Jakub, Barbara, Env. Health

From: Jakub, Barbara, Env. Health
Sent: Monday, June 04, 2012 10:18 AM
To: 'Jered Chaney'
Cc: 'Pat Hoban'; 'Lawson, Jeff'; CafeRealty@aol.com
Subject: RE: Former Exxon Station, 3055 35th Avenue, Oakland - Request for Authorization to Proceed with Upgradient Monitoring Well Installations

Dear Mr. Worthington,
Please proceed with installing the two proposed upgradient wells.
You may also be interested in looking at the contaminant plume coming from RO0000014 (ARCO/BP station on 35th Avenue) on our server. The wells for that site do not appear to be in the same location on Geotracker as on the site maps. They are in the process of confirming these locations.
Regards,

Barbara Jakub, P.G.
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Pky.
Alameda, CA 94502
Direct: 510-639-1287
Fax: 510-337-9335

PDF copies of case files can be downloaded at:

http://ehgis.acgov.org/dehpublic/dehpublic.jsp

From: Jered Chaney [mailto:jered@weber-hayes.com]
Sent: Friday, June 01, 2012 2:21 PM
To: Jakub, Barbara, Env. Health
Cc: 'Pat Hoban'; 'Lawson, Jeff'; CafeRealty@aol.com
Subject: Former Exxon Station, 3055 35th Avenue, Oakland - Request for Authorization to Proceed with Upgradient Monitoring Well Installations

Ms. Barbara Jakub
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: **Request for Authorization to Proceed with Upgradient Monitoring Well Installations**
(Includes Preliminary Results of Recently Completed Soil & Groundwater Data Gap Investigation – Completed May 8 & 9, 2012)

Site Location: **Former Exxon Station, 3055 35th Avenue, Oakland**
ACEH LOP #: RO-0000271; GeoTracker #: T0600100538

Good Afternoon, Ms. Jakub

Results of our recently completed field mobilization are in, and per our approved February 21, 2012 Workplan we are providing you with this brief update of the preliminary results and request your authorization to move forward with completing the installation of proposed (and anticipated) upgradient monitoring wells. ATTACHED, please find figures and tables presenting the current soil and groundwater investigation results and geologic logs for each of the nine continuously cored borings (DP-1 through DP-9).

The data confirms there are gasoline and MTBE plumes flowing onto the 3055 35th Ave parcel from:

1. the abandoned former Texaco lot across school street, as well as
2. the active Quik-Stop Station located across 35th Ave.

Specifically;

- **Boring DP-2** (positioned immediately downgradient of the former Texaco lot): First groundwater was encountered in a thin, relatively permeable unit at a depth of approximately 25.5 to 27 feet below the ground surface (bgs). A collected groundwater sample yielded elevated concentrations of TPH-gas and benzene at concentrations of 3,800 parts per billion (ppb) and 72 ppb, respectively (see Figure 3 & Table 1). Elevated field PID detections in grab soil samples with associated moderate to high hydrocarbon odors were observed from approximately 7.5 to 17 feet bgs in this boring. These field observations are in good accord with soil analytical results previously obtained from adjacent 2008 boring B-20 (see Figure 4 & Tables 2).
- **Boring DP-3** (positioned immediately downgradient of the Quik-Stop Station): Similar to boring DP-2, first groundwater was encountered in a thin, relatively permeable unit at a depth of approximately 29 to 30 feet bgs. A collected groundwater sample yielded elevated concentrations of TPH-gas, benzene and MTBE at concentrations of 1,400, 92 and 97 ppb, respectively (see Figure 3 & Table 1). Elevated field PID detections in grab soil samples with associated moderate to high hydrocarbon odors were observed from approximately 12 to 20 feet bgs in this boring. Elevated concentrations of benzene were detected in collected soil samples at depths of 20 and 23 feet bgs in this boring (see Figure 4 & Table 2).

Based on these results we request authorization to proceed with upgradient monitoring well installation as proposed in our February 21, 2012 Workplan. Specifically, we propose installation of well MW-5 immediately adjacent to recent boring DP-3 and well MW-6 immediately adjacent to recent boring DP-2. Proposed locations are shown on Figure 5. The installation and sampling of these upgradient wells will provide confirmation of off-site plume contribution.

Each well will be constructed of 2-inch diameter PVC with 0.010-inch slot screens from 20-30 feet bgs to target the relatively thin water bearing zone observed at each location, and will follow the field methodology included in our previously submitted Workplan. The wells will developed and sampled no sooner than 48-hours following installation. A professional survey of the new wells will be completed and tied into the existing well network.

In order to utilize the remaining fiscal year State budget for this Site we will need to have this work completed by the end of June. We respectfully request your expedited approval (reply to this email would be fine). In anticipation of completing this work we have begun the permit procurement process with the City of Oakland as this can be a bit of a time sink.

Results of the recently completed data gap assessment and of the forthcoming well installations/sampling will be incorporated into a formal Data Gap Assessment report with our updated Site Conceptual Model.

Thank you for taking the time to respond, and please contact either myself or Pat Hoban to discuss any aspect of this project.

Sincerely,
Jered Chaney

Jered Chaney, PG
Project Geologist

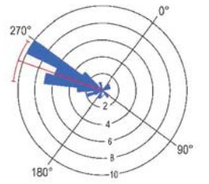
Weber, Hayes & Associates
office: (831) 722-3580
cell: (831) 254-1747

NORTH

0' 30'

Approximate Scale (in feet)

Base Map from Conestoga-Rovers & Associates & Google Earth 2011



Historical Groundwater Flow Direction
1996 to 4Q08

Former Exxon Station

SCHOOL STREET

Abandoned Texaco Station

Former Gasoline UST Location (two 4,000-gallon & two 6,500-gallon gasoline USTs removed in 1991)

Former Pump Island

Former 500 gallon Waste Oil UST Location

Former Pump Island

Canopy / Former Dispenser Islands

Active QuikStop Gas Station

Canopy / Dispenser Islands

35TH AVENUE

B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12

DP-1 DP-2 DP-3 DP-4 DP-5 DP-6 DP-7 DP-8 DP-9

MW-1 (SB-G) MW-2 (SB-F) MW-3 (SB-C) MW-4

SB-A SB-B SB-D SB-E

B-18 B-19 B-20

EXPLANATION

Data Gap Investigation Locations

DP-1 Soil and Grab Groundwater Boring Locations (Soil & Groundwater Sample Collection)

Notes:

- Boring locations are approximate and may be adjusted following field inspection and utility survey.

- Collected groundwater data from proposed boring DP-1, 2, and 3 will be used to determine appropriate location(s) of off-site, upgradient monitoring well(s)

Previous Subsurface Investigation Locations

- Approximate Soil Boring Location - B1 through B12, Consolidated Technologies, Nov. 1991
- Approximate Soil Boring Location - SB-A through SB-G, Cambria, May 1994
- Approximate Monitoring Well Location - MW-1 through MW-3, Cambria, May 1994 & MW-4, Cambria, May 1997
- Approximate Soil Boring Location - CRA, Oct. 2008

2x103.Oakland-35th WP\Figures\2011-08_Workplan\2-Boring-Locs.CNV

Figure 2 Project 2X103

Site Map
Data Gap Investigation (May 2012)
Former Exxon Station

3055 35th Avenue
Oakland, California

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 Fax (831) 722 - 1159
www.weber-hayes.com

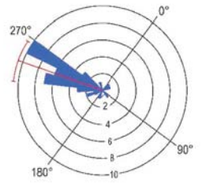
NORTH

0' 30'

Approximate Scale (in feet)

Base Map from Conestoga-Rovers & Associates & Google Earth 2011

DRAFT



Historical Groundwater Flow Direction
1996 to 4Q08

Former Exxon Station

Former Gasoline UST Location (two 4,000-gallon & two 6,500-gallon gasoline USTs removed in 1991)

DP-4

DP-5

DP-6

DP-7

Former Pump Island

Former 500 gallon Waste Oil UST Location

DP-9

Former Pump Island

DP-8

SCHOOL STREET

DP-1

TPH-diesel:	ND
TPH-gasoline:	ND
B-T-E-X:	ND
MTBE:	ND
TBA:	ND

Abandoned Texaco Station

DP-2

TPH-diesel:	310
TPH-gasoline:	*3,800
Benzene:	72
Toluene:	24
Ethylbenzene:	130
Xylene:	145.9
MTBE:	ND
TBA:	ND

DP-3

TPH-diesel:	ND
TPH-gasoline:	**1,400
Benzene:	92
Toluene:	1.7
Ethylbenzene:	63
Xylene:	21
MTBE:	97
TBA:	55

35TH AVENUE

QuikStop Station

Canopy / Dispenser Islands

Explanation

All Groundwater sample results are in parts per billion (ug/L, ppb)

DP-1

TPH-motor oil:	ND
TPH-diesel:	ND
TPH-gasoline:	ND
B-T-E-X:	ND
MTBE:	ND
TBA:	ND

Grab Groundwater Boring Location & Analytical Results

Groundwater samples were analyzed for the following constituents

1) TPH-d =Total Petroleum Hydrocarbons as Diesel
2) TPH-g=Total Petroleum Hydrocarbons as Gasoline
3) BTEX = Benzene, Toluene, Ethylbenzene, & Xylenes
4) MTBE = Methyl Tert Butyl Ether & Methylene Chloride
5) TBA = tert Butanol

ND = Not detected at or above the laboratory detection limit.
*= TPH result due to significant heavier hydrocarbons (possibly aged gasoline).
**= TPH result due to non-target hydrocarbons in C5-C12 range quantified as gasoline.
See Table 1 for details

2x103.Oakland-35th WP\Figures\2011-08_Workplan\3-Grab-GW_Results.CNV

Figure 3
Project 2X103

Groundwater Analytical Results
Data Gap Investigation (May 2012)
Former Exxon Station

3055 35th Avenue
Oakland, California

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 Fax (831) 722 - 1159
www.weber-hayes.com

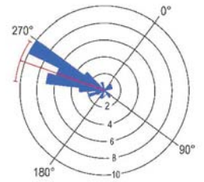
NORTH

0' 30'

Approximate Scale (in feet)

Base Map from Conestoga-Rovers & Associates & Google Earth 2011

DRAFT



Historical Groundwater Flow Direction 1996 to 4Q08

DP-5

Depth	TPH-g	Benzene	MTBE
8'	ND	<0.010	< 0.010
11'	130*	< 0.15	< 0.26
17'	1,000*	6.2	< 1.0
23'	1.5C	0.55	< 0.013

DP-4

Depth	TPH-d	TPH-g	Benzene	MTBE
12'	--	<0.10	<0.010	<0.010
18'	12	96*	0.22	<0.13
24'	--	0.83✱	0.30	<0.026

DP-7

Depth	TPH-d	TPH-g	Benzene	MTBE
4'	--	<0.10	<0.010	<0.010
8'	--	0.23**	<0.010	<0.010
11'	5.8+	2.8**	0.11	<0.010
17'	--	15*	0.024J	<0.013
23'	--	1.2✱	0.069	<0.0052

DP-6

Depth	TPH-g	Benzene	MTBE
12'	13*	0.010J	<0.013
21'	4,600*	36	<5.2
23'	1.3✱	0.47	<0.013

DP-1

Depth	TPH-d	TPH-g	Benzene	MTBE
8'	--	<0.10	<0.010	<0.010
14'	<2.0	8.4*	<0.0075	<0.013
17'	--	<100	<0.010	<0.010
A17B'	--	0.80**	<0.010	<0.010

DP-8

Depth	TPH-g	Benzene	MTBE
8'	<0.10	<0.010	<0.010
17'	970*	2.6	<0.26
20'	69*	0.81J	< 0.26
23'	<0.10	<0.010	<0.010

B-20 (CRA - 2008)

Depth	TPH-d	TPH-g	Benzene	MTBE
5'	24	110	<0.10	<0.005
7.5'	63	240	0.090	<0.050
9.5'	170	590	0.68	<0.10
11'	370	1,100	1.3	<0.10
15'	23	100	0.39	<0.005
19.5'	25	54	0.35	<0.010
24.5'	<1.0	<1.0	<0.005	<0.005
29.5'	<1.0	<1.0	<0.005	<0.005
35'	<1.0	<1.0	<0.005	<0.005
40'	<1.0	<1.0	<0.005	<0.005
44.5'	<1.0	<1.0	<0.005	<0.005

DP-9

Depth	TPH-d	TPH-g	Benzene	MTBE
12'	--	<0.10	<0.010	<0.010
18'	4.8+	5.8*	0.22	<0.0065
24'	--	1.7✱	0.16	<0.0052

DP-3

Depth	TPH-g	Benzene	MTBE
8'	<0.10	<0.010	<0.010
11'	0.33**	<0.010	<0.010
14'	10**	< 0.0075	< 0.013
20'	6.4	0.060	< 0.013
23'	0.93✱	0.17	0.0080J

Former Exxon Station

Former Gasoline UST Location (two 4,000-gallon & two 6,500-gallon gasoline USTs removed in 1991)

Former Pump Island

Former 500 gallon Waste Oil UST Location

Former Pump Island

B-20

DP-2

Canopy / Former Dispens

35TH AVENUE

QuikStop Station

Canopy / Dispenser Islands

SCHOOL STREET

Explanation

All soil sample results are in parts per million (mg/kg, ppm)

DP-1

Depth	TPH-d	TPH-g	Benzene	MTBE
8'	--	<0.10	<0.010	<0.010
14'	<2.0	8.4*	<0.0075	<0.013
17'	--	<100	<0.010	<0.010
A17B'	--	0.80**	<0.010	<0.010

Grab Groundwater Boring Location & Analytical Results

Soil samples were analyzed for the following constituents

1) TPH-diesel
2) TPH-gasoline
3) BTEX = Benzene, Toluene, Ethylbenzene, & Xylenes
4) MTBE = Methyl Tert Butyl Ether & Methylene Chloride
5) TBA = tert Butanol

TPH = Total Petroleum Hydrocarbons
ND = Not detected at or above the laboratory detection limit.
< # = Reporting limit elevated due to sample dilution and compound not detected at or above reporting limit.
*** =** TPH result due to significant heavier hydrocarbons (possibly aged gasoline).
**** =** TPH result due to non-target hydrocarbons in C5-C12 range quantified as gasoline.
+ = Laboratory reports result not typical of TPH as Diesel standard pattern (lighter than diesel).
★= Reported value is the result of discrete peak and contribution from non-fuel hydrocarbon.
J = Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather than quantitative.
✱ = Sample labeling error; DP-1 17B ft was mislabeled, as a result there is a duplication of results for DP-1 @ 17ft. See Table 2 for details.

2x103.Oakland-35th WP\Figures\2011-08_Workplan\4-Soil_Results.CNV

Figure 4 Project 2X103

Soil Analytical Results
Data Gap Investigation (May 2012)
Former Exxon Station

3055 35th Avenue
Oakland, California

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 Fax (831) 722 - 1159
www.weber-hayes.com

NORTH

0' 30'

Approximate Scale (in feet)

Base Map from Conestoga-Rovers & Associates & Google Earth 2011

DRAFT

Historical Groundwater Flow Direction 1996 to 4Q08

Former Exxon Station

SCHOOL STREET

Former Gasoline UST Location (two 4,000-gallon & two 6,500-gallon gasoline USTs removed in 1991)

Former Pump Island

Former 500 gallon Waste Oil UST Location

Former Pump Island

Abandoned Texaco Station

Canopy / Former Dispenser Islands

B1 DP-4 MW-4 B8 B11 DP-5 DP-6 B2 DP-7 B7 MW-1 (SB-G) SB-D B10 B3 SB-E MW-3 (SB-C) B-18 B4 B9 B5 DP-9 MW-2 (SB-F) DP-8 B12 SB-B B6 B-19 SB-A

DP-1 B-20 DP-2 MW-6 (proposed)

35TH AVENUE

DP-3 MW-5 (proposed)

QuikStop Station

Canopy / Dispenser Islands

EXPLANATION

Proposed Data Gap Investigation Locations

MW-15 (proposed) Proposed Monitoring Well Location

Previous Subsurface Investigation Locations

- Approximate Boring Locations - DP-1 through DP-9, Weber, Hayes and Associates, May 2012
- Approximate Soil Boring Location - B1 through B12, Consolidated Technologies, Nov. 1991
- Approximate Soil Boring Location - SB-A through SB-G, Cambria, May 1994
- Approximate Monitoring Well Location - MW-1 through MW-3, Cambria, May 1994 & MW-4, Cambria, May 1997
- Approximate Soil Boring Location - CRA, Oct. 2008

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Figure 5
Project 2X103

Site Map with Proposed Monitoring Well Locations
Former Exxon Station
3055 35th Avenue
Oakland, California

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 Fax (831) 722 - 1159
www.weber-hayes.com

Table 1: Current & Historical Grab Groundwater Analytical Results

Former Exxon Station

3055 35th Avenue, Oakland, CA

All groundwater sample results are in parts per billion (ug/L).

Groundwater Sampling Information				*Laboratory Analytical Results*								
Consultant & Investigation Date	*Sample ID #*	** Depth to Groundwater (feet, TOC)*	*Temporary Screen Interval (feet, bgs)*	*Total Petroleum Hydrocarbons*		*Volatile Organic Compounds (VOC's by EPA 8260)*						*Notes*
				Diesel	*Gasoline*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Xylene*	*MTBE*	*TBA*	
Weber, Hayes & Associates Grab Groundwater (May 9, 2012)	*DP-1*	**18.2'**	**19 - 29'**	ND	ND	ND	ND	ND	ND	ND	ND	--
	DP-2	**17.5'**	**19 - 29'**	310	**3,800***	**72**	24	130	145.9	ND	ND	--
	DP-3	**12.3'**	**22 - 32'**	ND	**1,400**▲	**92**	1.7	63	21	**97**	**55**	--
Conestoga-Rovers & Associates (CRA) On-site Boring (October 31, 2008)	*B-18A*	**30'**	**@ 30'**	380	350	**23**	2.6	5.9	54	**7.0**	2.3	d1, e4
CRA Off-site Boring (October 31, 2008)	*B-21*	**NM**	@ 30'	< 50	60	< 0.5	< 0.5	< 0.5	< 0.5	170	< 20	e2
	B-22	**NM**	@ 30'	< 50	68	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0	e2
	B-23	**NM**	**@ 30'**	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.0	--
	B-24	**NM**	@ 30'	< 50	73	< 0.5	< 0.5	< 0.5	< 0.5	1.2	< 2.0	e2
	B-25	**NM**	@ 30'	< 50	330	< 0.5	< 0.5	< 0.5	< 0.5	**12**	2.2	b1, e7, e2, e6
	B-26	**NM**	**@ 30'**	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	0.54	< 2.0	b1
	B-27	**NM**	@ 30'	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	**150**	< 10	
	B-28	**NM**	@ 30'	< 50	53	< 0.5	< 0.5	< 0.5	< 0.5	**29**	2.8	b1, e2
Laboratory Reporting Limit (RLs):				*100*	*50*	*0.5*	*0.5*	*0.5*	*1.5*	*0.5*	*5.0*	--
Water Quality Goals (WQG)				***1,000 (as Total Petroleum Hydrocarbons)***		***1***	***150***	***300***	***1,750***	***5***	***10***	--

Table 1: Current & Historical Grab Groundwater Analytical Results

Former Exxon Station

3055 35th Avenue, Oakland, CA

All groundwater sample results are in parts per billion (ug/L).

Groundwater Sampling Information				*Laboratory Analytical Results*								
Consultant & Investigation Date	*Sample ID #*	** Depth to Groundwater (feet, TOC)*	*Temporary Screen Interval (feet, bgs)*	*Total Petroleum Hydrocarbons*		*Volatile Organic Compounds (VOC's by EPA 8260)*						*Notes*
				Diesel	*Gasoline*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Xylene*	*MTBE*	*TBA*	
CRA Off-site Boring (July 2007)	***B-13***	**14.61**	--	**8,000**	**7,100**	**110**	390	250	990	**1,500**	< 500	a,b,d,g
	B-14	**14.05**	--	**1,100**	270	**150**	55	34	170	**3,500**	< 500	a,d,f
	B-16	**12.50**	--	**69,000**	**6,000**	**7,700**	**1,500**	**1,600**	**8,200**	**430**	< 250	a,d
	B-17	**11.73**	--	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	**12**	< 5	
Laboratory Reporting Limit (RLs):				*100*	*50*	*0.5*	*0.5*	*0.5*	*1.5*	*0.5*	*5.0*	--
Water Quality Goals (WQG)				***1,000 (as Total Petroleum Hydrocarbons)***		***1***	***150***	***300***	***1,750***	***5***	***10***	--

NOTES:

Tabulated data prior to September 22, 2011 was provided by Conestoga-Rovers & Associates (CRA).

Notes from Previous Consultant

a = unmodified or weakly modified gasoline is significant

b = diesel range compounds are significant; no recognizable pattern

d = gasoline range compounds are significant

f = one to a few isolated peaks present

g = oil range compounds are significant

b1 = aqueous sample that contains greater than ~ 1vol. % sediment

d1 = weakly modified or unmodified gasoline is significant

e2 = diesel range compounds are significant; no recognizable pattern

e4 = gasoline range compounds are significant

e6 = one to a few isolated peaks present in the TPH(d/mo) chromatogram

e7 = oil range compounds are significant

NM = Not Measured

WQG = **W**ater **Q**uality **G**oals: Goals establised by the CRWQCB Central Coast Region based on Maximum Contaminant Limits (Department of Health Services) or taste & odor threshold limits. **BOLD results indicate detected concentrations are above WQG's Threshold limits.**

ND = Not detected at or above the lab's reporting limit. **bgs =** below ground surface.

*** =** Depth to groundwater encountered just prior to sample collection; not neccesarily stabilized groundwater.

MTBE = Methyl-tert-Butyl-Ether **TBA =** tert-Butanol

★ = TPH result due to presence of heavy end hydrocarbons within range of C5-C12 quantified as gasoline (possibly aged gasoline).

▲ = TPH result due to contribution from non-target hydrocarbons in C5-C12 range quantified as gasoline.

Table 2: Soil Analytical Results - May 8 - 9, 2012

Former Exxon Station

3055 35th Avenue, Oakland, CA

All soil sample results are in parts per million (mg/kg).

Soil Sampling Information		*Laboratory Analytical Results*							
		Total Petroleum Hydrocarbons		*Volatile Organic Compounds (VOC's by EPA 8260)*					
Sample Location	*Sample Depth (feet, bgs)*	*Extractables (w/ silica gel cleanup)* *Diesel*	*Gasoline*	*Benzene*	*Toluene*	*Ethylbenzene*	*Xylene*	*MTBE*	*TBA*
DP-1 (Off-site)	*8'*	--	ND	ND	ND	ND	ND	ND	ND
	14'	ND	8.4*	< 0.0075	< 0.0049	< 0.0043	< 0.0126	< 0.013	< 0.10
	17'	--	ND	ND	ND	ND	ND	ND	ND
	✱17B'	--	0.80**	ND	ND	0.064	ND	ND	ND
DP-3 (Off-site)	*8'*	--	ND	ND	ND	ND	ND	ND	ND
	11'	--	0.33**	ND	ND	ND	ND	ND	ND
	14'	--	10**	< 0.0075	< 0.0049	0.30	< 0.0126	< 0.013	< 0.10
	20'	--	6.4	**0.060**	< 0.0049	0.22	0.17	< 0.013	< 0.10
	23'	--	0.93✱	**0.17**	< 0.0025	0.046	< 0.038	0.0080J	< 0.0052
DP-4 (On-site)	*12'*	--	ND	ND	ND	ND	ND	ND	ND
	18'	12	**96***	**0.22**	< 0.0049	0.91	1.446	< 0.13	< 0.10
	24'	--	0.83✱	**0.30**	< 0.0098	0.025J	< 0.0256	< 0.026	< 0.21
DP- 5 (On-site)	*8'*	--	ND	ND	ND	ND	ND	ND	ND
	11'	--	**130***	< 0.15	< 0.098	1.8	**3.1**	< 0.26	< 2.1
	17'	--	**1,000***	**6.2**	2.1J	**37**	**197**	< 1.0	< 8.3
	23'	--	1.5✱	**0.55**	0.015J	0.14	0.5	< 0.013	< 0.10
Laboratory Reporting Limit (RLs):		***2.0***	***0.10***	***0.010***			***0.015***	***0.010***	***0.050***
Residential / Industrial Environmental Screening Levels (ESLs)[1]:		***83***		***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.023***

Table 2: Soil Analytical Results - May 8 - 9, 2012

Former Exxon Station

3055 35th Avenue, Oakland, CA

All soil sample results are in parts per million (mg/kg).

Soil Sampling Information		*Laboratory Analytical Results*							
		Total Petroleum Hydrocarbons		*Volatile Organic Compounds (VOC's by EPA 8260)*					
Sample Location	*Sample Depth (feet, bgs)*	*Extractables (w/ silica gel cleanup)* *Diesel*	*Gasoline*	*Benzene*	*Toluene*	*Ethylbenzene*	*Xylene*	*MTBE*	*TBA*
DP-6 (On-site)	*12'*	--	13*	0.010J	0.020J	0.67	1.33	< 0.013	< 0.10
	21'	--	**4,600***	**36**	37	**81**	**450**	< 5.2	< 42
	23'	--	1.3✱	**0.47**	0.064	0.096	0.246	< 0.013	< 0.10
DP-7 (On-site)	*4'*	--	ND	ND	ND	ND	ND	ND	ND
	8'	--	0.23**	ND	ND	ND	ND	ND	ND
	11'	5.8※	2.8**	**0.11**	ND	ND	ND	ND	ND
	17'	--	15*	0.024J	0.043J	0.89	1.568	< 0.013	< 0.10
	23'	--	1.2✱	**0.069**	< 0.0020	0.042	0.0039J	< 0.0052	< 0.042
DP-8 (On-site)	*8'*	--	ND	ND	ND	ND	ND	ND	ND
	17'	--	**970***	**2.6**	0.63J	**21**	**63**	< 0.26	< 2.1
	20'	--	69*	**0.81J**	< 0.098	1.4	5.5	< 0.26	< 2.1
	23'	--	ND	ND	ND	ND	ND	ND	ND
DP-9 (On-site)	*4'*	--	ND	ND	ND	ND	ND	ND	ND
	18'	4.8※	5.8*	**0.22**	0.013J	0.42	0.111J	< 0.0065	< 0.052
	20'	--	1.7✱	**0.16**	< 0.0020	0.065	0.0437J	< 0.0052	< 0.042
Laboratory Reporting Limit (RLs):		***2.0***	***0.10***	***0.010***			***0.015***	***0.010***	***0.050***
Residential / Industrial Environmental Screening Levels (ESLs) [(1)]:		***83***		***0.044***	***2.9***	***3.3***	***2.3***	***0.023***	***0.023***

Notes:

1 = Environmental Screening Levels (ESLs): California Regional Water Quality Control Board - San Francisco Bay Region has prepared and provided these ESLs in a document entiled: *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater (interim Final, November 2007, Revised May 2008)* . The ESLs are intended to provide guidance on whether or not remediation of detected contamination should be warranted. The ESLs used for this table were obtained from the above referenced document, Table A. Shallow Soils (<3m), Groundwater IS a current or potential Source of Drinking Water. The ESL document catogorizes TPH as either gasoline, middle distillates, or residual fuels. "Middle distillates" are considered to include diesel fuel, kerosene, stoddard solvent, heating fuel, and jet fuel,

Bold Font = Concentration exceeds Residential ESL

ND = Not detected at or above the lab's reporting limit.

< # = Reporting limit elevated due to sample dilution and compound not detected at or above reporting limit.

-- = Sample not analyzed for this compound(s).

*** =** Laboratory reports sample does not match pattern of reference Gasoline standard. Reported TPH value includes contribution from heavy end hydr (possibly aged gasoline).

**** =** Laboratory reports sample does not match pattern of reference Gasoline standard. Hydrocarbons in the range of C5-C12 quantified as Gasoline.

✱ = Laboratory reports result does not match pattern of reference gasoline standard. Reported value is the result of discrete peak and contribution from non-fuel hydrocarbon to range of C5-C12 quantified as Gasoline.

J = Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather than quantitative.

★ = Sample labeling error; DP-1 17B ft was mislabeled, as a result there is a duplication of results for DP-1 @ 17ft.

※ = Laboratory reports result not typical of TPH as Diesel standard pattern (lighter than diesel). Hydrocarbons with TPH as Diesel range are quantified as Diesel.

Geologic Symbols and Terms

	Major Divisions	Symbols		Descriptions
Coarse Grained Soils	Gravels (More than 1/2 of coarse fraction > no. 4 sieve size)	GW		Well Graded Gravels, little or no fines
		GP		Poorly Graded Gravels, little or no fines
		GM		Silty Gravels, gravel-silt mixtures
		GC		Clayey Gravels, gravel-clay mixtures
	Sands (More than 1/2 of coarse fraction < no. 4 sieve size)	SW		Well Graded Sand, little to no fines
		SP		Poorly Graded Sand
		SM		Silty Sand, sand-silt mixtures
		SC		Clayey Sand, sand-clay mixtures
Fine Grained Soils	Silts and Clays Liquid Limit < 50%	ML		Silt or Very Fine Sands, rock flour, with slight plasticity
		CL		Inorganic Clay with high plasticity, lean clay
	Silts and Clays Liquid Limit > 50%	MH		Inorganic Sandy Clay or Silt, elastic silts
		CH		Inorganic Sandy Clay or Silt, with high plasticity, fat clays

Symbols and Terms

 - First encountered groundwater

 - Stabilized groundwater

 - Sample interval

Trace = < 5%
Few = 5 - 10%
Little = 15 - 20%
Some = 30 - 45%
Dominantly = > 50%

 - Soil sample sent to laboratory for targeted analysis

 - Water sample sent to laboratory for targeted analysis

SOIL DENSITY/CONSISTENCY			
SANDS & GRAVELS	BLOWS/FT.	SILTS & CLAYS	BLOWS/FT.
VERY LOOSE	0 - 4	VERY SOFT	0 - 2
LOOSE	4 - 10	SOFT	2 - 4
MED. DENSE	10 - 30	FIRM	4 - 8
DENSE	30 - 50	STIFF	8 - 16
VERY DENSE	> 50	VERY STIFF	16 - 32
		HARD	> 32

Blow count is the number of blows required to drive a 2-inch diameter California Modified Split-Spoon Sampler the last 12 inches of an 18 inch sample interval by a 140-pound hammer free-falling 30 inches.

Well Construction Details:

 - Bentonite Seal

 - Cement Seal

 - Filter Pack

 - Screened Interval

ags = above ground surface bgs = below ground surface
PID = Photo-Ionization Detector ppmv = parts per million by volume
USCS = Unified Soil Classification System

K:\A-User-Files\Jered\A-FIGURE\PATTERNS.CNV

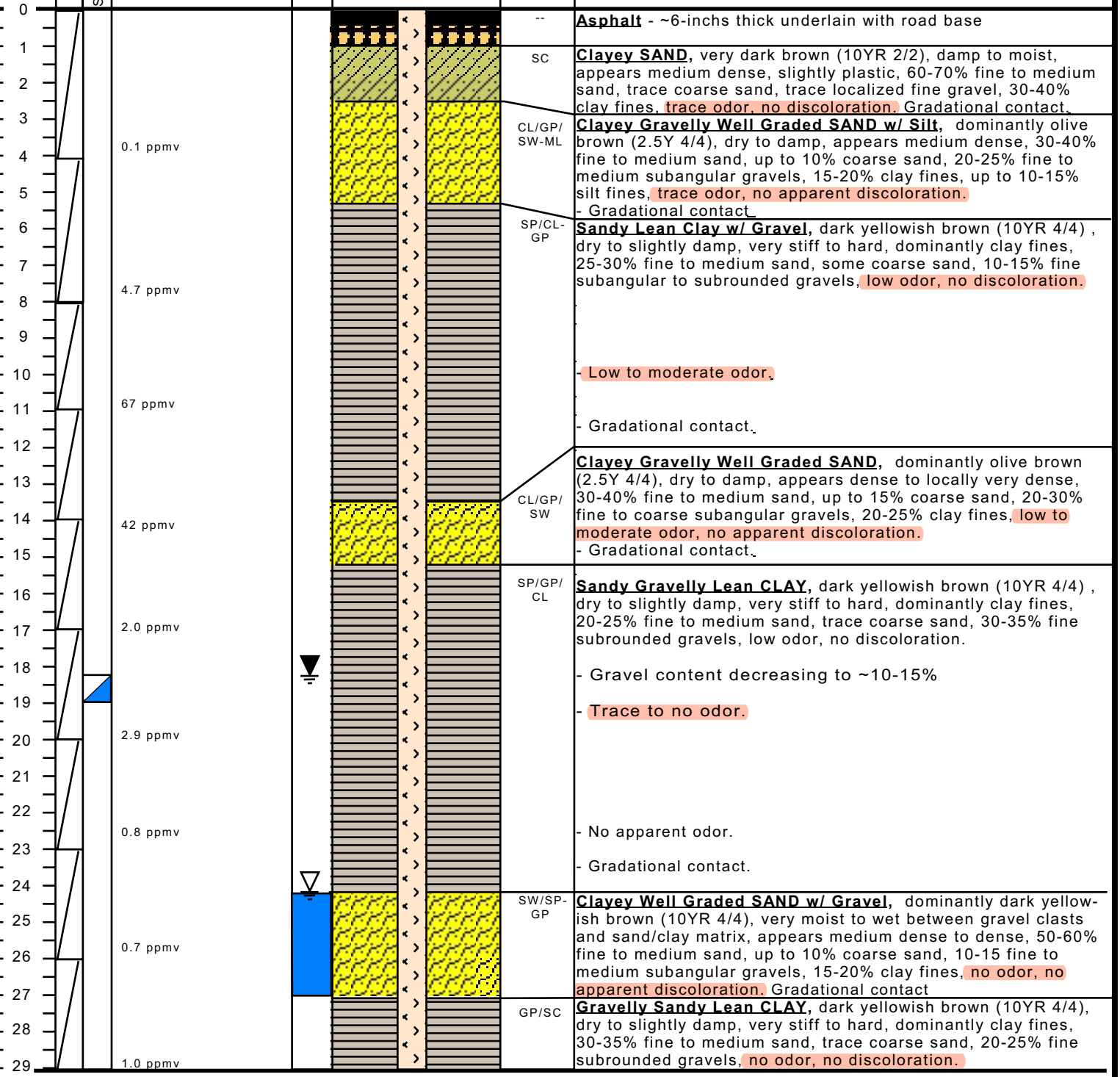
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 8, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven MacroCore Probes

BORING # **DP-1**

Sheet 1 of 1



USCS symbol	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
--	**Asphalt** - ~6-inchs thick underlain with road base
SC	**Clayey SAND**, very dark brown (10YR 2/2), damp to moist, appears medium dense, slightly plastic, 60-70% fine to medium sand, trace coarse sand, trace localized fine gravel, 30-40% clay fines, trace odor, no discoloration. Gradational contact.
CL/GP/ SW-ML	**Clayey Gravelly Well Graded SAND w/ Silt**, dominantly olive brown (2.5Y 4/4), dry to damp, appears medium dense, 30-40% fine to medium sand, up to 10% coarse sand, 20-25% fine to medium subangular gravels, 15-20% clay fines, up to 10-15% silt fines, trace odor, no apparent discoloration. - Gradational contact.
SP/CL-GP	**Sandy Lean Clay w/ Gravel**, dark yellowish brown (10YR 4/4) , dry to slightly damp, very stiff to hard, dominantly clay fines, 25-30% fine to medium sand, some coarse sand, 10-15% fine subangular to subrounded gravels, low odor, no discoloration. - Low to moderate odor. - Gradational contact.
CL/GP/ SW	**Clayey Gravelly Well Graded SAND**, dominantly olive brown (2.5Y 4/4), dry to damp, appears dense to locally very dense, 30-40% fine to medium sand, up to 15% coarse sand, 20-30% fine to coarse subangular gravels, 20-25% clay fines, low to moderate odor, no apparent discoloration. - Gradational contact.
SP/GP/ CL	**Sandy Gravelly Lean CLAY**, dark yellowish brown (10YR 4/4) , dry to slightly damp, very stiff to hard, dominantly clay fines, 20-25% fine to medium sand, trace coarse sand, 30-35% fine subrounded gravels, low odor, no discoloration. - Gravel content decreasing to ~10-15% - Trace to no odor. - No apparent odor. - Gradational contact.
SW/SP-GP	**Clayey Well Graded SAND w/ Gravel**, dominantly dark yellowish brown (10YR 4/4), very moist to wet between gravel clasts and sand/clay matrix, appears medium dense to dense, 50-60% fine to medium sand, up to 10% coarse sand, 10-15 fine to medium subangular gravels, 15-20% clay fines, no odor, no apparent discoloration. Gradational contact
GP/SC	**Gravelly Sandy Lean CLAY**, dark yellowish brown (10YR 4/4), dry to slightly damp, very stiff to hard, dominantly clay fines, 30-35% fine to medium sand, trace coarse sand, 20-25% fine subrounded gravels, no odor, no discoloration.

AJOB\2X103\FIGURES\LOGS\DP-1.CNV

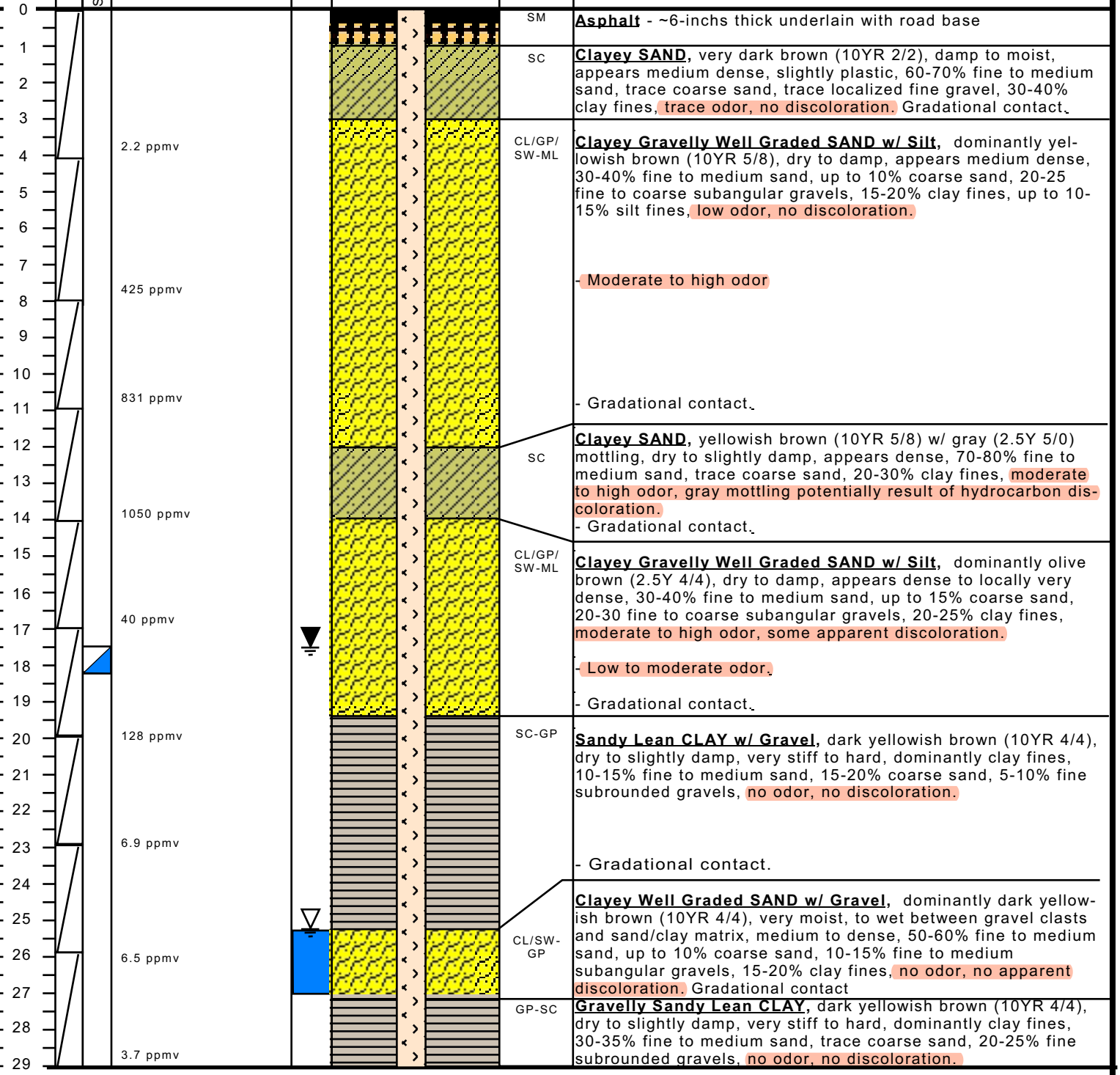
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 9, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven MacroCore Probes

BORING # **DP-2**

Sheet 1 of 1



AJOB\2X103\FIGURES\LOGS\DP-2.CNV

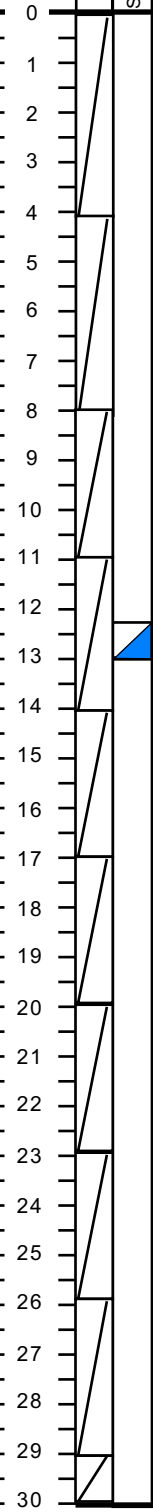
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 9, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven MacroCore Probes

BORING # **DP-3**

Sheet 1 of 1



USCS symbol	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
SM	**Asphalt** - ~6-inchs thick underlain with road base
SC	**Clayey SAND,** yellowish brown (10YR 5/8), w/ gray (2.5Y 5/0) mottling, dry to damp, appears medium dense, 60-70% fine to medium sand, trace coarse sand, trace localized fine gravel, 30-40% clay fines, trace odor, no discoloration.
	- Gradational contact
SC-GP	**Clayey SAND w/ Gravel ,** yellowish brown (10YR 5/8), w/ gray (2.5Y 5/0) mottling, dry to damp, appears medium dense, 50-60% fine to medium sand, trace coarse sand, 10-15% fine gravel, 30-40% clay fines, no odor, no discoloration.
	- Low to moderate level hydrocarbon odor encountered below 10.5 feet bgs - Color changes to dominantly dark yellowish brown (10YR 4/4) otherwise same as above.
	- Moderate to high odor encountered at 12.5 feet bgs, coarse sand content increasing up to 20-30%.
	- Same as above.
	- Gradational contact.
SP/GP/ CL	**Sandy Gravelly Lean CLAY,** dark yellowish brown (10YR 4/4) , dry to slightly damp, very stiff to hard, dominantly clay fines, 20-25% fine to medium sand, trace coarse sand, 30-35% fine subrounded gravels, moderate to high odor, no discoloration.
	- Gravel content decreasing to <10%.
	- Trace to no odor below ~21 feet bgs.
	- Gravelly lens <1 foot thick from ~25-26 feet bgs. - Gradational contact.
SC/SW-GP	**Clayey Well Graded SAND w/ Gravel,** dominantly dark yellowish brown (10YR 4/4), very moist, wet to saturated, appears medium dense to dense, 50-60% fine to medium sand, up to 10% coarse sand, 10-15 fine to medium subangular gravels, 15-20% clay fines, no odor, no apparent discoloration.
GP-SC	**Gravelly Sandy Lean CLAY (30-32 feet),** dark yellowish brown (10YR 4/4) , dry to slightly damp, very stiff to hard, dominantly clay fines, 30-35% fine to medium sand, trace coarse sand, 20% fine subrounded gravels, no odor, no discoloration.

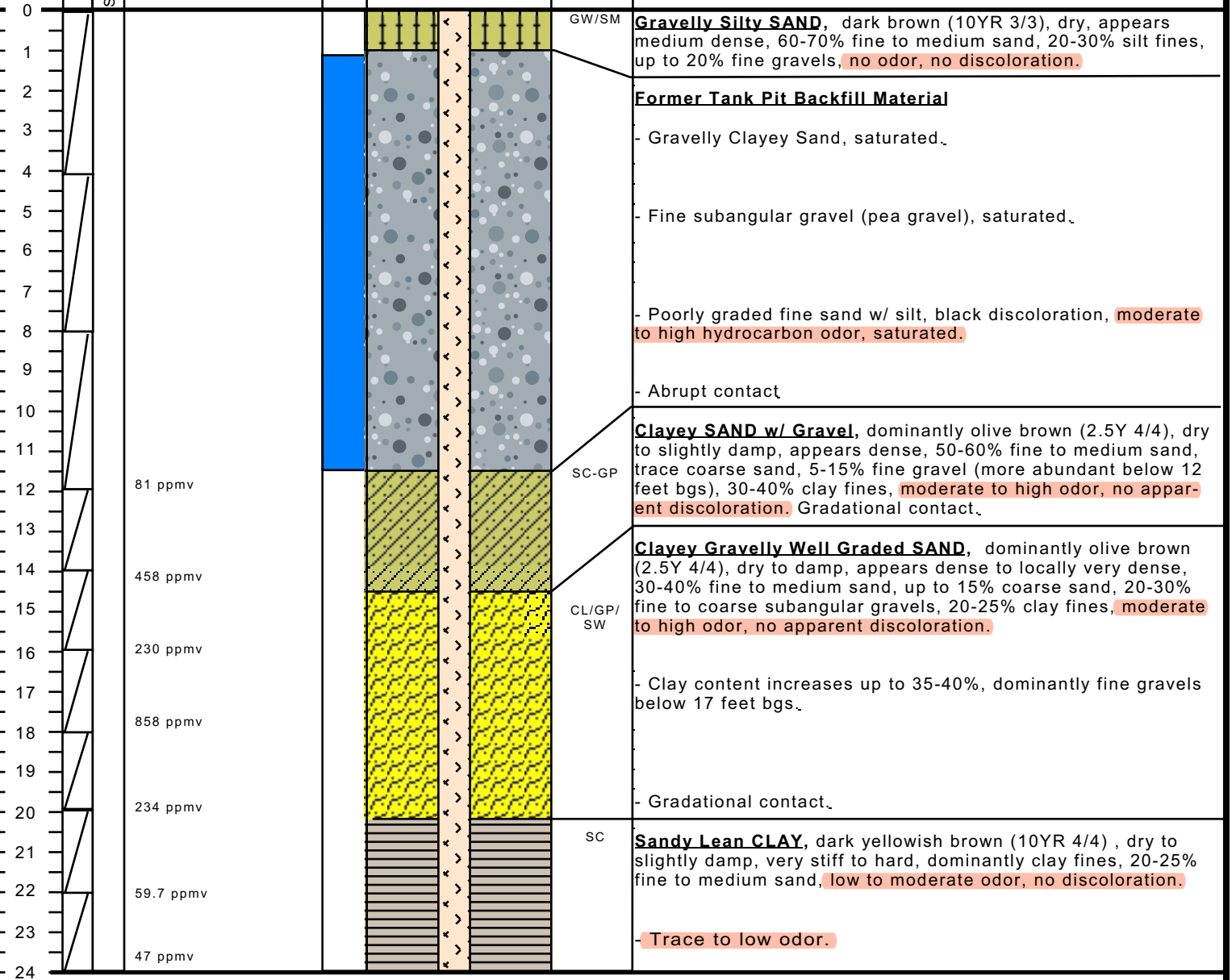
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 9, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven Dual Wall Probes

BORING # **DP-4**

Sheet 1 of 1



AJOB\2X103\FIGURES\LOGS\DP-4.CNV

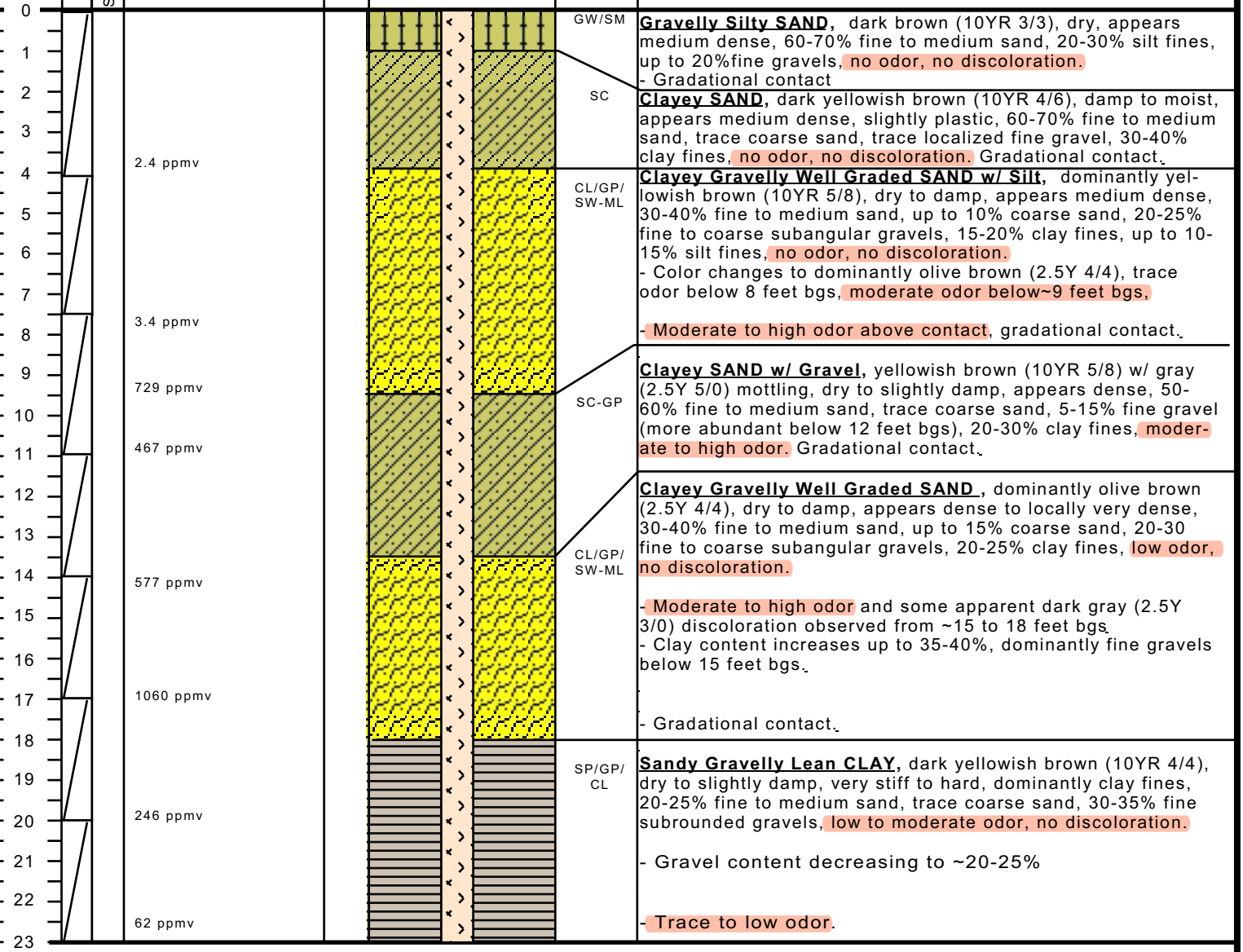
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 8, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven MacroCore Probes

BORING # **DP-5**

Sheet 1 of 1



AJOB\2X103\FIGURES\LOGS\DP-5.CNV

SM

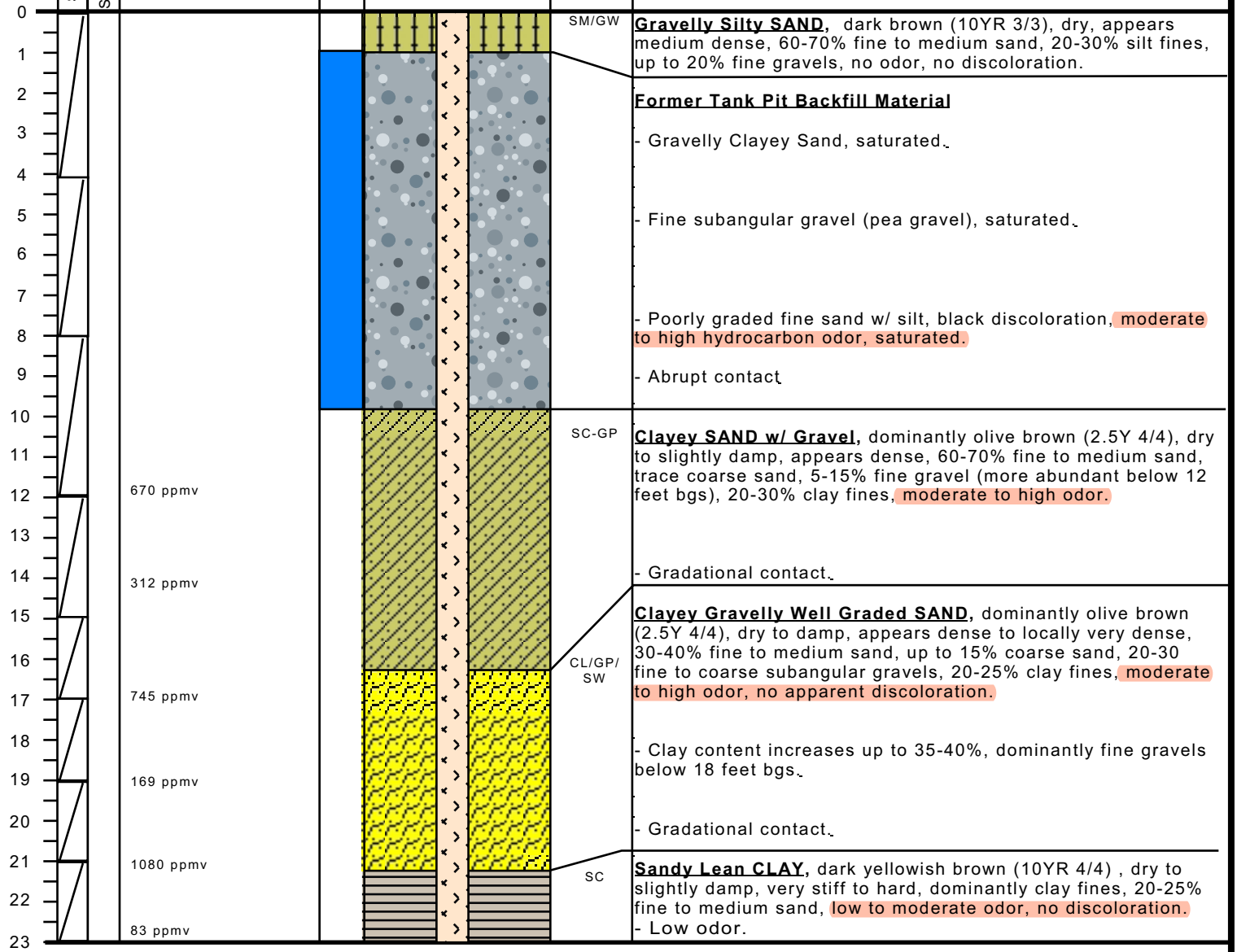
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 8 & 9, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven Dual Wall Probes

BORING # **DP-6**

Sheet 1 of 1



AJOB\2X103\FIGURES\LOGS\DP-6.CNV

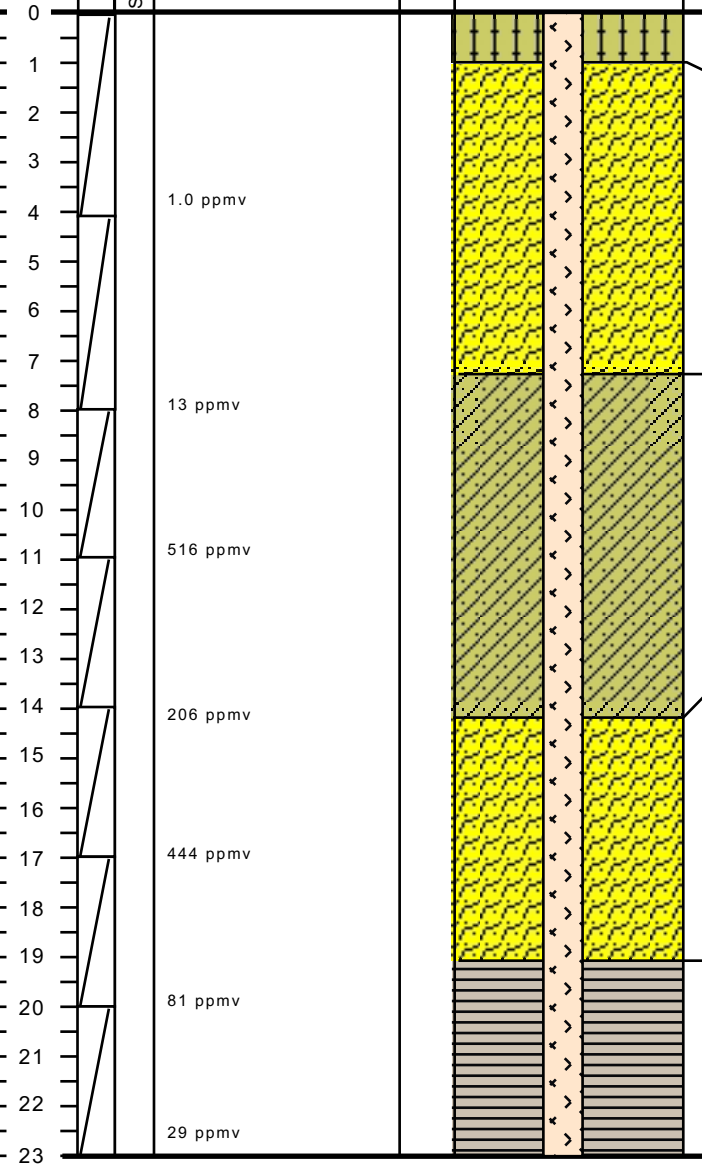
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 9, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven MacroCore Probes

BORING # **DP-7**

Sheet 1 of 1



USCS symbol	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
SM/GW	**Gravelly Silty SAND,** dark brown (10YR 3/3), dry, appears medium dense, 60-70% fine to medium sand, 20-30% silt fines, up to 20% fine gravels, no odor, no discoloration. - Gradational contact.
CL/GP/ SW-ML	**Clayey Gravelly Well Graded SAND w/ Silt,** dominantly yellowish brown (10YR 5/8), dry to damp, appears medium dense, 30-40% fine to medium sand, up to 10% coarse sand, 20-25 fine to coarse subangular gravels, 15-20% clay fines, up to 10-15% silt fines, no odor, no discoloration. - Trace odor above contact, gradational contact.
SC-GP	**Clayey SAND w/ Gravel,** dominantly olive brown (2.5Y 4/4), dry to slightly damp, appears dense, 50-60% fine to medium sand, trace coarse sand, 5-15% fine gravel, 20-30% clay fines, low odor, no apparent discoloration. - Moderate to high encountered at ~10 feet bgs. - Up to 20% fine gravel below 12 feet bgs. - Gradational contact.
CL/GP/ SW	**Clayey Gravelly Well Graded SAND,** dominantly olive brown (2.5Y 4/4), dry to damp, appears dense to locally very dense, 30-40% fine to medium sand, up to 15% coarse sand, 20-30 fine to medium subangular gravels, 20-25% clay fines, moderate to high odor, some apparent dark gray (2.5Y 3/0) discoloration observed from ~17 to 19 feet bgs. - Clay content increases up to 35-40%. - Gradational contact.
SP/GP/ CL	**Sandy Gravelly Lean CLAY,** dark yellowish brown (10YR 4/4), dry to slightly damp, very stiff to hard, dominantly clay fines, 20-25% fine to medium sand, trace coarse sand, 30-35% fine subrounded gravels, low to moderate odor, no discoloration. - Gravel content decreasing to <10%.s - Trace to low odor.

AJOB\2X103\FIGURES\LOGS\DP-7.CNV

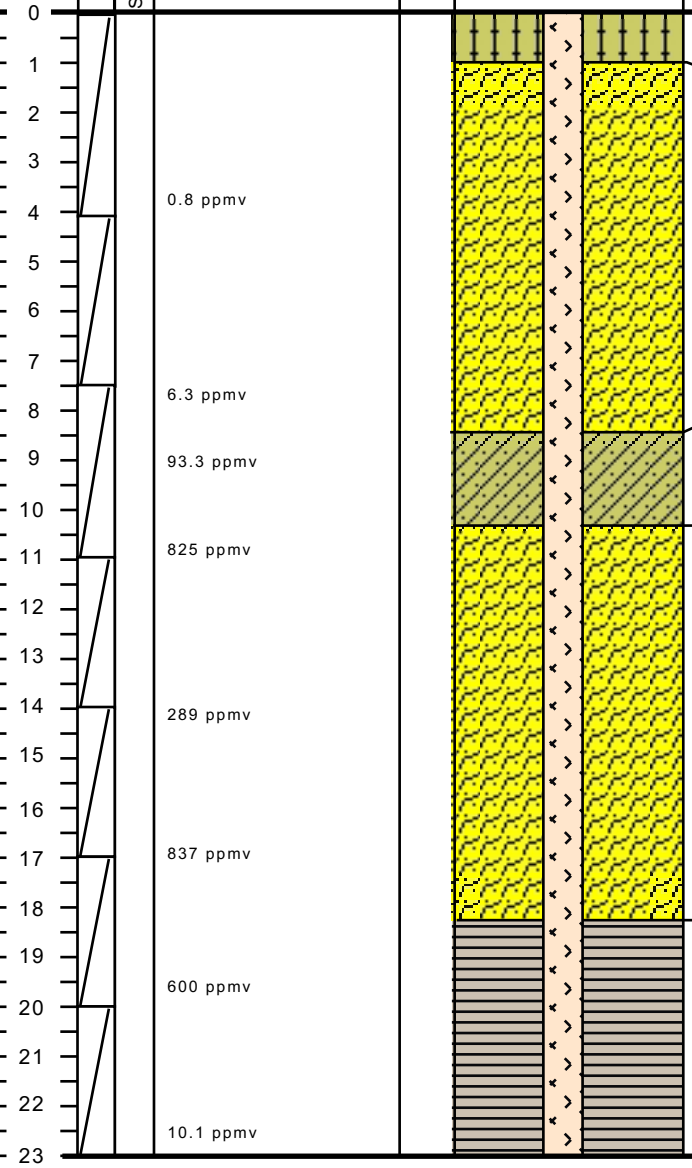
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 8, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven MacroCore Probes

BORING # **DP-8**

Sheet 1 of 1



Depth (feet)	Sample Interval	Sample Analyzed	Sample Identification & Field PID Data (ppmV) Calibrated for TVOC	Groundwater Depth	Lithologic Pattern	USCS symbol	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
0–7			0.8 ppmv			SM	**Silty SAND**, dark brown (10YR 3/3), damp, appears medium dense, 70-80% fine to medium sand, 20-30% silt fines, trace clay binder, no odor, no discoloration. Gradational contact
7–8			6.3 ppmv			CL/GP/ SW-ML	**Clayey Gravelly Well Graded SAND w/ Silt**, dominantly yellowish brown (10YR 5/8), dry to damp, appears medium dense, 30-40% fine to medium sand, up to 10% coarse sand, 20-25% fine to coarse subangular gravels, 15-20% clay fines, up to 10-15% silt fines, no odor, no discoloration. - Same as above. - Trace odor above contact, gradational contact.
8–10			93.3 ppmv			SC	**Clayey SAND**, yellowish brown (10YR 5/8) w/ gray (2.5Y 5/0) mottling, dry to slightly damp, appears dense, 70-80% fine to medium sand, trace coarse sand, trace localized fine gravel, 20-30% clay fines, low to moderate odor potentially associated with gray mottling. Gradational contact.
10–18			825 ppmv 289 ppmv 837 ppmv			CL/GP/ SW-ML	**Clayey Gravelly Well Graded SAND**, dominantly olive brown (2.5Y 4/4), dry to damp, appears dense to locally very dense, 30-40% fine to medium sand, up to 15% coarse sand, 20-30 fine to coarse subangular gravels, 20-25% clay fines, moderate to high odor, no discoloration. - Moderate to high odor and some apparent dark gray (2.5Y 3/0) discoloration observed from ~11 to 18.3 feet bgs. - Clay content increases up to 35%, dominantly fine gravels from ~14.5 to 16.5 feet bgs. - Formation becomes very moist above contact, moderate to high odor. - Gradational contact.
18–23			600 ppmv 10.1 ppmv			SP/GP/ CL	**Sandy Gravelly Lean CLAY**, dark yellowish brown (10YR 4/4), dry to slightly damp, very stiff to hard, dominantly clay fines, 20-25% fine to medium sand, trace coarse sand, 30-35% fine subrounded gravels, moderate to high odor, no discoloration. - No apparent odor below ~21 feet bgs.

AJOB\2X103\FIGURES\LOGS\DP-8.CNV

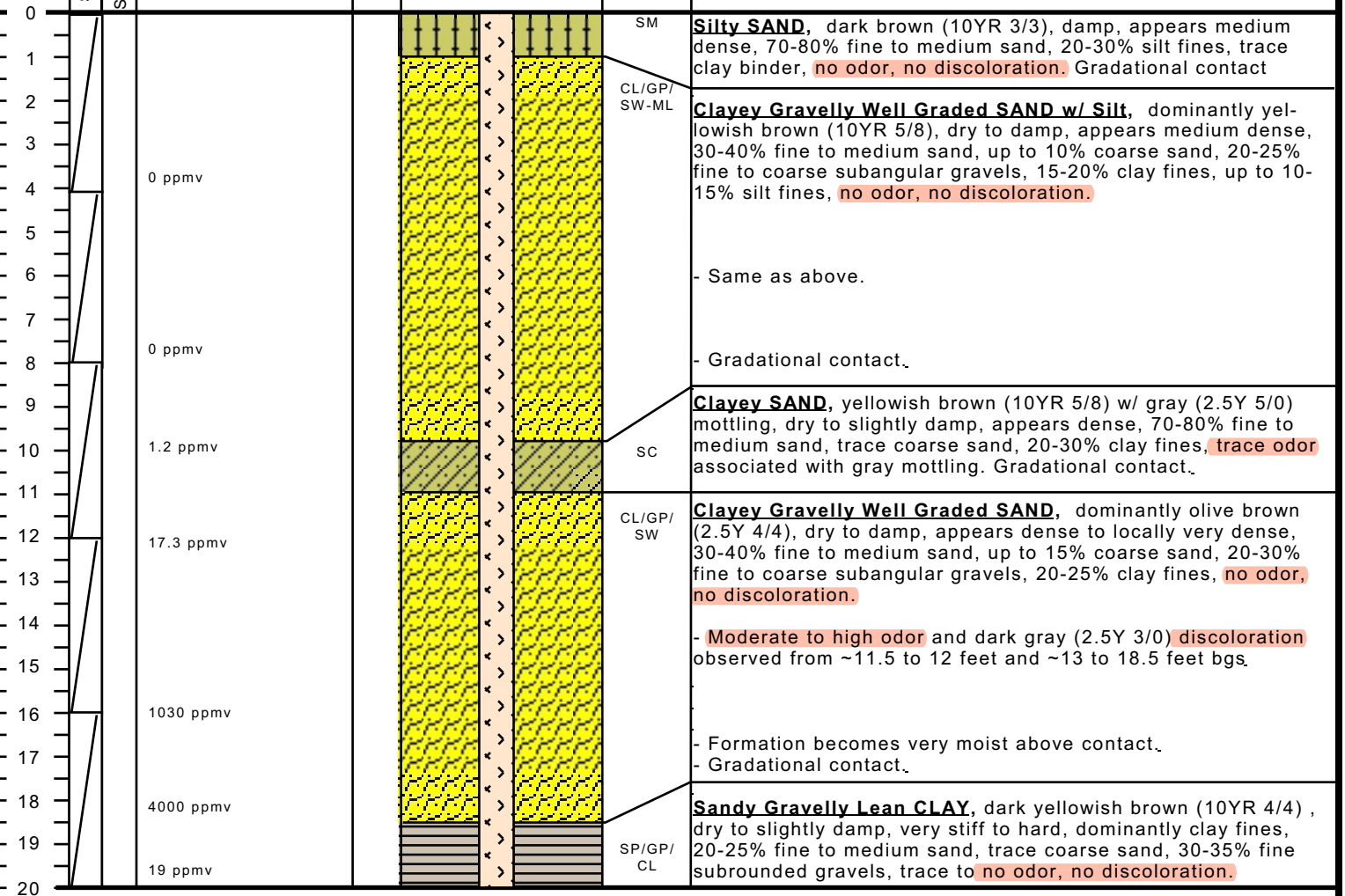
GEOLOGIC LOG

Hydraulic Driven Geo-Probe Boring

JOB NO.: 2X103.B DATE: May 8, 2012
CLIENT: Golden Empire Properties Inc.
LOCATION: 3055 35th Avenue, Oakland, CA
LOGGED BY: J. Chaney, PG #8452
DRILLER: ECA - Jeff Edmond
DRILL METHOD: Hydraulic Driven MacroCore Probes

BORING # **DP-9**

Sheet 1 of 1



AJOB\2X103\FIGURES\LOGS\DP-9.CNV