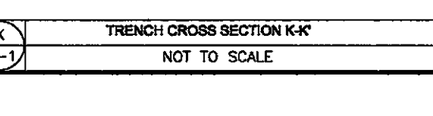
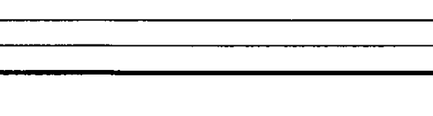


F P-1 **TRENCH CROSS SECTION F-F'**
NOT TO SCALE



G P-1 **TRENCH CROSS SECTION G-G'**
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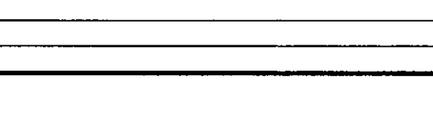

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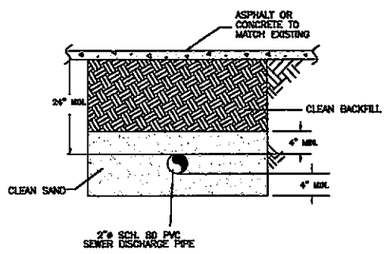

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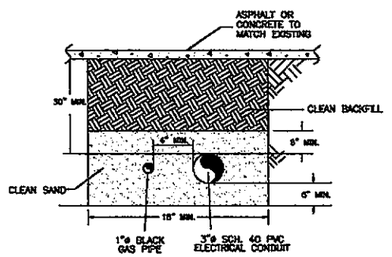


K P-1 **TRENCH CROSS SECTION K-K'**
NOT TO SCALE

REV	DATE	DESCRIPTION	DRAWN	REVIEW

PREPARED BY: T. ATKINSON	REVIEWED BY:
DATE: 9/25/00	DATE:

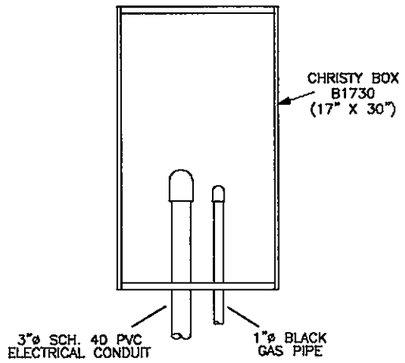
DRAWING P-2
CROSS SECTIONS

PIPING LAYOUT FOR
EXTRACTION SYSTEM

ARCO FACILITY NO. 2111
1156 DAVIS STREET
SAN LEANDRO, CALIFORNIA

Delta Environmental Consultants, Inc.

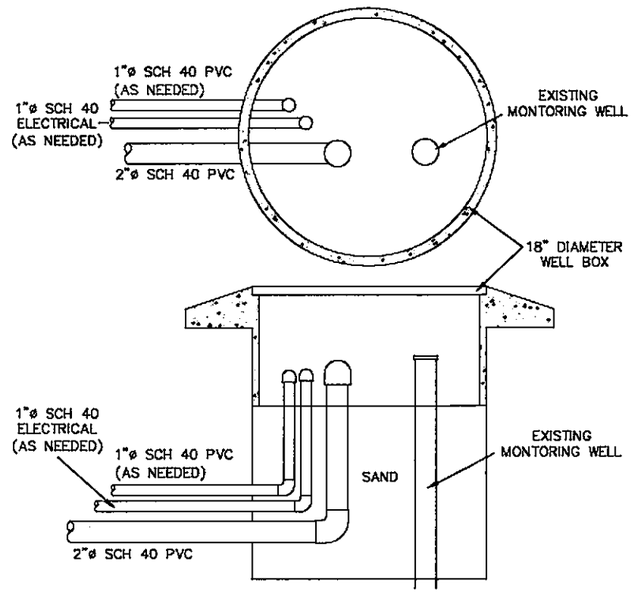
PROJECT NUMBER	FILE NAME	DRAWING NO.
D000-308	2111 P-2	P-2



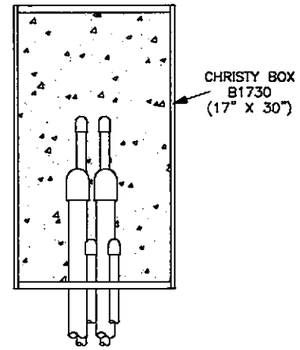
PLAN VIEW

STUB UP AND CAP ENDS OF
ALL PIPES AND CONDUITS

1	TYPICAL JUNCTION BOX DETAIL
P-1	NOT TO SCALE



2	TYPICAL WELL CONNECTION DETAILS
P-1	NOT TO SCALE



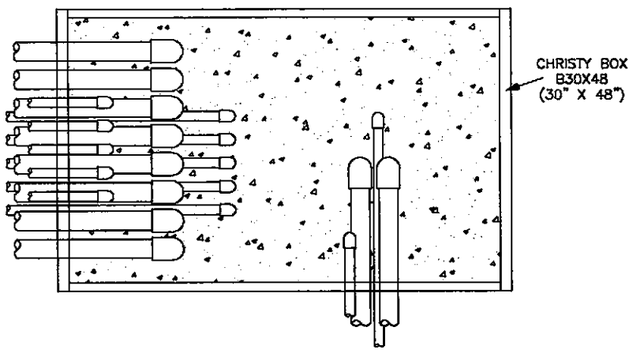
PLAN VIEW

STUB UP AND CAP ENDS OF
ALL PIPES AND CONDUITS

3	JUNCTION BOX DETAIL
P-1	NOT TO SCALE

NOTES:

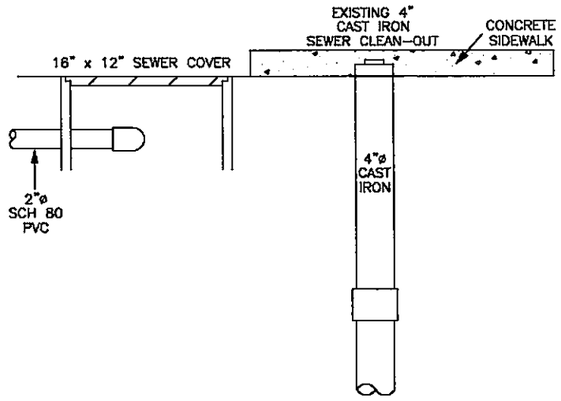
1. CONTRACTOR TO INSTALL ALL ELCTRICAL CONDUITS IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE NATIONAL ELECTRIC CODE.
2. ALL UTILITY/JUNCTION, AND WELL BOXES MUST BE TRAFFIC RATED



PLAN VIEW

STUB UP AND CAP ENDS OF
ALL PIPES AND CONDUITS

4	JUNCTION BOX DETAIL
P-1	NOT TO SCALE



LEAVE PIPE CAPPED AND IN
BOX NEXT TO SIDEWALK

5	SEWER CLEANOUT DETAIL
P-1	NOT TO SCALE

REV	DATE	DESCRIPTION	DRAWN	REVIEW

PREPARED BY	REVIEWED BY
T. ATKINSON	
DATE	DATE
9/22/00	

DRAWING P-3
SITE DETAILS

PIPING LAYOUT FOR
EXTRACTION SYSTEM

ARCO FACILITY NO. 2111
1156 DAVIS STREET
SAN LEANDRO, CALIFORNIA

Delta
Environmental
Consultants, Inc.

PROJECT NUMBER	FILE NAME	DRAWING NO.
D000-308	2111 P-3	P-3