ENVIRONMENTAL SITE INVESTIGATION REPORT
Pier 70 Master Plan Area
San Francisco, California

Prepared For:
Port of San Francisco
San Francisco, California

13 January 2011
Project No. 4963.01

Treadwell&Rollo
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APPENDIX A

Boring, Test Pit Logs, Well, and Soil Gas Probe Construction Details

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CCSB-01

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/2/09 | Date finished: 9/2/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 11.1 feet[1]
							Reinforced concrete
1–5				5/5	0	GW	SERPENTINITE FILL green-white, dry, highly weathered, fragments up to 1" diameter
6–10				3.5/5	0	CL	SILTY CLAY (CL) dark gray, wet, plastic, no odor

SERPENTINITE FILL

BAY MUD

▽

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10 feet.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01

Figure: A-1

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CCSB-02

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/2/09 | Date finished: 9/2/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 11.4 feet[1]
0							GRAVELLY SAND (SW) black, moist, no odor, contains brick debris
2				5/5	0		
5					0	SW	
7				4/5			
9			6		0		
10							wet at 10 feet

FILL

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10 feet.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-2

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CCSB-04

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/14/09 | Date finished: 12/14/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 13.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	
0–3				5/5		ML	SANDY SILT (ML) brown, soft, moist, slightly plastic, no odor	FILL
3–4								
4–6							SERPENTINITE FILL light green, dry, highly weathered, fragments up to 1" diameter	SERPENTINITE FILL
6–9				4/5		SM	▽ SILTY SAND with GRAVEL (SM) reddish-brown, loose, wet, no odor, brick debris, gravel up to 0.5" diameter	FILL
9–11						SM	SILTY SAND (SM) black, loose, wet, no odor	
11–15				5/5		CL	CLAY (CL) bluish-green, very soft, saturated, plastic, no odor	BAY MUD

Boring terminated at a depth of 15 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 6.4 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-3

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CCSB-05

Boring location: See Site Plan, Figure 2 | Logged by: R. Milano

Date started: 12/14/09 | Date finished: 12/14/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 10.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	
1				5/5	0	SM	SILTY SAND with GRAVEL (SM) reddish-brown to dark brown, loose, moist, no odor, gravel up to 0.5" diameter	FILL
5				5/5		ML	SANDY SILT with GRAVEL (ML) brown, wet, slightly plastic, no odor, gravel up to 1" diameter	
8					0	CL	CLAY (CL) bluish-gray, very soft, saturated, plastic, no odor, some seashell fragments	BAYMUD
13				3.5/5				
15					0			

Boring terminated at a depth of 15 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 7 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-4

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CCSS-06

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/14/09 | Date finished: 12/14/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Slide Hammer

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.6 feet[1]
0				1.5/ 1.5	0	ML	SANDY SILT with GRAVEL (ML) reddish-brown, soft, moist, slightly plastic, no odor, gravel up to 1" diameter FILL
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 1.5 feet.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01

Figure: A-5

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CCSS-07

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/14/09 | Date finished: 12/14/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Slide Hammer

Ground Surface Elevation: 11.4 feet[1]

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
0–1				1.5/ 1.5	0	SM	SILTY SAND with GRAVEL (SM) brown, loose, moist, no odor, gravel up to 1" diameter — FILL

Boring terminated at a depth of 1.5 feet.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-6

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CPSB-02

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/11/09 | Date finished: 9/11/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 14.4 feet[1]
							6 inches of Asphalt Concrete
1				3.5/3.5			SANDY SILT with GRAVEL (ML) reddish-brown, soft, dry, no odor, subangular gravel up to 1" diameter
2					0	ML	
3							
4				1.5/1.5			SANDY GRAVEL (GP) black, loose, dry, no odor, subangular gravel up to 0.5" diameter
5					0	GP	FILL
6							SILTY SANDY GRAVEL (GM) greenish-brown, medium dense, moist, no odor, subangular gravel and fractured serpentinite up to 2" diameter
7				5/5			
8						GM	
9							
10					0		
11							
12							
13							
14							
15							

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 3.5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-7

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CPSB-03

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 8/31/09 | Date finished: 8/31/09

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Split Spoon

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.9 feet[1]
0							6 inches of Asphalt Concrete
1–13						ML	SANDY GRAVELLY SILT (ML) gray-brown-black, moist, angular, no odor gravel to 2" diameter, increase in gravel content at 10 to 13.5 feet ▽
5–6			5 6 6	11	0		
9			4 4 5	14	0		
14			40 50/6"	9	0		SANDSTONE BEDROCK light brown-gray, moderately hard, moderately strong, moderate weathering
19			32 29/3"	1	0		
22							Refusal at 22 feet

FILL

SERPENTINITE

Boring terminated at a depth of 22 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 13 feet.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-8

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CPSB-04A

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/8/09 | Date finished: 12/8/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Slide Hammer

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–2				4.5/ 4.5	0	ML	SANDY SILT with GRAVEL (ML) yellow-brown, soft, dry, slightly plastic, gravel up to 1" diameter
3–4						ML	SANDY SILT (ML) brownish-red, soft, dry, nonplastic, no odor, lots of brick mixed throughout, up to 3" diameter
5–15							

FILL

Boring terminated at a depth of 4.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-9

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CPSB-04B

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/14/09 | Date finished: 12/14/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Slide Hammer

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	
							6 inches of Asphalt Concrete	
1				5/5	0	ML	SANDY SILT with GRAVEL (ML) light brown, soft, dry, slightly plastic, no odor	FILL
2							brick debris, gravel up to 2" diameter	
3							SERPENTINITE FILL light green, highly weathered, fragments up to 1.5" diameter	SERPENTINITE FILL
4								
5							SANDY CLAY with GRAVEL (CL) reddish-brown, medium stiff, moist, plastic, no odor, gravel up to 1" diameter	
6								
7				4/5	0	CL		
8								
9							▽	
10							SILTY GRAVELLY SAND (SM) dark brown-black, loose, moderate hydrocarbon odor and residue, gravel up to 1"diameter	FILL
11								
12				5/5		SM		
13								
14								
15					0			

Boring terminated at a depth of 15 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 9.1 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-10

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P1SB-01

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 9/8/09 | Date finished: 9/8/09

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Split Spoon

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 11.7 feet[1]
1							Asphalt Concrete (AC)
6							Stop drilling in concrete at 5.5 feet

Boring terminated at a depth of 5.5 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01

Figure: A-11

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P1SB-02

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/2/09 | Date finished: 9/2/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.8 feet[1]
							6 inches of Asphalt Concrete
1–5				5/5	0	GC	CLAYEY SANDY GRAVEL (GC) brown-green, moist, no odor contains serpentinite fragments and some brick debris
5–10				4.5/5	0	GC	FILL
10–15							

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-12

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P1SB-03

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/2/09 | Date finished: 9/2/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 16.7 feet[1]
							6 inches of Asphalt Concrete
1–4				5/5	0	CL	SANDY GRAVELLY CLAY (CL) dark brown/black, soft, moist, non plastic, no odor contains brick debris, refuse, fractured serpentinite up to 2" diameter ▽ wet at 6 feet
5–7				5/5	0		
8–10						CL	SILTY CLAY (CL) dark brown-olive, soft, wet, plastic, no odor contains shell fragments
11–15							

FILL

BAY MUD

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 6 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-13

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P1SB-04

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/28/09 | Date finished: 8/28/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 14.7 feet[1]

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1						ML	SANDY SILT with GRAVEL (ML) light brown, soft, dry, slightly plastic, no odor, subangular gravel up to 1.5" diameter, various fill debris (wood and brick)
2				5/5	0	SM	SILTY SAND with GRAVEL (SM) greenish-brown, very loose, dry, no odor, subangular gravel and fractured serpentinite rock up to 1.5" diameter, fill debris (wood and brick)
3							
4						ML	SANDY SILT with GRAVEL (ML) greenish-brown with green, soft, dry, non-plastic, no odor, subangular gravel and fractured serpentinite up to 1.5" diameter
5					0		
6							
7				5/5			
8							moist
9							
10					0		
11							
12							
13							
14							
15							

FILL

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 4.5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-14

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-02

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/26/09 | Date finished: 8/26/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 15.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–2						SM	SILTY SAND with GRAVEL (SM) brown with green, very loose, dry, no odor, subrounded gravel up to 2" diameter
3				5/5	0		
3–5						ML	SANDY SILT with GRAVEL (ML) brown with yellow green, soft, dry, slightly plastic, no odor, gravel up to 1.5" diameter
5					0		GRAVELLY SILT with SAND (ML) brown with yellow-green, soft, dry, slightly plastic, no odor, subrounded gravel up to 1.5" diameter
5–7				5/5			
7–10					0		
11							▽
10–12				5/5			CLAYEY SILT with GRAVEL (ML) grayish-brown with green, soft, moist, slightly plastic, no odor, subrounded gravel up to 1" diameter
12–14						CH	CLAY (CH) black, very soft, wet, very plastic, slight organic odor, some sand in last 3"
15					0		

FILL

BAY MUD

Boring terminated at a depth of 14 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 11.1 feet during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-15

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-03

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/2/09 | Date finished: 9/2/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 11.4 feet[1]
1						GM	SILTY SANDY GRAVEL (GM) brown, dry, no odor gravel and concrete debris to 3" diameter
2					0		SAND with GRAVEL (SW) black, loose, dry, no odor contains wood debris, gravel to 1" diameter, brick debris
3				4.5/5			
4							
5					0		
6						SW	
7				4.5/5			
8							
9					0		
10							▽ wet at 10 feet
11							
12							
13							
14							
15							

FILL

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10 feet.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-16

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-04

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/26/09 | Date finished: 8/26/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 14.8 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	
							6 inches of Asphalt Concrete	
1–3				5/5	0	SM	SILTY SAND with GRAVEL (SM) greenish-brown, very loose, dry, no odor, gravel and, fractured serpentinite bedrock up to 1" diameter	FILL
3–5					0		SANDY SILT with GRAVEL (ML) greenish-brown, soft, dry, slightly plastic, no odor, gravel and fractured serpentinite up to 1" diameter	FILL
5–12				5/5	0	ML	CLAYEY SANDY SILT with GRAVEL (ML) greenish-brown, soft, moist, slightly plastic, gravel and fractured serpentinite rock up to 2" diameter ▽	FILL
12–15				5/5	0	CH	CLAY (CH) dark brown, very soft, wet, very plastic, weak organic odor	BAY MUD

Boring terminated at a depth of 15 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 11.3 feet during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

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Project No.: 4963.01 | Figure: A-17

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-05

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/28/09 | Date finished: 8/28/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.9 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–2				5/5	0	GM	SILTY SANDY GRAVEL (GM) greenish-brown, very loose, dry, no odor, cobbles and fractured serpentinite up to 3" diameter
							6 inches of Asphalt Concrete
3–5					0	SM	SILTY SAND with GRAVEL (SM) greenish brown, very loose, dry, no odor, cobbles and fractured serpentinite up to 3" diameter
5–7				5/5		ML	CLAYEY SANDY SILT with GRAVEL (ML) greenish-brown, soft, moist, slightly plastic, no odor, gravel and fractured serpentinite up to 1" diameter
7–10					0		
10–15							

FILL

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-18

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-06

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 9/8/09 | Date finished: 9/8/09

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Split Spoon

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 14.1 feet[1]
1–4							SILTY SAND with GRAVEL (SM) dark brown-black, moist, no odor, brick debris and fractured serpentinite
5–6			2 3 4	12	0		
7–9							
9–10			3 3 4	15	0		
11–12						SM	▽ wet at 12 feet
13–14			4 6 7	9	0		
15							increase in gravel content at 15 feet
16–19			5 4 7	13	0		
20–23							
24			15	9	0		SERPENTINITE BEDROCK light brown, moderately hard, moderately strong, moderate weathering Refusal at 24.25 feet
25–30							

FILL

SERPENTINITE

Boring terminated at a depth of 24.25 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 12 feet.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-19

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-07

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/7/09 | Date finished: 12/7/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.8 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
1				5/5	0	ML	SANDY SILT with GRAVEL dark brown-black, soft, dry, slightly plastic, no odor, gravel up to 1.5" diameter
5						SM	GRAVELLY SILTY SAND (SM) dark brown, no odor, wood and brick debris, gravel up to 1.5" diameter **FILL**
7				5/5	0	GM	CLAYEY SANDY GRAVEL (GM) black, loose, moist, weak hydrocarbon odor and residue, gravel up to 1.5" diameter
11						CL	CLAY (CL) bluish-gray, very soft, saturated, plastic, no odor **BAY MUD**
12				5/5			
15					0		

▽ Groundwater encountered at a depth of 11 feet.

Boring terminated at a depth of 15 feet.
Boring backfilled with cement grout.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-20

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-08

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/7/09 | Date finished: 12/7/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.5 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	
1					0	ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, slightly plastic, no odor, gravel up to 1" diameter	
2				5/5				
3								
4						CL	SANDY CLAY with GRAVEL (CL) dark brown, soft, dry, slightly plastic, no odor, gravel up to 1" dimeter	FILL
5								
6								
7				5/5	0	GM	SILTY SANDY GRAVEL (GM) dark brown to black, loose, wet, no odor, gravel up to 1.5" diameter	
8								
9								
10						CL	CLAY (CL) blue-gray, very soft, wet, very plastic, no odor	BAY MUD
11							▽	
12				5/5				
13								
14								
15					0			

Boring terminated at a depth of 15 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 11 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-21

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-09

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/7/09 | Date finished: 12/7/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.2 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
1					0	ML	SANDY SILT with GRAVEL brown, soft, moist, gravel up to 1" diameter, brick and wood debris
2							
3				5/5			
4						CL	SANDY CLAY with GRAVEL (CL) dark brown, soft, moist, slightly plastic, no odor, gravel up to 1" diameter
5							
6						GM	SILTY SANDY GRAVEL (GM) dark brown to black, loose, wet, no odor, gravel up to 1.5" diameter
7				5/5	0		
8							
9							
10							▽
11						CL	CLAY (CL) blue-gray, very soft, wet, plastic, no odor
12				5/5			
13							
14							
15					0		

FILL

BAY MUD

Boring terminated at a depth of 15 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-22

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2SB-10

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/9/09 | Date finished: 12/9/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.8 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–2					0	ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, slightly plastic, no odor, gavel up to 1.5" diameter
3–5				5/5		SM	GRAVELLY SAND (SM) reddish-brown, very loose, dry, no odor, wood, brick and metal debris, gravel up to 1" diameter
6–9				5/5	0	GM	SILTY SANDY GRAVEL (GM) black, very loose, saturated, no odor, gravel up to 1" diameter ▽
10–12				5/5		CL	CLAY (CL) blue-gray, very soft, saturated, very plastic, no odor
13–15					0		

FILL

BAY MUD

Boring terminated at a depth of 15 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 7.8 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-23

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P3SB-01

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/2/09 | Date finished: 9/2/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 34.3 feet[1]
							6 inches of Asphalt Concrete
1						SM	SILTY GRAVELLY SAND (SM) brown-red, dry, poorly graded, no odor
2				5/5	0	SP	SAND (SP) brown-red, loose, moist, poorly graded, no odor
3							
4							
5							
6							
7				5/5	0	CL	CLAY with trace GRAVEL (CL) brown, medium stiff, moist, non plastic, no odor
8							
9							
10							SERPENTINITE BEDROCK light brown-green, moderately hard, moderately strong, moderate weathering, no odor
11							
12							
13							
14							
15							

FILL

SERPENTINITE

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-24

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-01

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/2/09 | Date finished: 9/2/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.4 feet[1]
							12 inches of Asphalt Concrete
1							CLAYEY SANDY GRAVEL (GC) dark brown-olive to red-brown, moist, no odor
2				5/5	0		
3							
4							
5						GC	
6							
7				5/5	0		
8					0		
9							
10							wet at 10 feet ▽
11							
12							
13							
14							
15							

FILL

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10 feet during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-25

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-03

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/3/09 | Date finished: 9/3/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.2 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
0							3 inches of Asphalt Concrete
1							SANDY GRAVELLY CLAY (CL) brown-green, medium stiff, moist, slightly plastic, no odor
2				5/5	0		
3							
4							
5					0	CL	
6							
7				4.5/5			
8							
9					0		wet at 10 feet, increase in gravel content at 9 feet
10							▽
11							
12							
13							
14							
15							

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10 feet.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-26

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-04

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/3/09 | Date finished: 9/3/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.9 feet[1]
							6 inches of Asphalt Concrete
1–3				5/5	0	ML	SANDY GRAVELLY SILT (ML) light brown, medium stiff, dry, no odor
4–9				4/5	0 0	GC	CLAYEY SANDY GRAVEL (GC) dark brown-black, moist, no odor
10–15							

FILL

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-27

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-05

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/3/09 | Date finished: 9/3/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.5 feet[1]
0							3 inches of Asphalt Concrete
							CLAYEY GRAVEL (GC) green-gray, moist, no odor, fractured serpentinite
2				5/5	0		
5					0	GC	FILL
7				4/5			
9					0		
10							▽

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10 feet.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-28

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-06

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/3/09 | Date finished: 9/3/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.0 feet[1]
0							3 inches of Asphalt Concrete
1						SP	SAND (SP) black, moist, no odor contains trace brick debris
2				3/3	0		FILL
3							Refusal at 3 feet in 5 attempts
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 3 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.
Hand augered to 3 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-29

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-07

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/3/09 | Date finished: 9/3/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.0 feet[1]
0							3 inches of Asphalt Concrete
							SERPENTINITE BEDROCK green-brown, moderately hard, moderately strong, moderate weathering
2				5/5	0		
5					0		
7				4/5			
9					0		
10							SERPENTINITE

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-30

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-08

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/3/09 | Date finished: 9/3/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.0 feet[1]
							6 inches of Asphalt Concrete
1–6							SERPENTINITE BEDROCK light brown, moderately hard, moderately strong, moderate weathering
2		●		5/5	0		
5		●			0		
6				1.5/ 1.5			
6.5							Refusal at 6.5 feet
7–15							

SERPENTINITE

Boring terminated at a depth of 6.5 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-31

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-09

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/8/09 | Date finished: 9/8/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 14.9 feet[1]
							6 inches of Asphalt Concrete
1				2/2	0	SW	GRAVELLY SAND (SW) greenish-brown, loose, dry, no odor, subangular gravel and fractured serpentinite up to 1" diameter
2							
3				2.5/ 2.5			
4					0		
5							Refusal at 4.5 feet
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

FILL

Boring terminated at a depth of 4.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-32

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-10

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/8/09 | Date finished: 9/8/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.9 feet[1]
							6 inches of Asphalt Concrete
1							SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering
2				2/2	0		
3				3/3			
4							
5					0		
6				1.5/1.5	0		
7							Refusal at 6.5 feet
8							
9							
10							
11							
12							
13							
14							
15							

SERPENTINITE

Boring terminated at a depth of 6.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 2 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-33

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-11

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/11/09 | Date finished: 9/11/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1						ML	SANDY SILT with GRAVEL (ML) light brown, soft, dry, no odor, gravel up to 1" diameter — FILL
2				3.5/3.5	0		SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering — SERPENTINITE
3							
4				1.5/1.5			
5					0		
6							
7				3.5/4			
8							
9					0		Refusal at 9.5 feet
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 9 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 3.5 feet.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-34

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-12

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/16/09 | Date finished: 12/16/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 13.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1					0	ML	SANDY SILT with GRAVEL (ML) reddish-brown, soft, dry, slightly plastic, no odor
2							
3				5/5		CL	SANDY CLAY with GRAVEL (CL) light-brown, medium stiff, dry, slightly plastic, no odor, gravel up to 1" diameter
4							
5							
6						CL	SANDY CLAY with GRAVEL (CL) light brown, medium stiff, moist, slightly plastic, no odor, gravel up to 1" diameter
7				5/5	0		
8							FILL
9							▽ SANDY SILT with GRAVEL (ML) light brown, moderately dense, wet, slightly plastic, weak hydrocarbon odor and slight sheen, gravel up to 1" diameter
10							
11				5/5		ML	
12							
13					0		
14							
15							

Boring terminated at a depth of 15 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 8.6 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-35

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-13

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/16/09 | Date finished: 12/16/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Slide Hammer

Ground Surface Elevation: 13.2 feet[1]

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1					0	ML	SANDY SILTY with GRAVEL (ML) light brown, soft, dry, slightly plastic, no odor, gravel up to 1.5" diameter — FILL
2				4.5/ 4.5			SERPENTINITE BEDROCK light brown, moderately hard, moderately strong, moderate weathering — SERPENTINITE FILL
3							
4							
5					0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 5 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-36

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-14

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/14/09 | Date finished: 12/14/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Slide Hammer

Ground Surface Elevation: 13.5 feet[1]

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1					0	SM	SILTY SAND with GRAVEL (SM) brown, very loose, dry, no odor, brick debris at 1.5 feet, gravel up to 1" diameter — FILL
2							SERPENTINITE BEDROCK light green, moderately hard, moderately stong, moderate weathering — SERPENTINITE
3				4.5/5			
4							
5					0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 5 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-37

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-15

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/14/09 | Date finished: 12/14/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Slide Hammer

Ground Surface Elevation: 13.1 feet[1]

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1					0	ML	SANDY SILT with GRAVEL (ML) light brown, soft, dry, no odor, gravel up to 0.5" diameter — FILL
2							SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering — SERPENTINITE FILL
3				4.5/5			
4							
5					0		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 5 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-38

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P4SB-16

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/16/09 | Date finished: 12/16/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 13.9 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–3				4.5/5	0	ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, slightly plastic, no odor, contains some wood debris, gravel up to 1.5" diameter
3–5					0	GM	SANDY SILTY GRAVEL (GM) light gray to dark gray, moderately dense, dry, no odor, gravel up to 1.5" diameter
5–7				5/5			moist
7–10					0		

Boring terminated at a depth of 15 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-39

PROJECT: **PIER 70**
BUILDING 113 GEOTECHNICAL INVESTIGATION
San Francisco, California

Log of Boring P4SB-17

Boring location: See Site Plan, Figure 2
Logged by: R. Severn
Date started: 3/12/10 Date finished: 3/12/10
Drilling method: Rotary Wash
Hammer weight/drop: 140 lbs./30 inches Hammer type: Automatic
Sampler: S&H (Sprague & Henwood), SPT (Standard Penetration Test), Shelby Tube (ST)

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						14-inches Asphalt Concrete						
2					CL	SANDY CLAY with GRAVEL (CL) olive-brown, moist, fine-to coarse-grained gravel, sombe cobbles greater than 3-inches in diameter						
3	BULK					blue-green and brown, less sand						
4												
5			4									
6	S&H		5 6	8		dark brown, yellow-brown and olive, medium stiff to stiff, variable amounts of gravel					13.0	107
7			3									
8	SPT		3 3	7		medium stiff						
9					GP-GC	GRAVEL with CLAY (GP-GC) white, gray, olive and brown, loose, wet, gravel from 1/4-inch to 1/2-inch diameter						
10			3							9.1		
11	S&H		7 6	9		CLAYEY GRAVEL (GC) olive, gray, yellow-brown and brown, loose, wet, with shale fragments						
12												
13												
14					GC							
15			6			FILL olive-brown						
16	S&H		7 6	9						23.9	18.0	112
17												
18						GRAVEL with CLAY (GP-GC) olive-brown, loose, wet						
19												
20			3									
21	S&H		4 8	8						9.2		
22	SPT		3 5	13	GP-GC							
23			6									
24												
25			5									
26	S&H		7 11	13		CLAY with GRAVEL (CL) gray-brown, stiff, wet						
27					CL							
28												
29					CH	CLAY (CH)						
30												

Treadwell&Rollo

Project No.: 4963.01 Figure: A-40a

TEST GEOTECH LOG 496301 GEOTECH.GPJ TR.GDT 5/27/10

PROJECT: **PIER 70**
BUILDING 113 GEOTECHNICAL INVESTIGATION
San Francisco, California

Log of Boring P4SB-17

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	ST				CH	CLAY (CH) (continued) could not retrieve sample, cuttings consisted of: olive-gray, wet						
32												
33												
34	S&H		11 20 22	29	CL	SANDY CLAY (CL) olive-gray, very stiff to hard, wet grades olive-brown					17.8	110
35												
36												
37												
38												
39												
40	S&H		6 9 15	17	CL	CLAY (CL) yellow-brown with trace olive and black, very stiff, wet, trace sand and gravel						
41												
42												
43												
44												
45	S&H		5 8 13	15		stiff, increased sand content, fine-to coarse-grained sand						
46												
47												
48												
49												
50	S&H		2 6 8	10							35.3	83
51												
52												
53												
54												
55												
56												
57												
58						SANDSTONE olive-brown, dark brown and yellow-brown, moderately weak, deeply weathered						
59												
60												

Treadwell&Rollo

Project No.: 4963.01

Figure: A-40b

PROJECT: **PIER 70**
BUILDING 113 GEOTECHNICAL INVESTIGATION
San Francisco, California

Log of Boring P4SB-17

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
61	S&H		50/ 5"	35/ 5"		SANDSTONE (continued)						
61	SPT		50/ 6"	60/ 6"								
65			11			brown and yellow-brown						
66	SPT		30 19	59								

Boring terminated at a depth of 66.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not mseasured during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

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Project No.: 4963.01

Figure: A-40c

PROJECT: **PIER 70**
BUILDING 113 GEOTECHNICAL INVESTIGATION
San Francisco, California

Log of Boring P4SB-18

Boring location: See Site Plan, Figure 2
Logged by: R. Severn
Date started: 3/12/10 Date finished: 3/12/10
Drilling method: Rotary Wash
Hammer weight/drop: 140 lbs./30 inches Hammer type: Automatic
Sampler: S&H (Sprague & Henwood), SPT (Standard Penetration Test)

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						2-inches Asphalt Concrete						
2	S&H		8 11 7	13	CL	CLAY with GRAVEL and SAND (CL) dark brown and yellow-brown, stiff, moist, gravel up to 3-inches in diameter, with shale fragments						
3												
4	S&H		4 5 6	8		yellow-brown and olive, medium stiff to stiff, trace timber and plastic fragments LL = 38 , PI = 21						
5												
6	S&H		3 5 6	8	GC	CLAYEY GRAVEL (GC) gray and olive-gray, very loose, wet FILL				15.8		
7												
8												
9						CLAY with GRAVEL and SAND (CL) olive and yellow-brown, medium stiff, wet						
10												
11	S&H		3 5 5	7	CL						15.4	117
12												
13												
14						CLAY (CL) yellow-brown and gray, very stiff, wet, with shale fragments						
15												
16	S&H		6 12 18	21								
17												
18					CL							
19												
20												
21	S&H		7 13 22	25							20.5	96
22												
23						SHALE dark gray, weak, deeply weathered						
24												
25												
26	S&H		23 40 35	53								
27	SPT		18 15 23	46								
28												
29												
30												

Boring terminated at a depth of 28 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not measured during drilling.

[1] S&H and SPT blow counts for the last two increments were converted to SPT N-Values using factors of 0.7 and 1.2, respectively to account for sampler type and hammer energy.

Treadwell&Rollo

Project No.: 4963.01
Figure: A-41

TEST GEOTECH LOG 496301 GEOTECH.GPJ TR.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P5SB-01

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 8/28/09 | Date finished: 8/28/09

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Split Spoon

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.7 feet[1]
0							SERPENTINITE BEDROCK light brown to olive-brown, moderately hard, moderately strong, moderate weathering
5			75/ 6"	6	0	ML	
7							Refusal at 7 feet

SERPENTINITE

Boring terminated at a depth of 7 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-42

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P5SB-02

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/8/09 | Date finished: 9/8/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 16.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
0							6 inches of Asphalt Concrete
1						SP	SILTY SAND (SP) light brown, loose, dry, no odor
							Concrete
2					0	GM	SILTY GRAVEL with SAND (GM) dark brown, moist, gravel up to 0.5" diameter
3				3/3			SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering
4							
5					0		
6				1/1			
7							
8							
9							
10							
11							
12							
13							
14							
15							

FILL

SERPENTINITE

Boring terminated at a depth of 6 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 2 feet.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-43

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P5SB-03

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/10/09 | Date finished: 9/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 14.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–3				3.5/3.5	0	ML	SAND SILT with GRAVEL (ML) light brown with green, soft, dry, no odor, subangular gravel up to 2" diameter **FILL**
4–5				1.5/1.5	0		SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering **SERPENTINITE**
6–7				2.5/2.5	0		
8							Refusal at 7.5 feet
9–15							

Boring terminated at a depth of 4.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 3.5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-44

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P5SB-04

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/10/09 | Date finished: 9/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 14.9 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1						SP	SAND (SP) light brown, very loose, moist, no odor
2				3.5/ 3.5	0	CL	SANDY CLAY with GRAVEL (CL) greenish-brown, gravel up to 1" diameter
3							
4				1/1	0		SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering
5							Refusal at 4.5 feet
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

FILL

SERPENTINITE

Boring terminated at a depth of 4.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 3.5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-45

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P5SB-05

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/10/09 | Date finished: 9/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 13.5 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1				2/2			SANDY SILT with GRAVEL (ML) brown, soft, dry, no odor, subrounded cobbles up to 3-inches diameter
2					0		grades to greenish-brown, medium stiff, dry, no odor, subangular gravel and fractured serpentinite up to 1" diameter
3				2.5/ 2.5		ML	FILL
4					0		
5							Refusal at 4.5 feet
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 4.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 2 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-46

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P5SS-06

Boring location: See Site Plan, Figure 2

Logged by: R. Milano

Date started: 12/14/09 | Date finished: 12/14/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Disturbed

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphaltic Concrete
1				1/1	0	ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, slightly plastic, subangular gravel up to 1" diameter, no odor — FILL
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 1.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during Hand Augering.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-47

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P5SS-07

Boring location: See Site Plan, Figure 2 | Logged by: R. Milano

Date started: 12/8/09 | Date finished: 12/8/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Disturbed

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.8 feet[1]
							6 inches of Asphaltic Concrete
1				1/1	0	ML	SANDY SILT (ML) greenish-brown, soft, dry, slightly plastic, no odor FILL
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 1.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during Hand Augering.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-48

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P5SS-08

Boring location: See Site Plan, Figure 2 | Logged by: R. Milano

Date started: 12/8/09 | Date finished: 12/8/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Disturbed

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.8 feet[1]
							6 inches of Asphaltic Concrete
1				1/1	0		SERPENTINITE BEDROCK greenish-brown, moderately hard, moderately strong, moderate weathering
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

SERPENTINITE

Boring terminated at a depth of 1.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during Hand Augering.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-49

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SB-01

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 9/8/09 | Date finished: 9/8/09

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Split Spoon

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 11.7 feet[1]
0							3 inches Asphalt Concrete
1–4							SILTY GRAVELLY SAND (SM) dark brown-black, moist, no odor brick debris
5–6			4 4 4	12	0		
7–9			7 6 8	11	0	SM	▽ brick debris, wet at 10 feet
10–14			5 2 3	10	0		FILL
15–19			2 2 3	14	0	CH-ML	SANDY CLAYEY SILT (CH-ML) dark brown-olive, wet, plastic, no odor contains shell fragments, very fine sand
20–24			0 1 1	17	0	CH-ML	CLAYEY SILT (CH-ML) dark brown-olive, wet, plastic, no odor contains shell fragments
25–29			0 1 1	18	0		BAY MUD
30							

Boring terminated at a depth of 30 feet.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10 feet.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-50

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SB-02

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/27/09 | Date finished: 8/27/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 13.2 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION	
0							6 inches of Asphalt Concrete	
1–3				4.5/4.5	0	ML	SANDY SILT with GRAVEL (ML) light brown with green, very loose, dry, non-plastic, no odor	FILL
3–5							Concrete	FILL
5–7				3.5/5	0	ML	SANDY SILT with GRAVEL (ML) greenish-brown, very loose, dry, no odor	FILL
7–9							Concrete	FILL
9–11					0	ML	SANDY SILT with GRAVEL (ML) ▽ greenish-brown, medium stiff, moist, non-plastic, no odor	FILL
11–13				3.5/5		CH	CLAY (CH) dark brown, very soft, wet, very plastic, weak organic odor	BAY MUD
13–15								BAY MUD

Boring terminated at a depth of 15 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 10.5 feet during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-51

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SB-03

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: Vironex

Date started: 9/3/09 | Date finished: 9/3/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.2 feet[1]
0							3 inches of Asphalt Concrete
							SANDY GRAVELLY CLAY (CL) dark brown-light brown, moist, slightly plastic, no odor
2				5/5	0		
5						CL	
7				3.5/5	0		
10							trace amount of free oil at 10 feet, slight odor

FILL

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater not encountered at time of drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-52

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SB-04

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/8/09 | Date finished: 9/8/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.0 feet[1]
0							Asphalt Concrete
4							Refusal at 4 feet in concrete

Boring terminated at a depth of 4 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-53

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SB-05

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/11/09 | Date finished: 9/11/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.6 feet[1]
							6 inches of Asphalt Concrete
1				2/2		CL	SANDY CLAYEY GRAVEL (CL) reddish-brown, dry, no odor — FILL
2					0		SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering — SERPENTINITE
3				2/2			
4					0		Refusal at 4 feet
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 4 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 2 feet.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-54

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SB-06

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/9/09 | Date finished: 9/9/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.0 feet[1]
							6 inches of Asphalt Concrete
1				2/2		ML	SANDY SILT with GRAVEL (ML) light brown, green, soft, dry, no odor, subangular gravel up to 3" diameter — FILL
2					0		
3				3/3			SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering — SERPENTINITE
4							
5					0		Refusal at 5 feet
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 5 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 2 feet.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-55

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SB-07

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/9/09 | Date finished: 9/9/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 11.7 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–3				3.5/3.5	0	ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, no odor, subangular gravel up to 1" diameter
4–5				1.5/1.5	0	CL	GRAVELLY CLAY (CL) dark brown, soft, wet, no odor, gravel up to 2" diameter
6–8				5/5			
9–10					0		SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering

FILL

SERPENTINITE

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 3.5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-56

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SB-08

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/9/09 | Date finished: 9/9/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.6 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
0							6 inches of Asphalt Concrete
1				3/3	0	ML	SANDY SILT with GRAVEL (ML) light brown with green, soft, dry, no odor, subangular gravel up to 1" diameter
2							
3							brownish-gray with green, medium stiff, moist, no odor, subangular gravel up to 1" diameter
4				2/2			greenish-brown, soft, moist, no odor, subangular gravel and fractured serpentinite up to 1.5" diameter
5					0		Refusal at 5 feet
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

FILL

Boring terminated at a depth of 5 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 3 feet.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-57

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P6SS-11

Boring location: See Site Plan, Figure 2

Logged by: R. Milano

Date started: 12/7/09 | Date finished: 12/7/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Disturbed

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.0 feet[1]
							6 inches of Asphaltic Concrete
1				1/1	0	CL	SILTY CLAY with GRAVEL (CL) dark brown, soft, dry, slightly plastic, gravel up to 1" diameter, no odor — FILL
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 1.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during Hand Augering.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-58

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P7SB-01

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/10/09 | Date finished: 9/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1				2/2		ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, no odor, subangular gravel up to 1" diameter — FILL
2					0		SERPENTINITE BEDROCK light green, moderately hard, intensely fractured, moderately strong, moderate weathering
3				3/3			
4							
5					0		
6							
7				5/5			
8							
9							
10					0		
11							
12							
13							
14							
15							

SERPENTINITE

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 2 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-59

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P7SB-02

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/10/09 | Date finished: 9/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–4				5/5	0	SW	SILTY SAND with GRAVEL (SW) greenish-brown, loose, dry, no odor, gravel up to 1" diameter
5–6					0	ML	CLAYEY SANDY SILT (ML) greenish-brown, medium stiff, dry, no odor
7–10				5/5	0		SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering

FILL

SERPENTINITE

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-60

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P8SB-02

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/8/09 | Date finished: 12/8/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.0 feet[1]
							6 inches of Asphaltic Concrete
1–3		●		5/5	0	CL	SILTY CLAY with GRAVEL (CL) greenish-brown, soft, moist, subangular gravel up to 1.5" diameter, plastic, no odor
4–5		●			0	ML	SILT (ML) greenish-brown, soft, moist, slightly plastic, weak hydrocarbon odor, sheen
6–8				5/5		ML	SANDY SILT (ML) light brown, soft, moist, slightly plastic, no odor
9–10		●			0		
11–15							

FILL

Boring terminated at a depth of 10 feet.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-61

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-01

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/9/98 | Date finished: 9/9/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 11.4 feet[1]
							6 inches of Asphalt Concrete
1				3/3		SM	SILTY SAND with GRAVEL (SM) reddish-brown, loose, dry, no odor, subangular gravel up to 1" diameter, wood debris
2					0		
3						CL	SANDY CLAY with GRAVEL (CL) dark brown, soft, moist, no odor, gravel up to 1.5" diameter
4				3/3			
5					0	ML	SANDY SILT with GRAVEL (ML) reddish-brown, soft, moist, no odor, subangular gravel up to 1" diameter
6							▽ FILL
7				3.5/5		CL	GRAVELLY CLAY (CL) dark brown-black, very soft, saturated, weak hydrocarbon odor, gravel up to 1.5" diameter
8							
9							
10							
11					0		
12							
13							
14							
15							

Boring terminated at a depth of 10.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at 6 feet during drilling.
Hand augered to 3 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-62

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-02

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/28/09 | Date finished: 8/28/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.2 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–5				4.5/4.5	0	ML	SANDY SILT with GRAVEL (ML) light brown, soft, dry, slightly plastic, no odor, gravel up to 1.5" diameter
5–9				3.5/5	0	GM	SILTY GRAVEL with SAND (GM) dark brown, very loose, moist, no odor, gravel up to 2" diameter
9–10					0	CH	GRAVELLY CLAY (CH) dark brown, very soft, wet, very plastic, weak hydrocarbon odor, gravel up to 1" diameter, visible oily residue

FILL

BAY MUD

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-63

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-03

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/26/09 | Date finished: 8/26/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 10.2 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–2				3.5/ 3.5		GW	GRAVEL with SAND (GW) grayish brown, very loose, dry, no odor, cobbles up to 4" diameter
2–3						CL	CLAY with GRAVEL (CL) greenish-brown, moderate hydrocarbon odor, gravel up to 2" diameter
3–4					0	GW	GRAVEL with SAND (GW) grayish brown, very loose, dry, no odor, gravel up to 3" diameter
4							Refusal at 4 feet

FILL

Boring terminated at a depth of 4 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 4 feet.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-64

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-05

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/26/09 | Date finished: 8/26/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 9.7 feet[1]
							6 inches of Asphalt Concrete
1–5				4.5/4.5	0.4	ML	SANDY SILT with GRAVEL (ML) dark brown, soft, dry, non-plastic, no odor, with brick, wood, metal, debris
6					1.1	ML	FILL
7–9				4/5		SW	GRAVELLY SAND (SW) black, very loose, wet, moderate hydrocarbon odor, gravel up to 1" diameter, visible oily residue
10					5.6	SW	FILL
11–15							

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-65

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-07

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/10/09 | Date finished: 12/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 14.6 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphaltic Concrete
1–5				4.5/4.5	0	ML	SANDY SILT with GRAVEL (ML) light brown to dark brown, soft, dry, subangular gravel up to 1" diameter, slightly plastic, no odor
6–8				5/5	0	CL	SILTY CLAY with GRAVEL (CL) light brown to reddish brown, soft, dry, subangular gravel up to 1" diameter, slightly plastic, no odor
9–15				5/5	0	ML	SANDY SILT with GRAVEL (ML) dark brown to black, soft, wet, subangular gravel up to 1" diameter, moderate hydrocarbon odor, and residue

FILL

▽

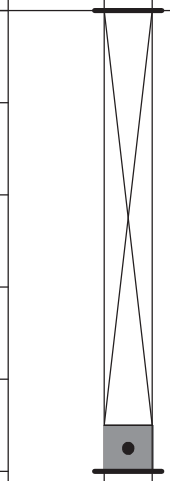
Treadwell&Rollo

Project No.: 4963.01 | Figure: A-66a

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-07



DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
16						ML	
17				5/5		SM	SILTY SAND with GRAVEL (SM) black, loose, saturated, subangular gravel up to 0.5" diameter, moderate hydrocarbon odor and residue
18							FILL
19							
20					6		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Boring terminated at a depth of 20 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 10.7 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-66b

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-08

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/10/09 | Date finished: 12/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 15.1 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphaltic Concrete
1–4				4.5/4.5	0	ML	SAND SILT with GRAVEL (ML) light brown to dark brown, soft, dry, gravel up to 1" diameter, no odor
5–8				5/5	0	CL	SILTY CLAY with GRAVEL (CL) brown to reddish-brown, medium stiff, moist, subangular gravel up to 1" diameter, slightly plastic, no odor
9–12				5/5		ML	SANDY SILT with GRAVEL (ML) greenish-brown, medium stiff, moist, gravel up to 1" diameter, weak hydrocarbon odor and residue
13–15					0		

FILL

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-67a

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-08

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
16						ML	▽ SILTY SANDY GRAVEL (GM) black, loose, saturated, subangular gravel up to 1" diameter, strong hydrocarbon odor and residue
17				5/5			
18						GM	
19							
20					0		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

FILL

Boring terminated at a depth of 20 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 16 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-67b

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-09A

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/10/09 | Date finished: 12/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–3				4.5/4.5	0	ML	SAND SILT with GRAVEL (ML) light brown, dry, subangular gravel up to 1" diameter, no odor
3–7						SM	SILTY SAND with GRAVEL (SM) dark brown, loose, dry, subangular gravel up to 1" diameter, no odor
7				5/5	0		SILTY SAND with GRAVEL (SM) black, very loose, saturated, subangular gravel up to 1.5" diameter, strong hydrocarbon odor
7–15				5/5	0	SM	FILL

Boring terminated at a depth of 15 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 7 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-68

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-10

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/9/09 | Date finished: 12/9/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.9 feet[1]
							6 inches of Asphaltic Concrete
1					0	ML	SANDY SIILT with GRAVEL (ML) brown, soft, dry, gravel up to 2" diameter, slightly plastic, no odor
2							
3				4.5/ 4.5			
4						SM	SILTY SAND with GRAVEL (SM) dark brown to black, loose, dry, subangular gravel up to 0.5" diameter, no odor
5					0		
6							
7				5/5	0		SERPENTINITE FILL blue-green, moist, moderately weathered, fragments up to 2" diameter
8							
9						SM	SILTY SAND with GRAVEL (SM) greehish-brown, loose, moist, subangular fractured bedrock up to 1" diameter, strong hydrocarbon odor, thick residue
10							
11							
12				5/5			
13							
14							
15					0		

FILL

SERPENTINITE FILL

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-69a

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-10

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
16						SM	
17				5/5		CH	SILTY CLAY with GRAVEL (CH) greenish-brown, medium stiff, subangular gravel up to 1" diameter, plastic, strong hydrocarbon odor, thick residue
18							
19							
20					0		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Boring terminated at a depth of 20 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 7.4 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-69b

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-11

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/17/09 | Date finished: 12/17/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.2 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphaltic Concrete
1–3				4.5/4.4	0	ML	SANDY SILT with GRAVEL (ML) reddish-brown, soft, dry, subangular gravel up to 1" diameter, slightly plastic, no odor
4–5						SM	SILTY SAND with GRAVEL (SM) dark brown, loose, moist, subangular gravel up to 1.5" diameter, weak hydrocarbon odor
6–8				4/5	0	ML	SANDY SILT with GRAVEL (ML) greenish-brown, soft, moist, subangular gravel, slightly plastic, moderate hydrocarbon odor, and sheen ▽
9–10					0		FILL
11–13				5/5		GM	SILTY SANDY GRAVEL (GM) dark brown, saturated, gravel up to 1.5" diameter, strong hydrocarbon odor, and residue
14–15					0		

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-70a

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-11

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
16				2/2	0	GM	FILL
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Boring terminated at a depth of 17 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 6.8 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-70b

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-12

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/17/09 | Date finished: 12/17/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 14.6 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphaltic Concrete
1–3				4.5/4.5	0	ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, subagular gravel up to 1" diameter, slightly plastic, some wood debris, no odor
4–7				5/5	0	SM	SILTY SAND with GRAVEL (SM) reddish-brown, loose, moist, gravel up to 1" diameter, no odor
8–10					0	CL	SANDY CLAY with GRAVEL (CL) brown, medium stiff, wet, subangular gravel up to 1" diameter, slightly plastic, weak hydrocarbon odor, and slight sheen
11–14				5/5	0	GM	SILTY SANDY GRAVEL (GM) black, very loose, saturated, gravel up to 1.5" diameter, weak hydrocarbon odor, and moderate sheen
15							

FILL

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-71a

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-12

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
16							
17				4/5		GM	FILL
18							
19							
20					0		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Boring terminated at a depth of 20 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 9.9 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-71b

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-13

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 12/17/09 | Date finished: 12/17/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 15.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphaltic Concrete
1–3				4.5/4.5	0	ML	SANDY SILT with GRAVEL (ML) brown, medium stiff, dry, gravel up to 1.5-inch diameter, slightly plastic, no odor
4–5						CL	SILTY CLAY with GRAVEL (CL) reddish-brown, medium stiff, dry, gravel up to 1" diameter, no odor
6–10				5/5	0	CL	SANDY GRAVELLY CLAY (CL) brown, medium stiff, moist, subangular gravel up to 1.5" diameter, slightly plastic, no odor ▽
11–13				5/5	0	ML	SANDY SILT with GRAVEL (ML) brown, soft, wet, subangular gravel, slightly plastic, moderate hydrocarbon odor and sheen
14–15							

FILL

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-72a

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9SB-13

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
16							SANDY GRAVELLY SILT (ML) dark green to black, soft, saturated, gravel up to 1" diameter, slightly plastic, strong hydrocarbon odor, and residue
17				5/5		ML	
18							
19							SILTY SANDY GRAVEL (GM) black, very loose, saturated, gravel up to 1.5" diameter, strong hydrocarbon odor and residue
20					0	GM	
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

FILL

Boring terminated at a depth of 20 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 10.5 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-72b

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring SPSB-01

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/27/09 | Date finished: 8/27/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 14.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–2				4.5/4.5	0	ML	SANDY SILT with GRAVEL (ML) greenish-brown, soft, dry, slightly plastic, no odor, gravel and fractured serpentinite up to 1" diameter
3						SM	SILTY SAND (SM) reddish-brown, very loose, dry, no odor
4–5					0	GM	SILTY GRAVEL with SAND (GM) greenish-brown, very loose, dry, no odor, gravel and fractured serpentinite up to 1.5" diameter
6–7				5/5		SM	SILTY GRAVELLY SAND (SM) greenish brown, very loose, dry, no odor, gravel and fractured serpentinite rock up to 1.5" diameter
8–9							
10					0		
11–15							

FILL

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-73

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring SPSB-02

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 8/27/09 | Date finished: 8/27/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.0 feet[1]
							6 inches of Asphalt Concrete
1–5				4.5/4.5	0	ML	SANDY SILT with GRAVEL (ML) greenish-brown, soft, dry, slightly plastic, no odor, gravel and fractured serpentinite up to 1" diameter
5–10				4/5	0	ML	CLAYEY SANDY SILT with GRAVEL (ML) greenish-brown, soft, dry, slightly plastic, no odor, gravel and fractured serpentinite up to 0.75" diameter
							FILL

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-74

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring SPSB-03

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/8/09 | Date finished: 9/8/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Enviro Core

Ground Surface Elevation: 11.7 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1–2				5/5	0	ML	SANDY SILT with GRAVEL (ML) greenish-brown, soft, dry, no odor, subangular gravel and fractured serpentinite up to 1.5" diameter
3–4						CL	GRAVELLY CLAY (CL) greenish-brown, soft, moist, no odor, gravel and fractured serpentinite up to 1" diameter
5					0		
6–7				5/5		ML	SANDY SILT with GRAVEL (ML) greenish-brown, soft, wet, no odor, subangular gravel up to 1" diameter
8–9						CH	GRAVELLY CLAY (CH) dark brown, soft, wet, no odor, very plastic, subangular gravel up to 0.5" diameter
10					0		
11–15							

FILL

BAY MUD

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 5 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-75

TEST ENVIRONMENTAL FEET 496301 WITH LIBRARY_R.GPJ T&R.GDT 5/27/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring SPSB-05

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/10/09 | Date finished: 9/10/09

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

Ground Surface Elevation: 12.0 feet[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							6 inches of Asphalt Concrete
1				2/2	0	ML	SANDY SILT with GRAVEL (ML) reddish-brown, soft, dry, no odor, subangular gravel up to 2" diameter, brick debris
2						SW	SAND with GRAVEL (SW) reddish-brown, very loose, dry, no odor, subangular gravel up to 1" diameter
3				3/3		CL	SANDY CLAY with GRAVEL (CL) greenish brown, medium stiff, moist, no odor, subangular gravel and fractured serpentinite up to 1.5" diameter
4							
5					0	SM	SILTY SAND with GRAVEL (SM) greenish-brown, loose, moist, no odor, subangular gravel up to 1" diameter
6							
7							brick fragments
8				4/5		CL	SANDY CLAY with GRAVEL (CL) dark brown, black, soft, wet, moderate hydrocarbon odor, subangular gravel up to 1.5" diameter, oily residue
9							
10					0		
11							
12							
13							
14							
15							

FILL

Boring terminated at a depth of 10 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Hand augered to 2 feet.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-76

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring SPSS-05

Boring location: See Site Plan, Figure 2 | Logged by: R. Milano

Date started: 12/17/09 | Date finished: 12/17/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Disturbed

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 12.1 feet[1]
							6 inches of Asphalt Concrete
1			0	1.5/ 1.5		CL	SANDY CLAY with GRAVEL (CL) yellow-brown, soft, dry, gravel up to 0.5" diameter, no odor FILL
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 2 feet below ground surface. [1] Elevations based on Mean Sea Level
Boring backfilled with cement grout.
Groundwater not encountered during Hand Augering.

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-77

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring SPSS-06

Boring location: See Site Plan, Figure 2

Logged by: R. Milano

Date started: 12/7/09 | Date finished: 12/7/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Disturbed

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 11.4 feet[1]
							6 inches of Asphalt Concrete
1				1/1	0	SM	SILTY SAND (SM) light brown, very loose, dry, no odor — FILL
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 1.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during Hand Augering.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-78

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring SPSS-07

Boring location: See Site Plan, Figure 2 | Logged by: R. Milano

Date started: 12/8/09 | Date finished: 12/8/09

Drilling method: Hand Auger

Hammer weight/drop: NA | Hammer type: NA

Sampler: Disturbed

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Feet)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Ground Surface Elevation: 13.1 feet[1]
							6 inches of Asphalt Concrete
1					0	ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, subangular gravel up to 1.5" diameter, slightly plastic, no odor
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Boring terminated at a depth of 1.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during Hand Augering.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-79

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CCMW-01/CCSB-03

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 8/27/09 | Date finished: 8/28/09

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

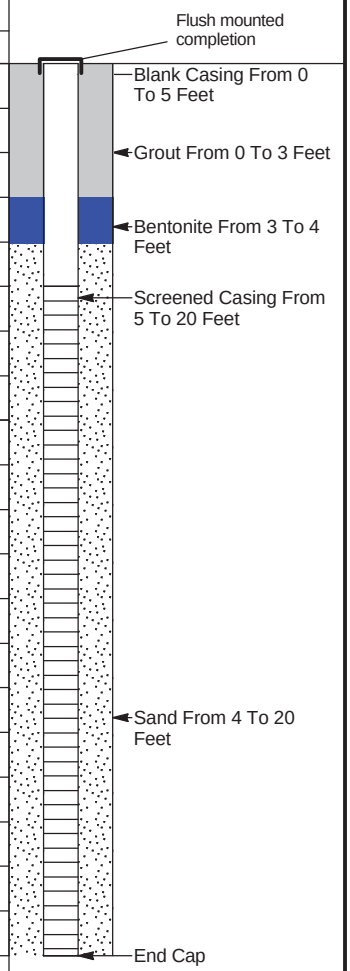
Sampler: Split Spoon

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 11.10[1]
1–7							Fill material dark brown, large pieces of wood, hydrocarbon odor, and burnt debris
8–30						CL-ML	CLAYEY SILT with SAND (CL-ML) olive-gray, wet, slightly plastic, no odor trace organics, and shell fragments oily sheen at 10.5 feet to 25 feet bgs
9–10			0 0 0	18	0		
14–15			0 0 0	12	0		
19–20			0 0 0	18	0		
24–25			0 0 0	18	0		
29–30			0 0 0	18	0		
30							Monitoring well installed on 09/28/09

FILL

BAY MUD

Well Completion Details



Boring terminated at a depth of 30 feet.
Above log from CCSB-03.
Groundwater encountered at a depth of 8 feet.
Hand augered to 5 feet.
CCMW01 located 3 feet from CCSB-03 measured at 4.75 feet 10/06/09.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-80

TEST ENVIRONMENTAL WELL REV1 496301-M WELL.GPJ T&R.GDT 5/25/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring CPMW-01/CPSB-01

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: Vironex

Date started: 9/11/09 | Date finished: 9/11/09

Drilling method: Direct Push/ Hollow Stem Auger

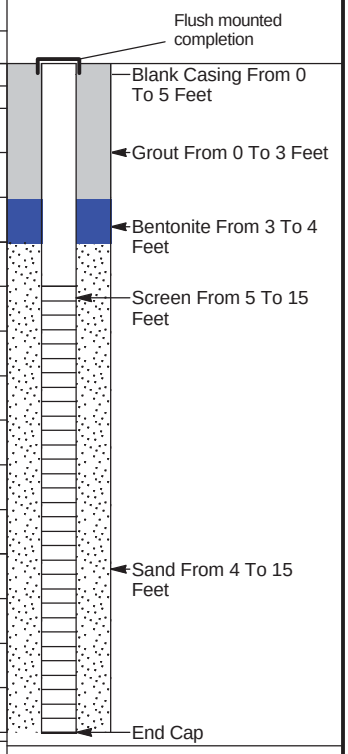
Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Macro Core/Split Spoon

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 13.60[1]
0							6-inches Asphalt Concrete (AC)
1–4				1/ 1	0	ML	SANDY SILT with GRAVEL (ML) light brown, soft, dry, no odor, gravel up to 2" diameter
4–10				5/ 5	0	SW	GRAVELLY SAND (SW) dark brown, black, loose, moist, no odor, subangular gravel up to 1" diameter
10					0		hydrocarbon sheen
10–15				5/ 5		GP	CLAYEY SAND with GRAVEL (GP) black, very loose, saturated, moderate odor, subrounded gravel up to 1.5" diameter
15							Monitoring well installed on 09/28/09

FILL

Well Completion Details



Boring terminated at a depth of 15 feet below ground surface. Above log based on CPSB-01
Groundwater encountered at a depth of 10.5 feet.
Measured at 10 feet on 10/06/09
Hand augered to 4 feet.
CPMW-01 located 3 feet from CPSB-01.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-81

TEST ENVIRONMENTAL WELL REV1 496301-M WELL.GPJ T&R.GDT 5/25/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P2MW-01/P2SB-01

Boring location: See Site Plan, Figure 2

Logged by: R. Milano/ J. Gekov
Drilled By: Vironex

Date started: 8/28/09 | Date finished: 8/28/09

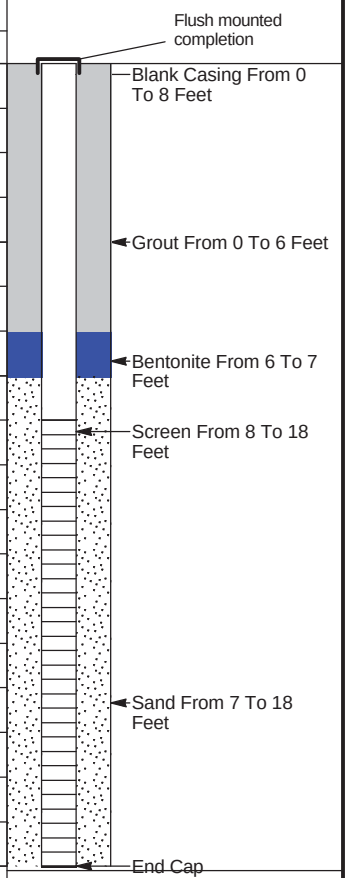
Drilling method: Direct Push/ Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Macro Core/Split Spoon

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 12.00[1]
1–2					0	ML	SANDY SILT with GRAVEL (ML) brown, soft, dry, slightly plastic, no odor, gravel up to 1" diameter
3–5						SM	GRAVELLY SILTY SAND (SM) light brown with green, very loose, dry, no odor, gravel up to 1.5" diameter FILL
6–7							▼
8				2.5/ 5	0	GC	CLAYEY SANDY GRAVEL (GC) black, very loose, moist, weak hydrocarbon odor
9–10					0		10 to 18 foot interval logged based upon drill cuttings observed during well installation
11–18							
18							Monitoring well installed on 09/29/09
19–31							

Well Completion Details



Direct push boring terminated at a depth of 10 feet below ground surface.
Above log basd on P2SB-01.
Groundwater not encountered during drilling.
Hand augered to 5 feet.
P2MW-01 located 3 feet from P2SB-01

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-82

TEST ENVIRONMENTAL WELL REV1 496301-M WELL.GPJ T&R.GDT 5/25/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P3MW-01/P3SB-02

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 8/28/09 | Date finished: 8/28/09

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Split Spoon

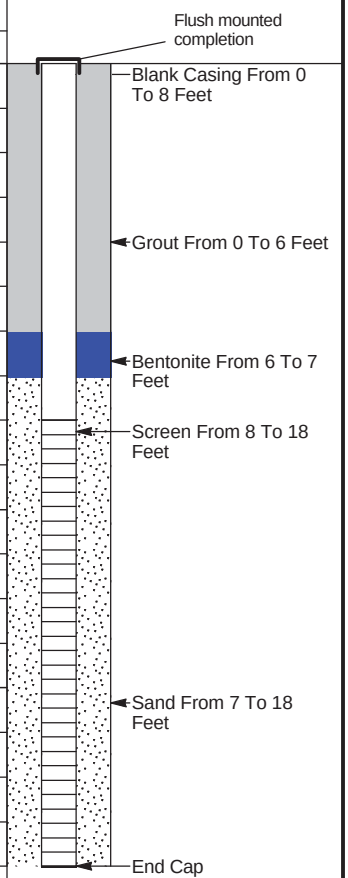
Top of Casing Elevation: 18.70[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
1–4						GM	SILTY SANDY GRAVEL (GM) light brown, red, dry, no odor gravel to 2" diameter
5		●	10 7 5	5	0		
6–7							
8–9			0 0 0	0	0		
10		●	0 0 2	8	0	ML	SANDY SILT with GRAVEL (ML) dark brown, red, moist, no odor
11–13							
14		●	7 7 6	6	0		▽
15–19						CH	SILTY CLAY with trace sand (CH) gray, wet, plastic, no odor trace shell fragments
20		●	2 1 2	16 8	0		
21–22							
23						SC-SM	SILTY CLAYEY SAND with GRAVEL (SC-SM) light brown, moist, no odor
24		●	33 50/2"		0		SERPENTINITE BEDROCK light brown, moderately hard, moderately strong, moderate weathering
25–27							
28							Refusal at 28 feet Monitoring well installed on 09/29/09
29–31							

FILL

BAY MUD

Well Completion Details



Bboring terminated at a depth of 28 feet.
Groundwater encountered at a depth of 14 feet. Measures at 13.5 feet on 10/06/09.
Hand augered to 5 feet.
Above log based on P3SB-02.
P3MW-01 located 2.5 feet from P3SB-02.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-83

TEST ENVIRONMENTAL WELL REV1 496301-M WELL.GPJ T&R.GDT 5/25/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P8MW-01/P8SB-01

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 8/31/01 | Date finished: 8/31/01

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

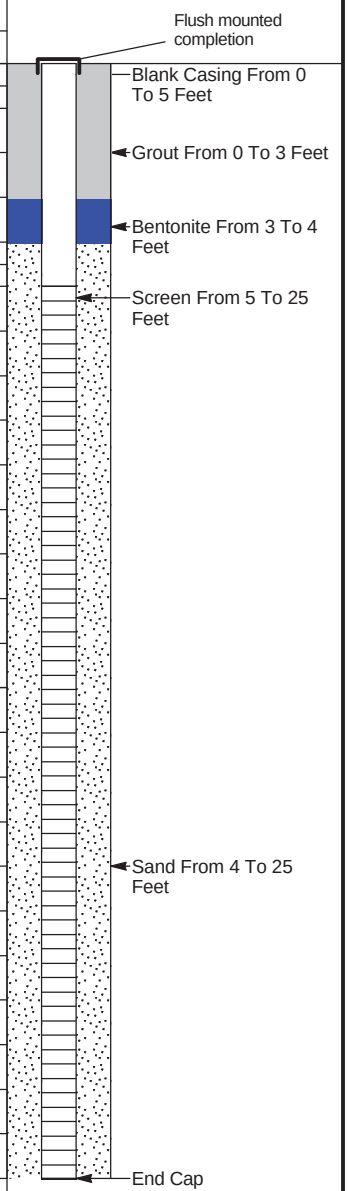
Sampler: Split Spoon

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 11.70[1]
0							6 inches Asphalt Concrete (AC)
1–4						ML	SANDY SILT with GRAVEL (ML) red-brown, soft, moist, non plastic, no odor
5–7				18	0	SC-SM	SILTY CLAYEY SAND with GRAVEL (SC-SM) brown, moist, loose, no odor
8–10				18	0		
11–14				8	0		SERPENTINITE BEDROCK light brown, moderately hard, moderately strong, moderate weathering
15–19				6	0		met refusal while sampling at 19 feet continued augering to collect groundwater sample
20–28							Refusal at 28 feet Monitoring well installed on 09/29/09

FILL

SERPENTINITE

Well Completion Details



Boring terminated at a depth of 28 feet.
Groundwater not encountered at time of drilling. Measured at 7 feet on 10/06/09.
Hand augered to 5 feet.
Above log from P8SB-01.
P8MW-01 located 3 feet from P8SB-01

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-84

TEST ENVIRONMENTAL WELL REV1 496301-M WELL.GPJ T&R.GDT 5/25/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9MW-01/P9SB-06

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 8/27/09 | Date finished: 8/27/09

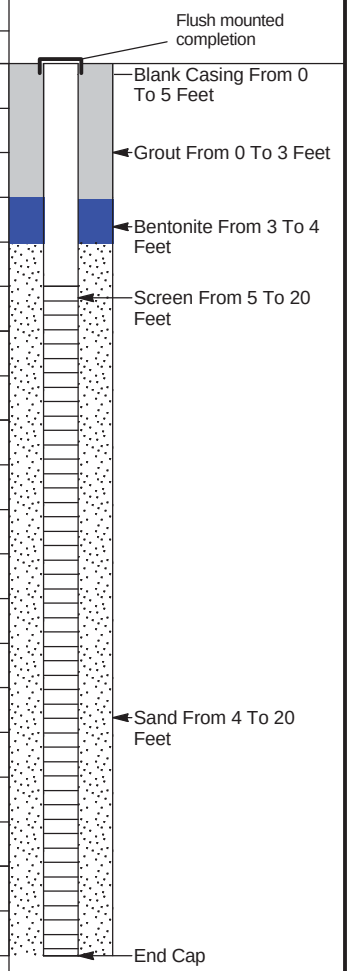
Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Split Spoon

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 14.30[1]
1–5						ML	GRAVELLY SANDY SILT (ML) brown to dark brown, soft, moist, no odor, debris brick debris, shiny black slag at 5 to 6 feet
5–6		•	24 16 24	18	0		
6–7						GM	SERPENTINITE BEDROCK (GM) light brown to olive, moderately hard, moderately strong, moderate weathering.
7–10						SM	SILTY SAND with GRAVEL (SM) light brown to dark brown, wet, weak hydrocarbon odor FILL
10–11		•	7 6 8	18	0		▼
11–14							black oily product at 12 feet bgs
14–15		•	4 3 2	18	0		
15–18							
18–19		•	5 4 4	18	0	CL-ML	CLAYEY SILT (CL-ML) olive-gray, wet, low plasticity, weak hydrocarbon odor BAY MUD
19–23							
23–25		•	2 2 2	16	0		
25–28							
28–29		•	2 2 2	8	0		
29–30							
30–31							Monitoring well installed on 09/30/09

Well Completion Details



Boring terminated at a depth of 30 feet.
Groundwater encountered at a depth of 11 feet. Measured at 10.8 feet on 10/06/09
Hand augered to 5 feet.
Above log based on P9SB-06.
P9MW-01 located 2.5 feet from P9SB-06.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-85

TEST ENVIRONMENTAL WELL REV1 496301-M WELL.GPJ T&R.GDT 5/25/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9MW-02/P9SB-04

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 9/9/09 | Date finished: 9/9/09

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

Sampler: Split Spoon

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 12.00[1]
0							3 inches Asphalt Concrete (AC)
1–4						SM	SILTY GRAVELLY SAND (SM) dark brown, black, moist, no odor
5			15				
6			20	16	0		
7			20				
7–8						GM	SILTY SANDY GRAVEL (GM) dark brown-black- light green, medium dense, moist, moderate hydrocarbon odor, sheen in water, oily product interspersed in fill matrix
8							water at 10 feet
9			4	12	0		hydrocarbon odor at approximately 8 feet
9–10			7				
10			5				
11–12							
13			7				
14			6	12	0		
15			10				
16–18							
18			6				
19			7	8	0		
20			9				
20–23						GC	CLAYEY SANDY GRAVEL (GC) olive green-brown, wet, weak odor serpentinite fragments to 2" diameter, weak hydrocarbon odor
24			4				
24			4	10	0		
25			6				
26–28							
28			7				
29			10	10	0		
29			10				
30						CL	SILTY CLAY (CL) dark gray-olive, soft, wet, plastic, weak hydrocarbon odor, contains organic and shell debris
30–35							Monitoring well installed on 09/30/09

FILL

Well Completion Details

- Blank Casing From 0 To 5 Feet
- Grout From 0 To 3 Feet
- Bentonite From 3 To 4 Feet
- Screen From 5 To 18 Feet
- Sand From 4 To 18 Feet
- End Cap

Boring terminated at a depth of 30 feet.
Groundwater encountered at a depth of 10 feet. Mearued at 7 feet on 10/06/09.
Hand augered to 5 feet.
Above log based on P9SB-04
P9MW-02 located 2 feet from P9SB-04.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-86

TEST ENVIRONMENTAL WELL REV1 496301-M WELL.GPJ T&R.GDT 5/26/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9MW-03/P9SB-09B

Boring location: See Site Plan, Figure 2

Logged by: R. Milano
Drilled By: HEW/Vironex

Date started: 12/9/09 | Date finished: 12/9/09

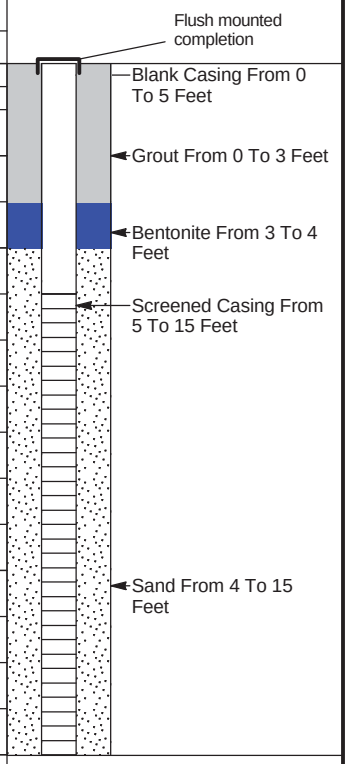
Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Macro Core

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 10.60[1]
0							6 inches of Asphatic Concrete
1–2					0		SERPENTINITE BEDROCK light green, dry, moderately hard, moderately strong, moderate weathering
3–4				4/4		ML	SANDY SILT with GRAVEL (ML) greenish-brown, soft, dry, subangular gravel up to 1" diameter, slightly plastic, no odor
5–7				5/5	0	SM	SILTY SAND with GRAVEL (SM) grayish-brown, loose, wet, subangular gravel up to 1" diameter, weak hydrocarbon odor, slight sheen ▽
10–12				5/5		ML	SILT (ML) gray, loose, saturated, plastic, weak hydrocarbon odor, slight sheen
15					0		Monitoring well installed on 03/04/10

Well Completion Details



Boring terminated at a depth of 15 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 7 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-87

TEST ENVIRONMENTAL WELL REV1 496301.GPJ T&R.GDT 5/26/10

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring P9MW-04/P9SB-14

Boring location: See Site Plan, Figure 2

Logged by: D. Sutherland
Drilled By: HEW/Vironex

Date started: 12/17/09 | Date finished: 12/17/09

Drilling method: Hollow Stem Auger/Direct Push

Hammer weight/drop: NA | Hammer type: NA

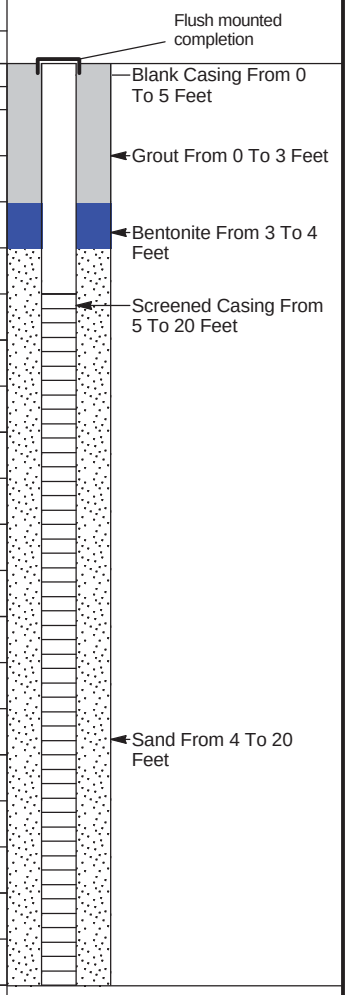
Sampler: Macro Core

Top of Casing Elevation: 14.72[1]

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
0							6-inch Asphalt Concrete (AC)
1–5						SM	SILTY SAND with GRAVEL (SM) brown, dry, rounded to angular, well graded, no odor, brick fragments, gravel up to 1" diameter
6–7						SP	SAND (SP) brown, moderately dense, dry, no odor
8–9						SM	SILTY SAND with GRAVEL (SM) brown, loose, dry, no odor
10–11						SC	CLAYEY GRAVEL (SC) dark gray, medium stiff, moist, subrounded to angular, moderately graded, no odor
12–14						CL	GRAVELLY CLAY (CL) dark gray, soft to medium stiff, moist to wet, non-plastic, no to weak odor, weathered serpentinite
15–17						GM	SILTY GRAVEL (GM) dark gray, moderately dense, wet to saturated, subangular to angular, moderately graded, weak odor, gravel and brick fragments up to 2" diameter
18–19						SW	GRAVELLY SAND (SW) gray, very loose, saturated, well graded, no odor, gravel up to 1/4" diameter
20							Monitoring well installed on 03/05/10

FILL

Well Completion Details



Boring terminated at a depth of 20 feet.
Boring backfilled with cement grout.
Groundwater not encountered at 10.86 feet during drilling.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01 | Figure: A-88

PROJECT: **PIER 70 ENVIRONMENTAL SITE INVESTIGATION**
San Francisco, California

Log of Boring SPMW-01/SPSB-04

Boring location: See Site Plan, Figure 2

Logged by: J. Gekov
Drilled By: HEW

Date started: 8/31/01 | Date finished: 8/31/01

Drilling method: Hollow Stem Auger

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic

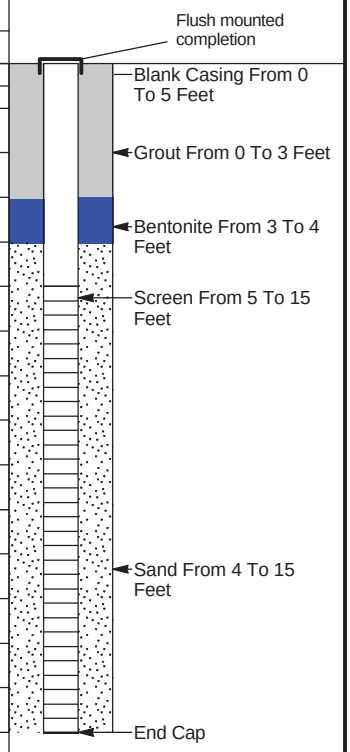
Sampler: Split Spoon

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Top of Casing Elevation: 11.90[1]
0							6 inches of Asphalt Concrete (AC)
1–5						ML	SANDY SILT with GRAVEL (ML) dark brown to light brown-gray, moist, non plastic, no odor serpentinite gravel to 2.5" diameter
5–6			4 4 4	13	0	ML	
8–9			5 5 6	14	0	ML	
9–10						ML	▼
10–15						GM	SILTY GRAVEL with SAND (GM) dark brown to light brown-gray, moist, loose, no odor
13–14			10 6 10	16	0	GM	▽
16–19			15 15 6	8	0	CL	SILTY CLAY with trace SAND (CL) olive-gray, soft, wet, plastic, no odor contains trace shell fragments and organics
24–25			4 4 3	18		CL	
25–26						CL-ML	CLAYEY SILT with SAND (CL-ML) olive-gray, soft, wet, plastic, no odor, contains trace shell fragments and organics
29			50/6"	7			SERPENTINITE BEDROCK light green, moderately hard, moderately strong, moderate weathering
29–30							Monitoring well installed on 09/28/09

FILL

BAY MUD

Well Completion Details



Boring terminated at a depth of 29 feet.
Groundwater encountered at a depth of 12 feet. Measured at 8.6 feetat on 10/06/09.
Hand augered to 5 feet.
Above log based on SPSB-04.
SPMW-01 located 3 feet from SPSB-04.

[1] Elevations based on Mean Sea Level

Treadwell&Rollo

Project No.: 4963.01

Figure: A-89

TEST ENVIRONMENTAL WELL REV1 496301-M WELL.GPJ T&R.GDT 5/26/10

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size)	Gravels (More than half of coarse fraction > no. 4 sieve size)	GW	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	Silts and Clays LL = < 50	ML	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	MH	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		PT	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes	
	U.S. Standard Sieve Size	Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.075
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.075
Silt and Clay	Below No. 200	Below 0.075

Unstabilized groundwater level

Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered

Classification sample taken with Standard Penetration Test sampler

Undisturbed sample taken with thin-walled tube

Disturbed sample, hand auger

Sampling attempted with no recovery

Core sample

Analytical laboratory sample

Sample taken with Direct Push sampler

Sonic

SAMPLER TYPE

C Core barrel

CA California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter

D&M Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube

O Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube

PT Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube

S&H Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter

SPT Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter

ST Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

CLASSIFICATION CHART

Treadwell&Rollo

Date 05/27/10 | Project No. 4963.01 | Figure A-90

I FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. Deep - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.

M. Moderate - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.

L. Little - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.

F. Fresh - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

V CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

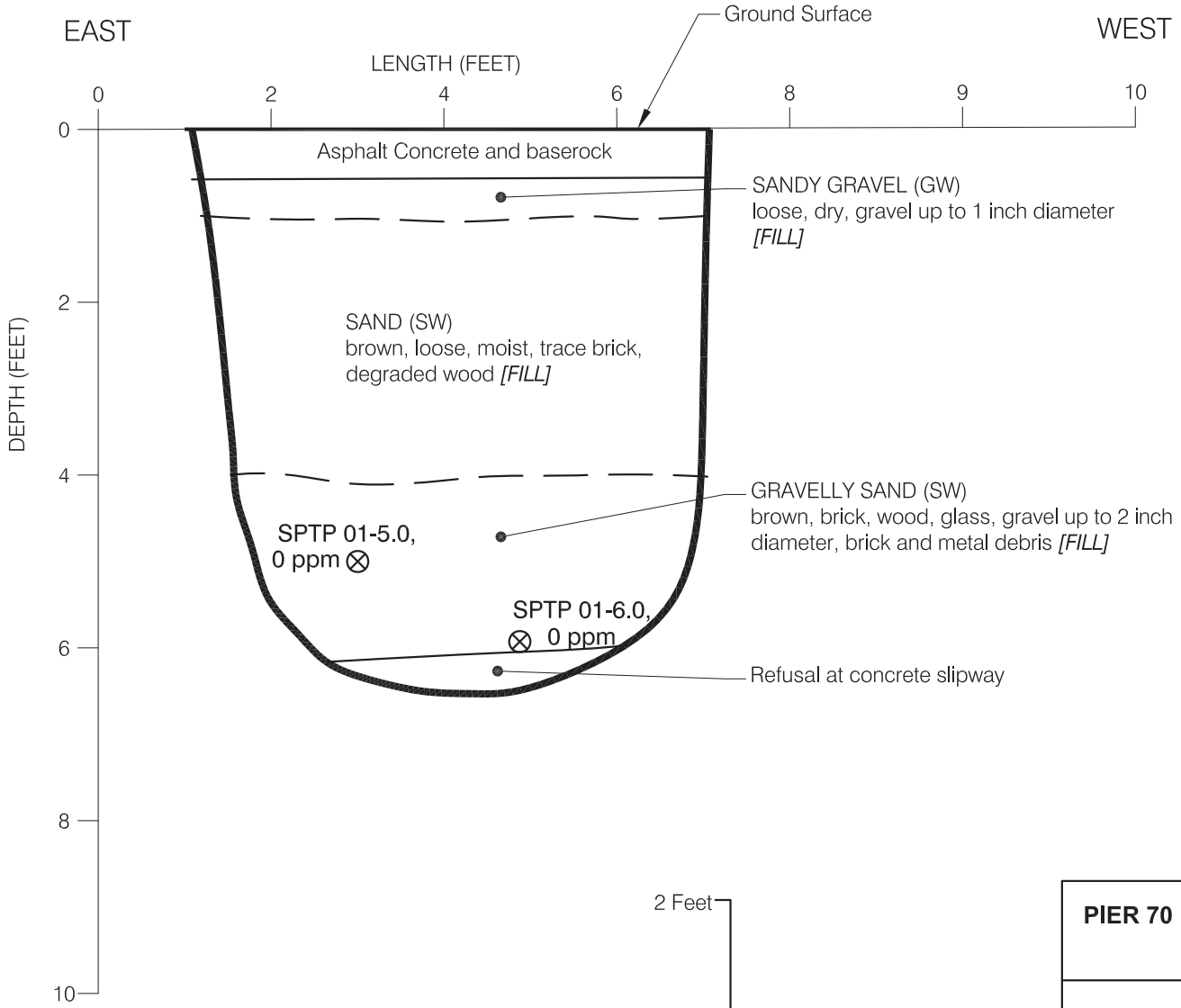
Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

Treadwell&Rollo

PHYSICAL PROPERTIES CRITERIA FOR ROCK DESCRIPTIONS

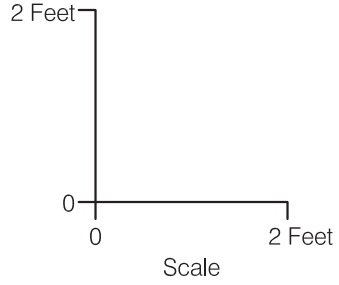
Date 05/27/10 | Project No. 4963.01 | Figure A-91



EXPLANATION

⊗ Soil sample location, OVM (Organic Vapor Meter) reading in parts per million (ppm)

Test pit excavated 27 August 2009.



PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Franicisco, California

LOG OF TEST PIT
SPTP-01

Date 09/23/09	Project No. 4963.01	Figure A-92

Treadwell&Rollo

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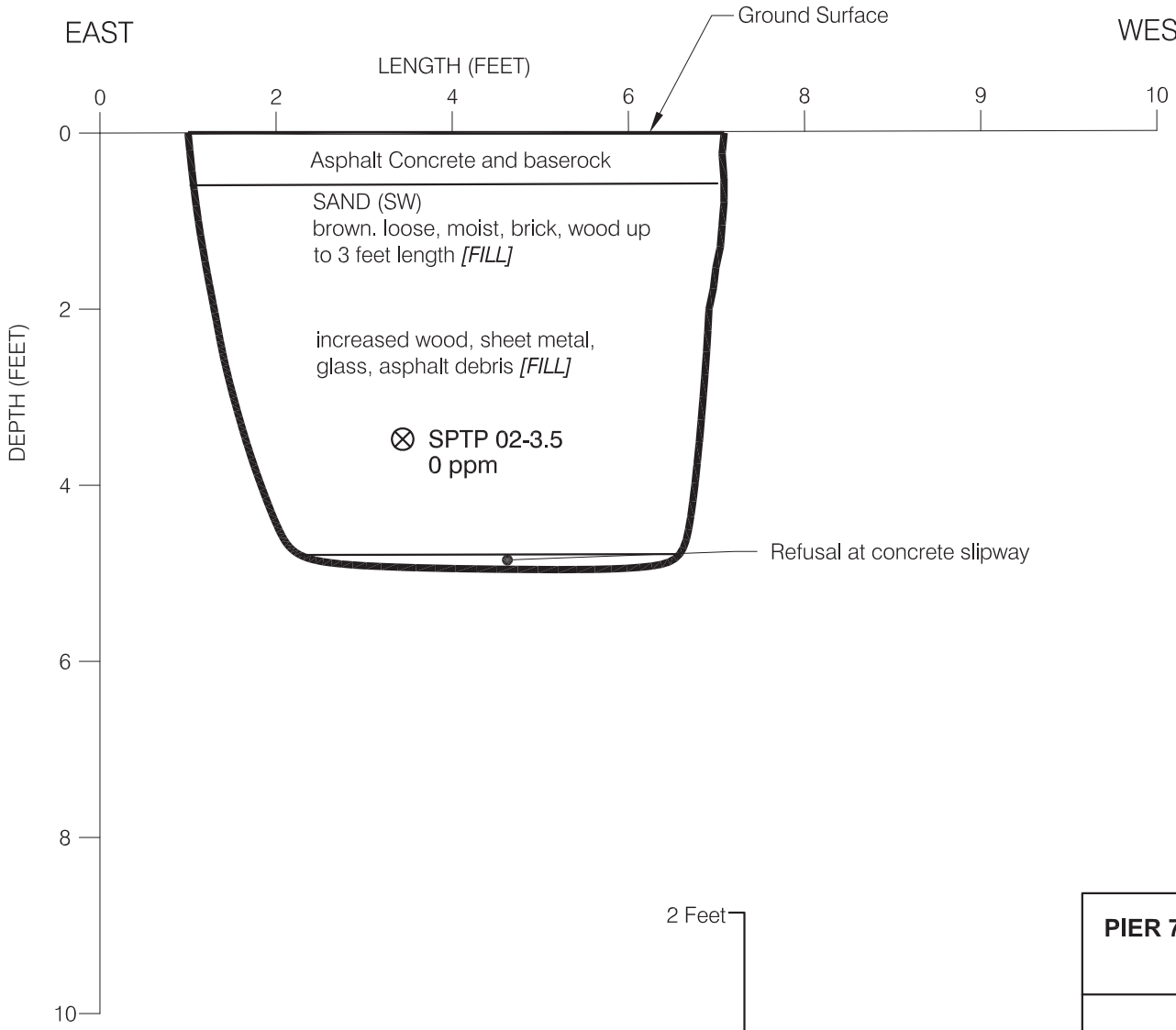
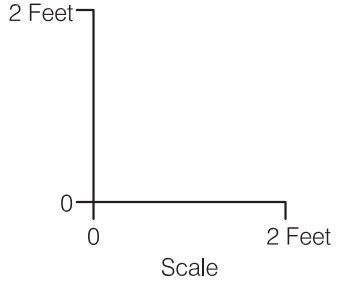


EXPLANATION

⊗ Soil sample location, OVM (Organic Vapor Meter) reading in parts per million (ppm)

Test pit excavated 28 August 2009.



PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Franicisco, California

LOG OF TEST PIT
SPTP-02

Date 09/23/09	Project No. 4963.01	Figure A-93

Treadwell&Rollo

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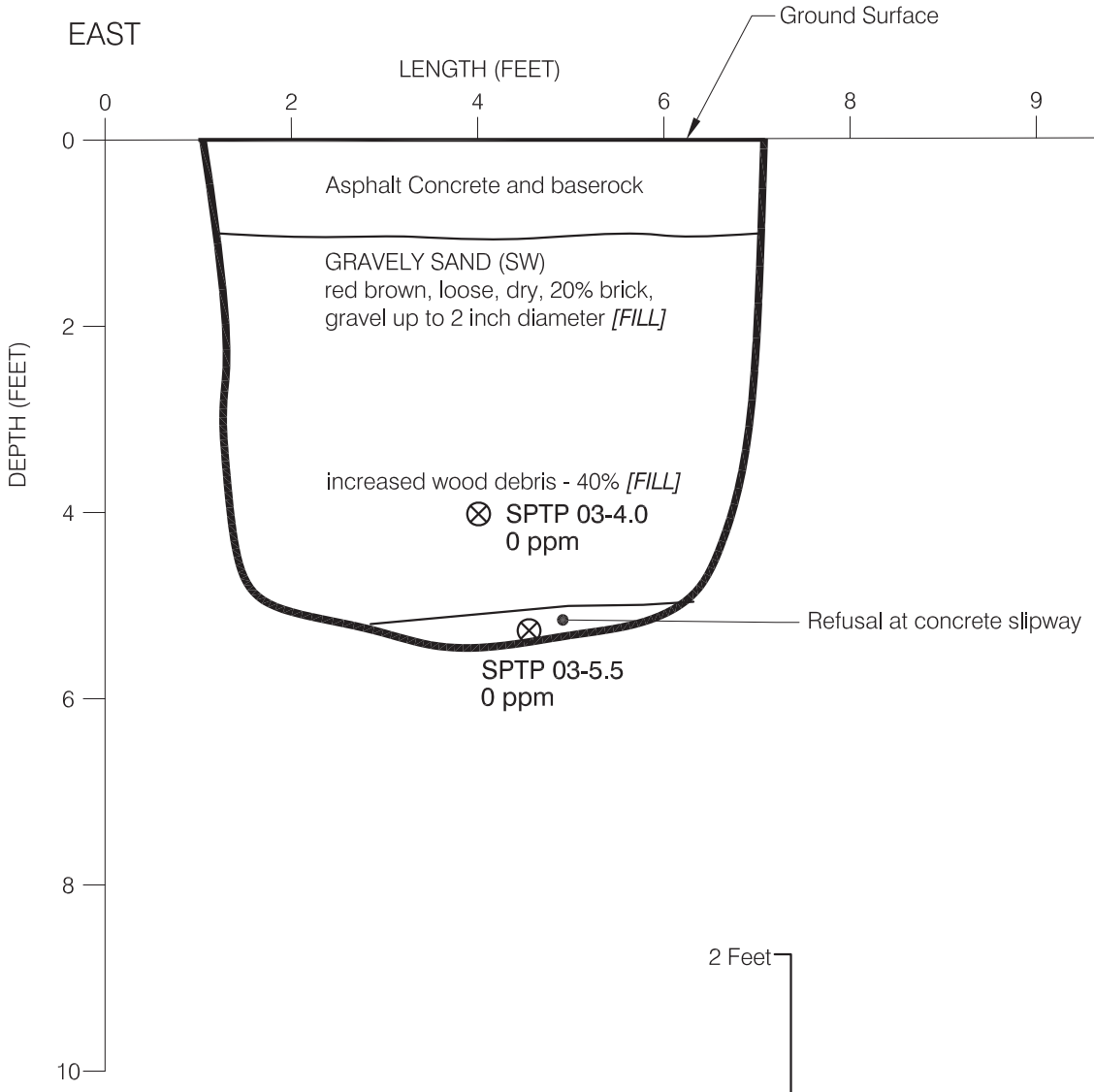

EXPLANATION

⊗ Soil sample location, OVM (Organic Vapor Meter) reading in parts per million (ppm)

Test pit excavated 28 August 2009.

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Franicisco, California

LOG OF TEST PIT
SPTP-03

Date 09/23/09	Project No. 4963.01	Figure A-94

Treadwell&Rollo

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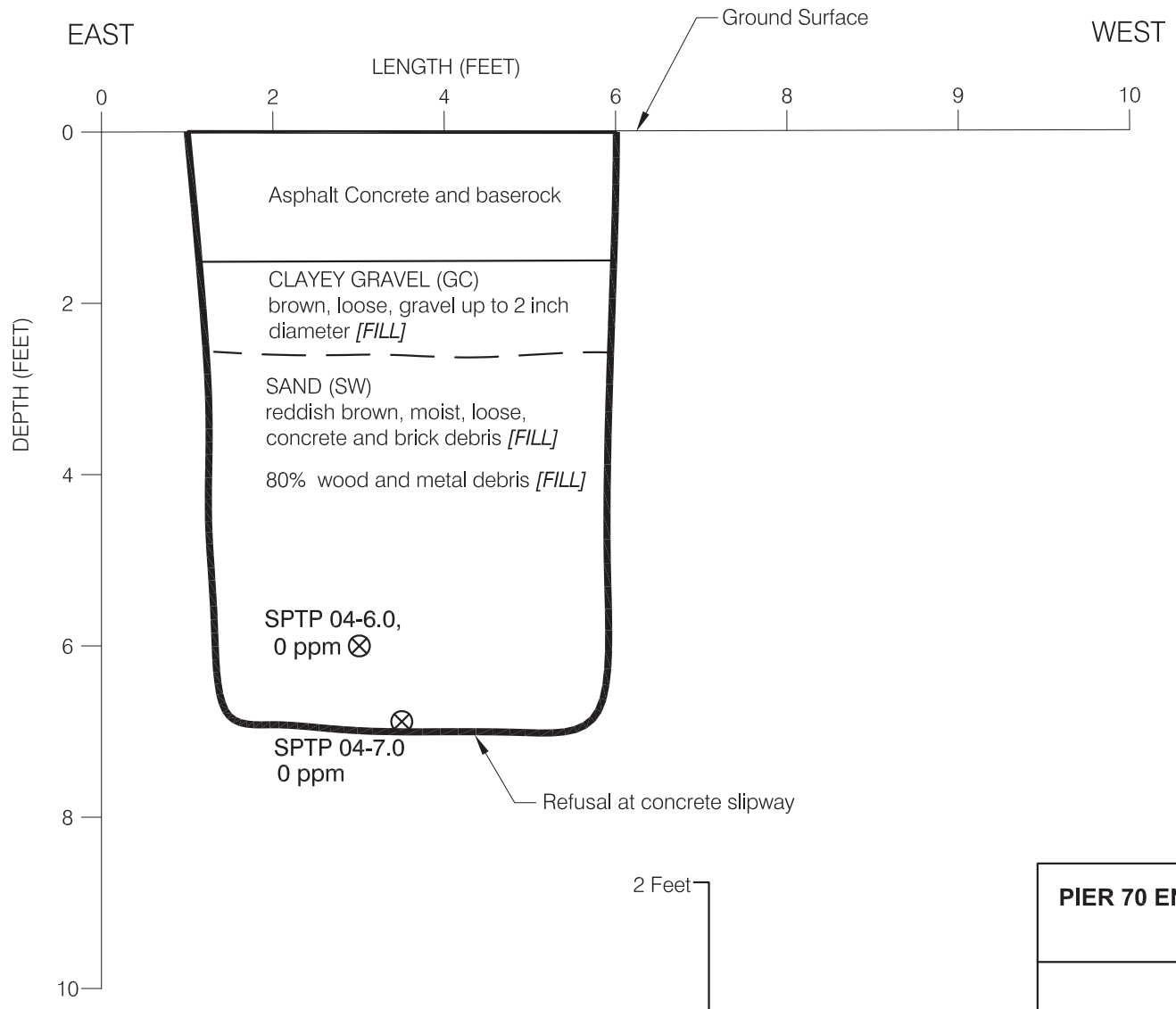

EXPLANATION

⊗ Soil sample location, OVM (Organic Vapor Meter) reading in parts per million (ppm)

Test pit excavated 31 August 2009.

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Franicisco, California

LOG OF TEST PIT
SPTP-04

Date 09/23/09	Project No. 4963.01	Figure A-95

Treadwell&Rollo

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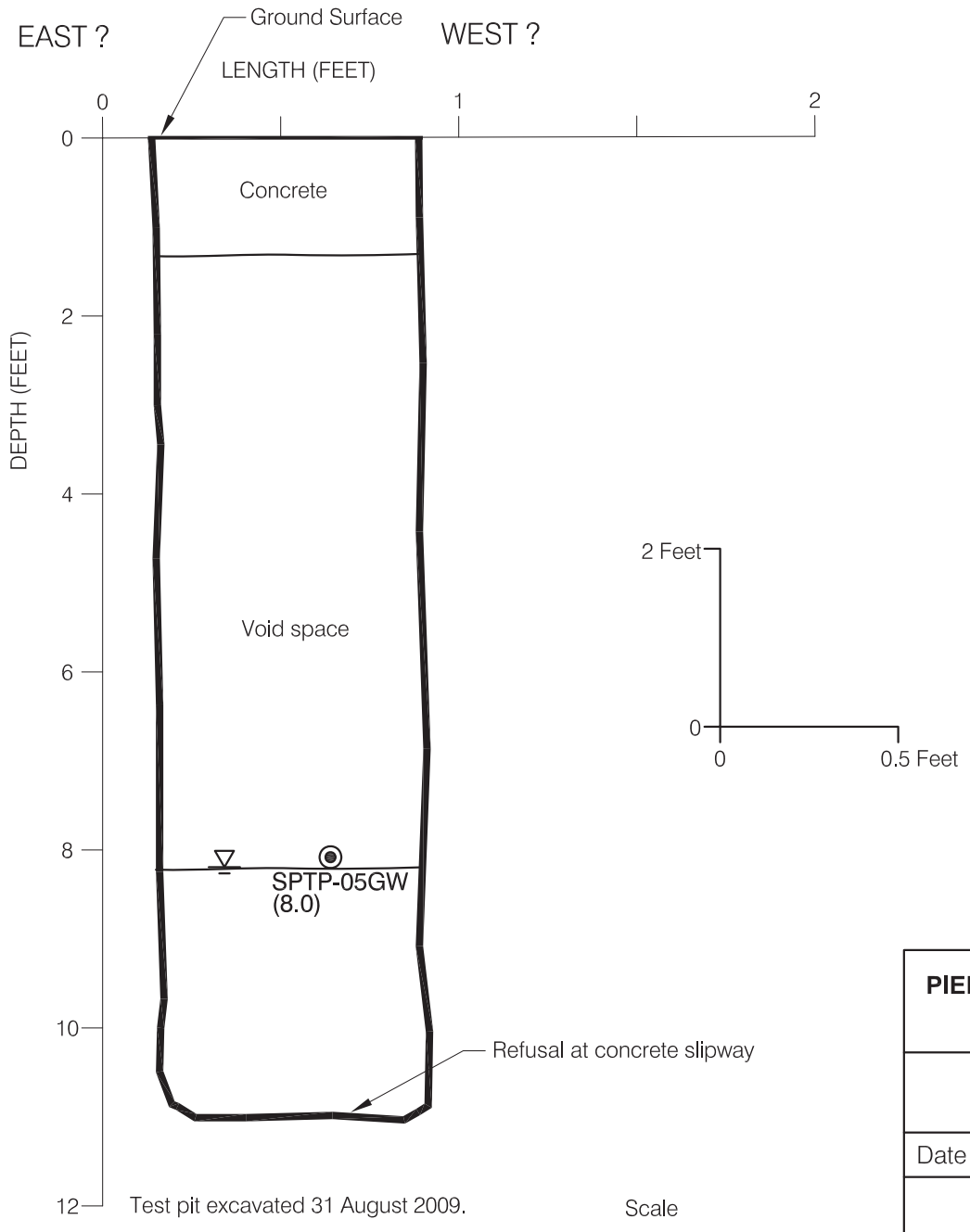

EXPLANATION

Grab groundwater sample

Water table

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Franicisco, California

LOG OF TEST PIT
SPTP-05

Date 09/23/09	Project No. 4963.01	Figure A-96

Treadwell&Rollo

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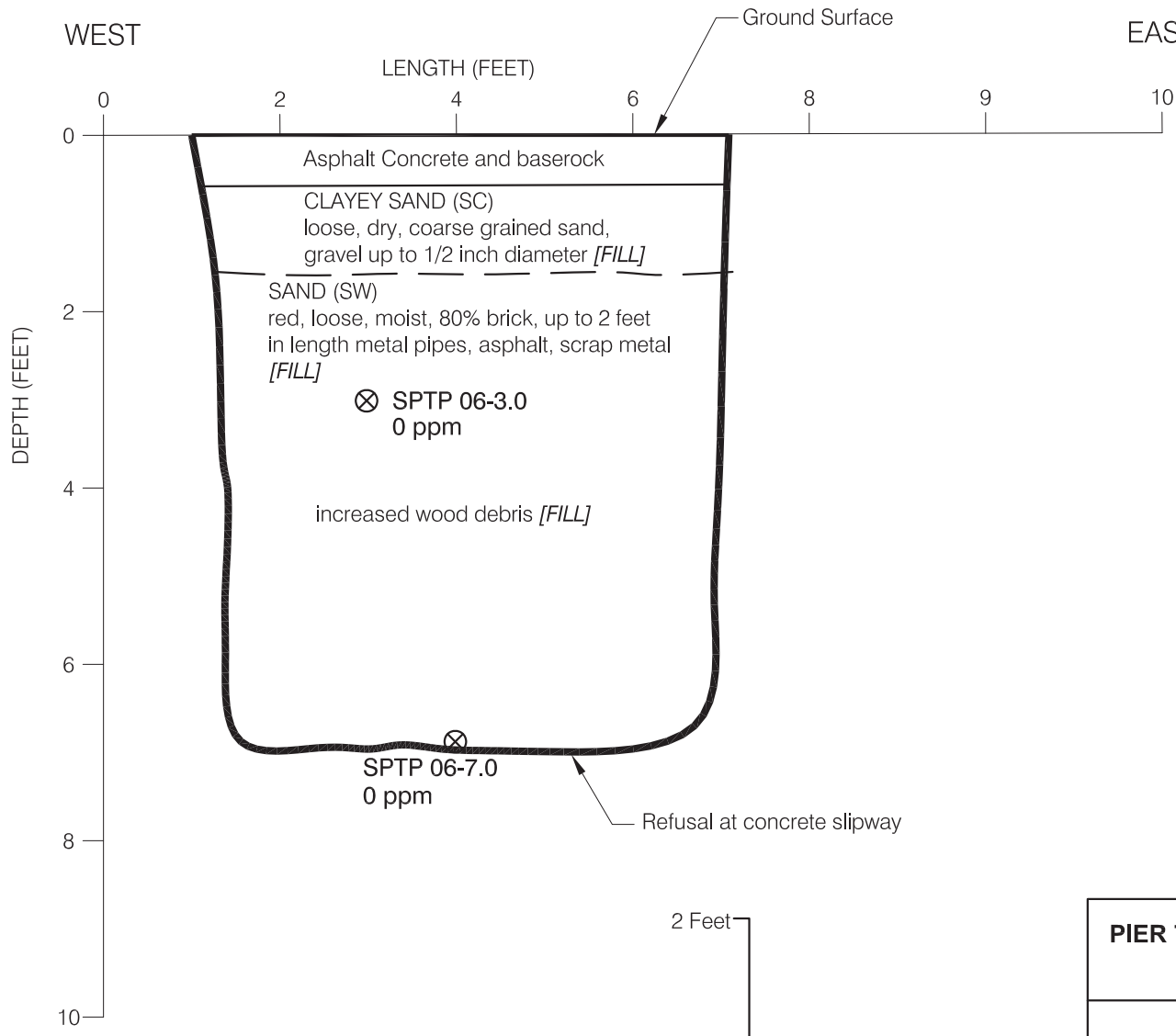
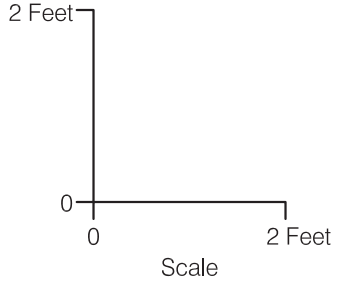


EXPLANATION

⊗ Soil sample location, OVM (Organic Vapor Meter) reading in parts per million (ppm)

Test pit excavated 31 August 2009.



PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Franicisco, California

LOG OF TEST PIT
SPTP-06

Date 09/23/09	Project No. 4963.01	Figure A-97

Treadwell&Rollo

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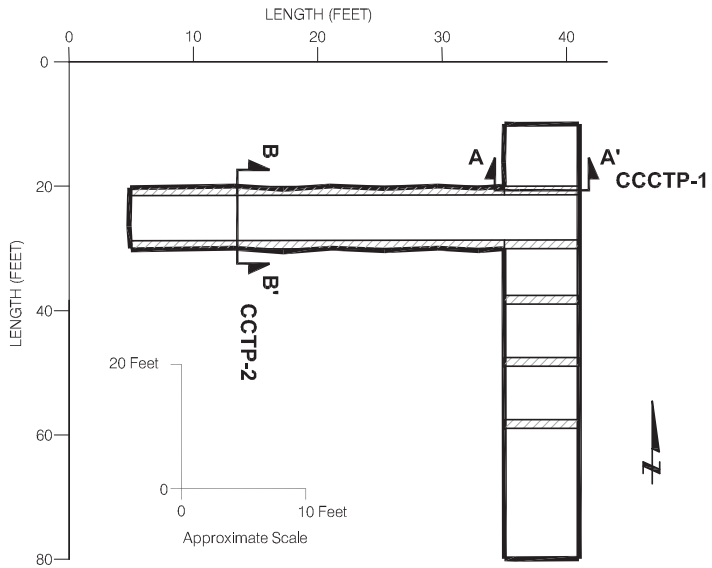
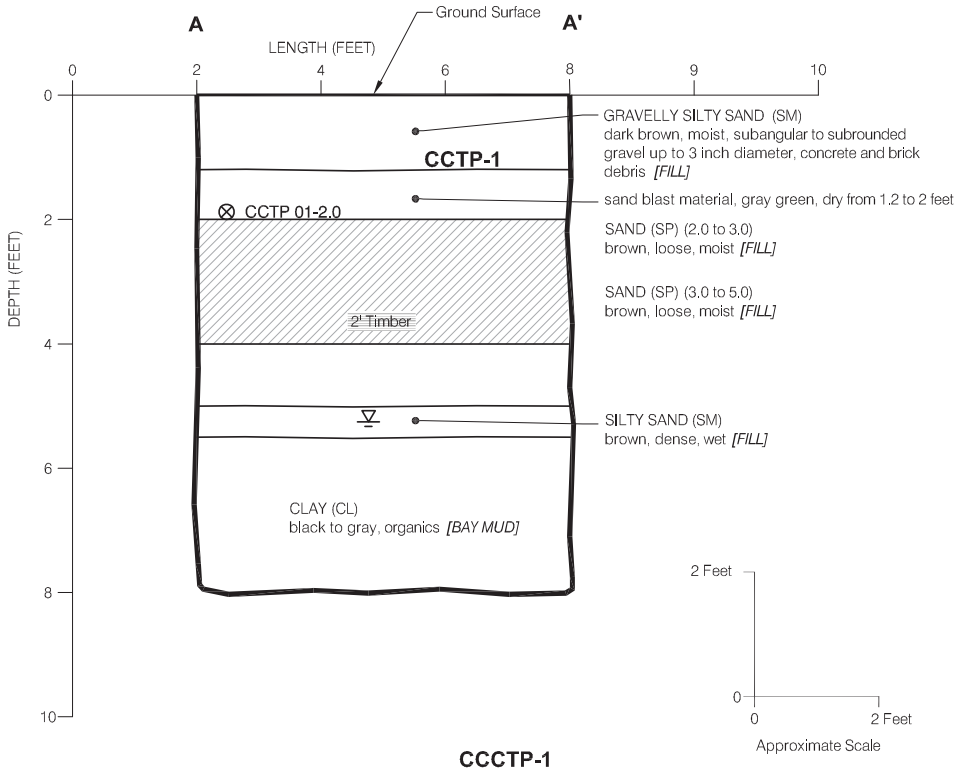
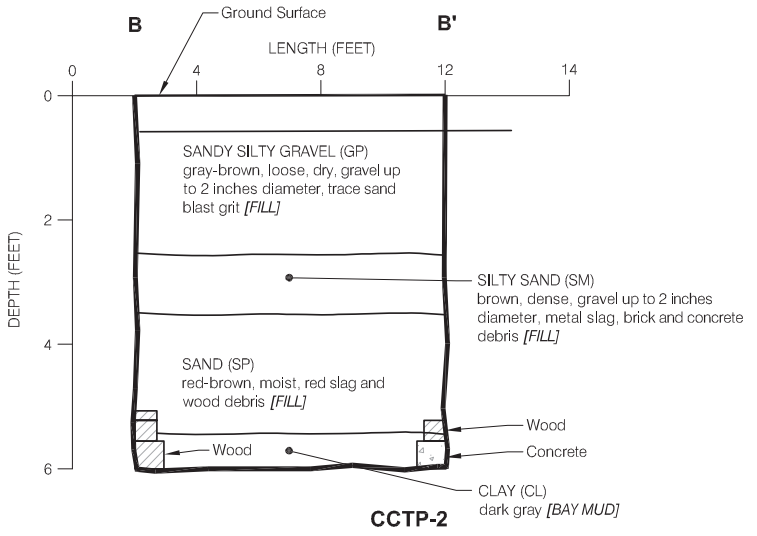


PLAN VIEW

Test pit excavated 24 March 2010.



CCCTP-1

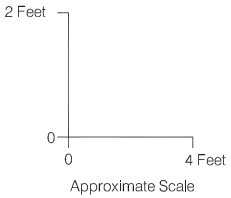


CCTP-2

EXPLANATION

⊗ Soil sample location, OVM (Organic Vapor Meter) reading in parts per million (ppm)\

▽ Water table



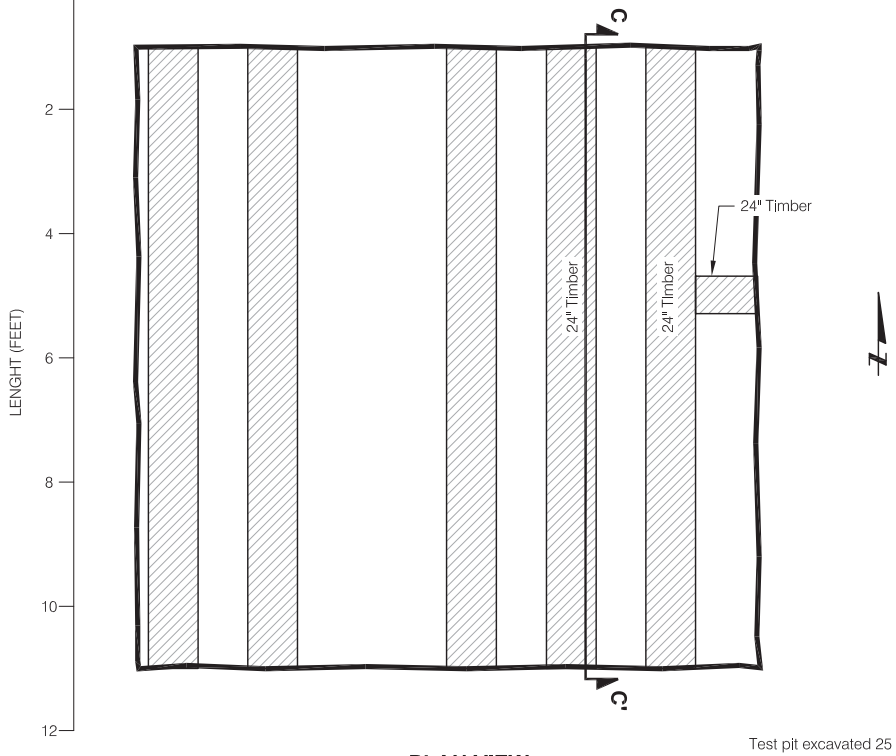
PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

LOG OF TEST PIT CCTP-1 AND CCTP-2

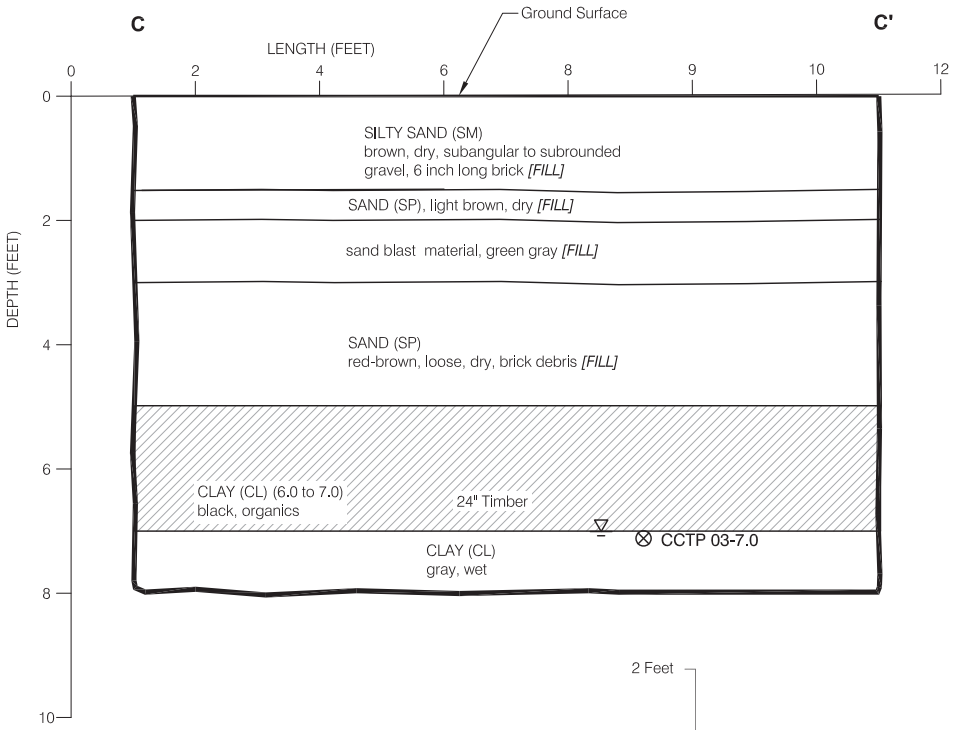
Date 04/01/10	Project No. 4963.01	Figure A-98

Treadwell&Rollo

R:\Trgraphics\4900's\4963.01\4963.01 Test Pits.dwg 1/05/11



PLAN VIEW



PROFILE

2 Feet
0
0
2 Feet
Approximate Scale

Test pit excavated 25 March 2010.

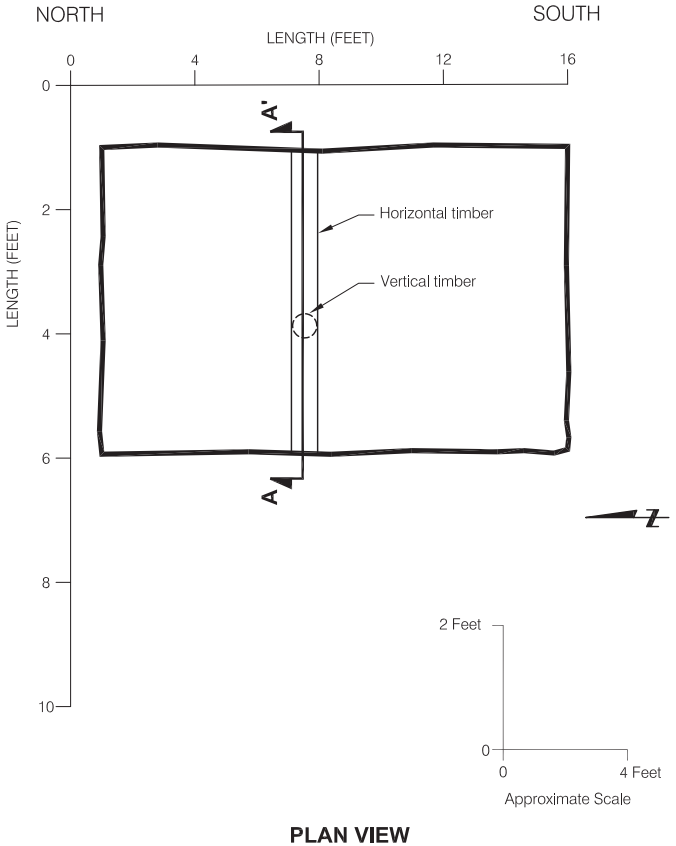
2 Feet
0
0
5 Feet
Approximate Scale

EXPLANATION

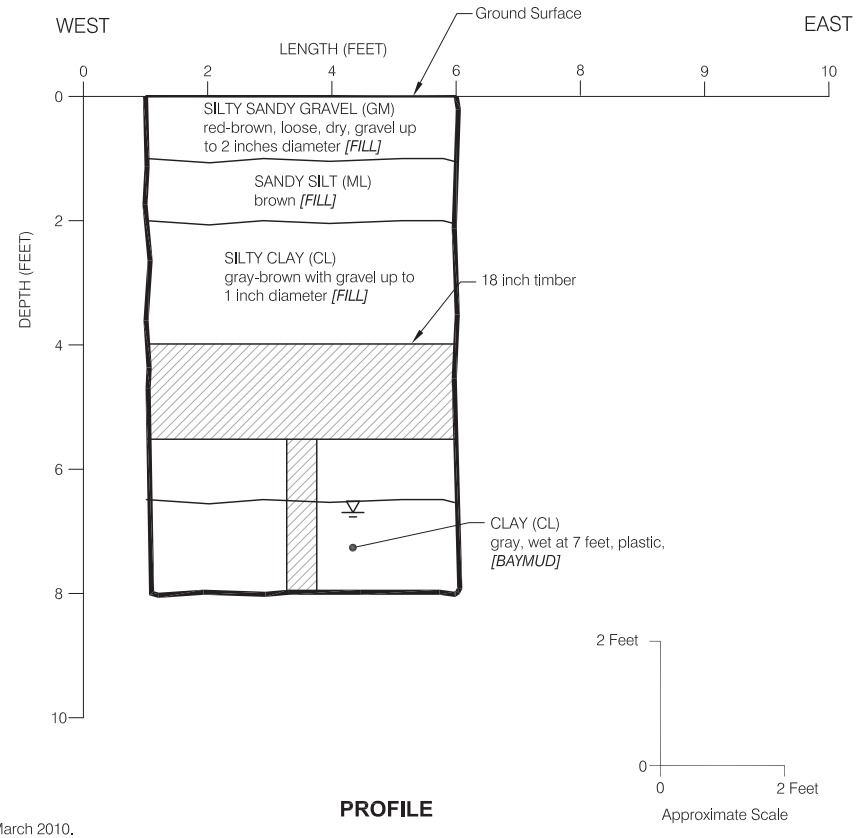
- Soil sample location, OVM (Organic Vapor Meter) reading in parts per million (ppm)\
- Water table

PIER 70 ENVIRONMENTAL SITE INVESTIGATION San Francisco, California		
LOG OF TEST PIT CCTP-3		
Date 04/01/10	Project No. 4963.01	Figure A-99
Treadwell&Rollo		

R:\Trgraphics\4900's\4963.01\4963.01 Test Pits.dwg 1/05/11



PLAN VIEW



PROFILE

Test pit excavated 25 March 2010.

EXPLANATION

Water Table

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

LOG OF TEST PIT
CCTP-4

Date 04/01/10	Project No. 4963.01	Figure A-100

Treadwell&Rollo

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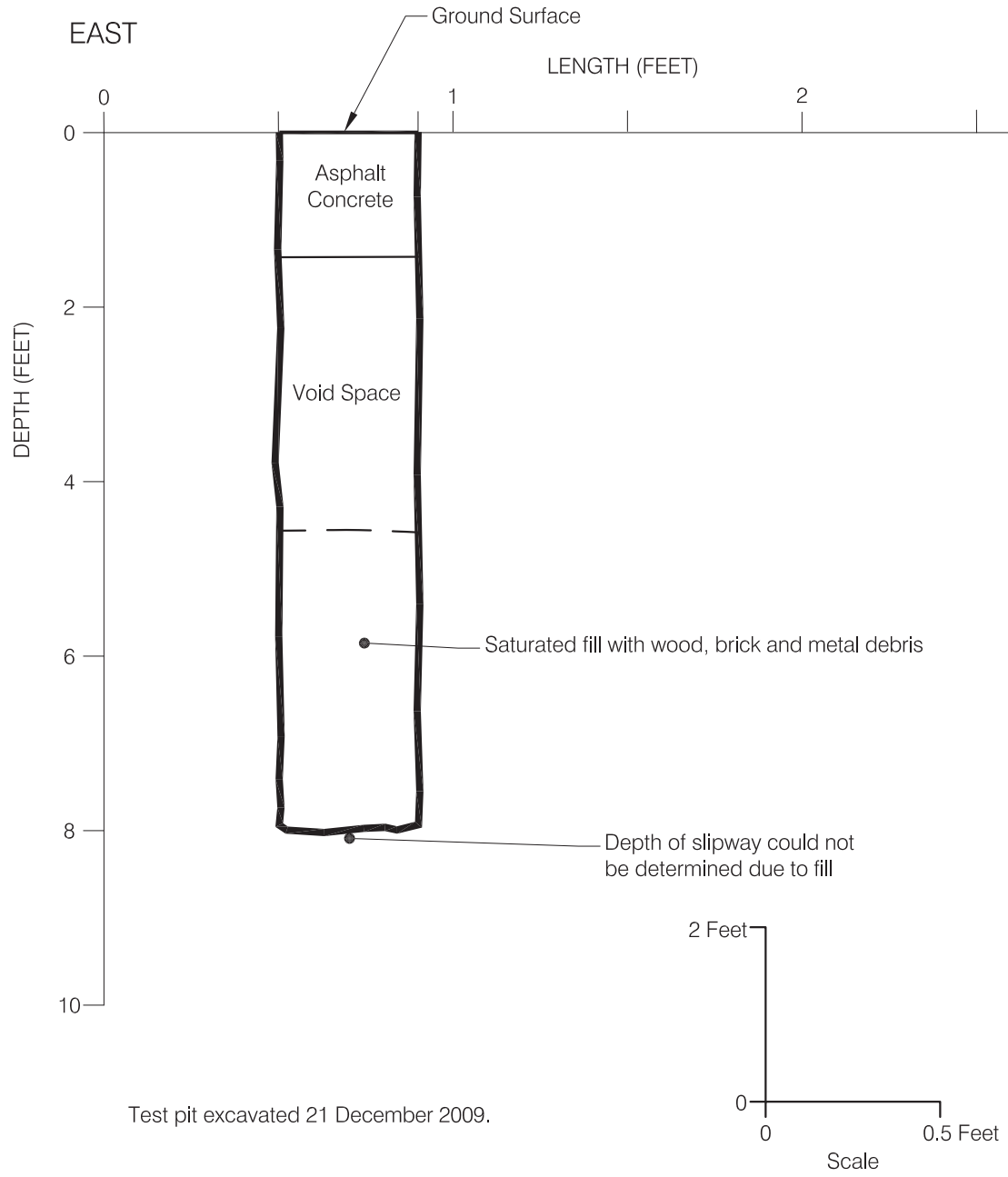


Test pit excavated 21 December 2009.

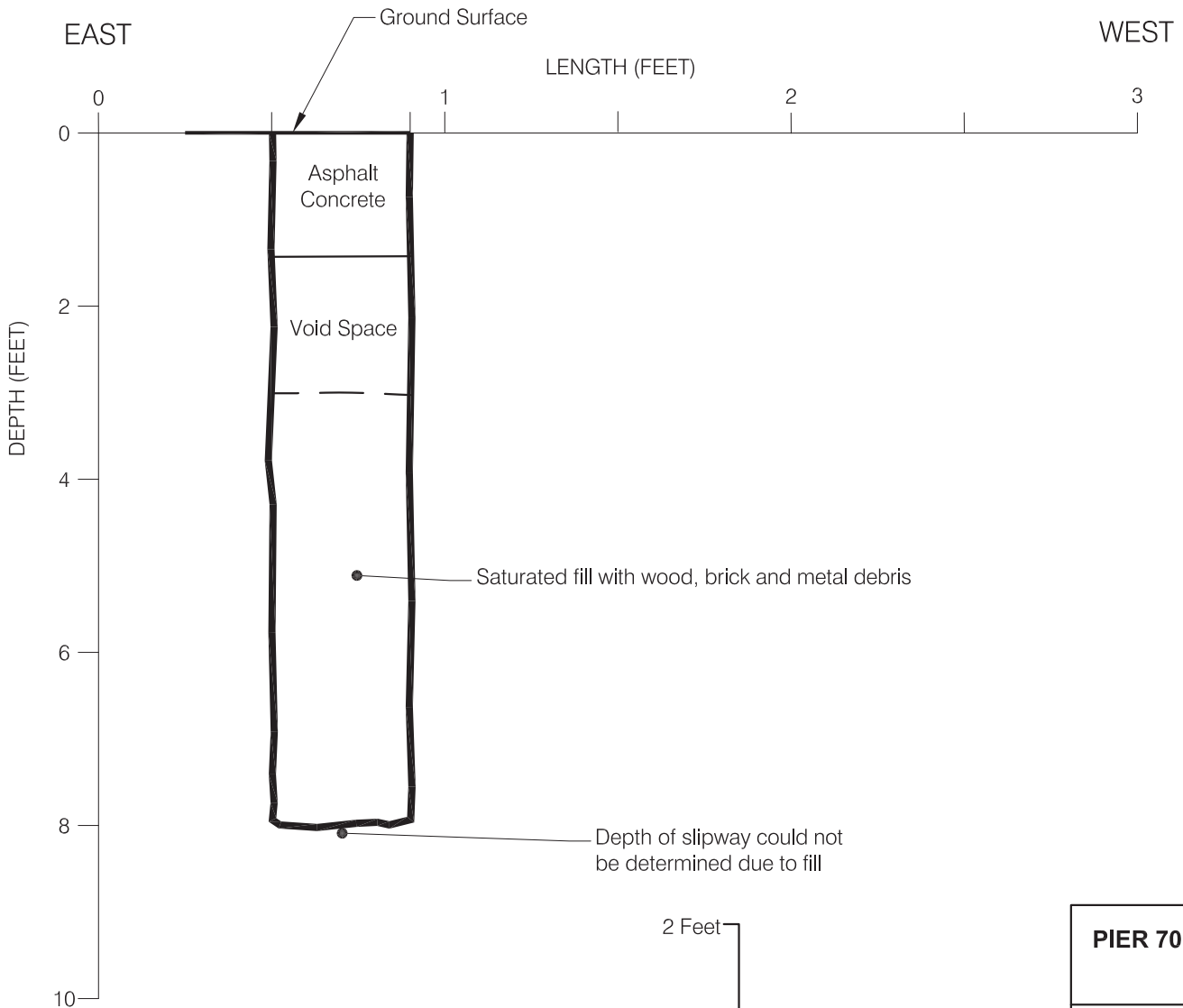
PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Franicisco, California

LOG OF TEST PIT
P6SB-09

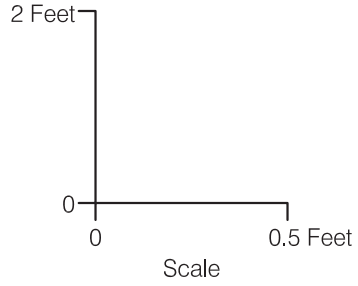
Date 06/08/10	Project No. 4963.01	Figure A-101

Treadwell&Rollo

R:\Trgraphics\4900's\4963.01\4963.01 Test Pits.dwg 1/05/11



Test pit excavated 17 December 2009.



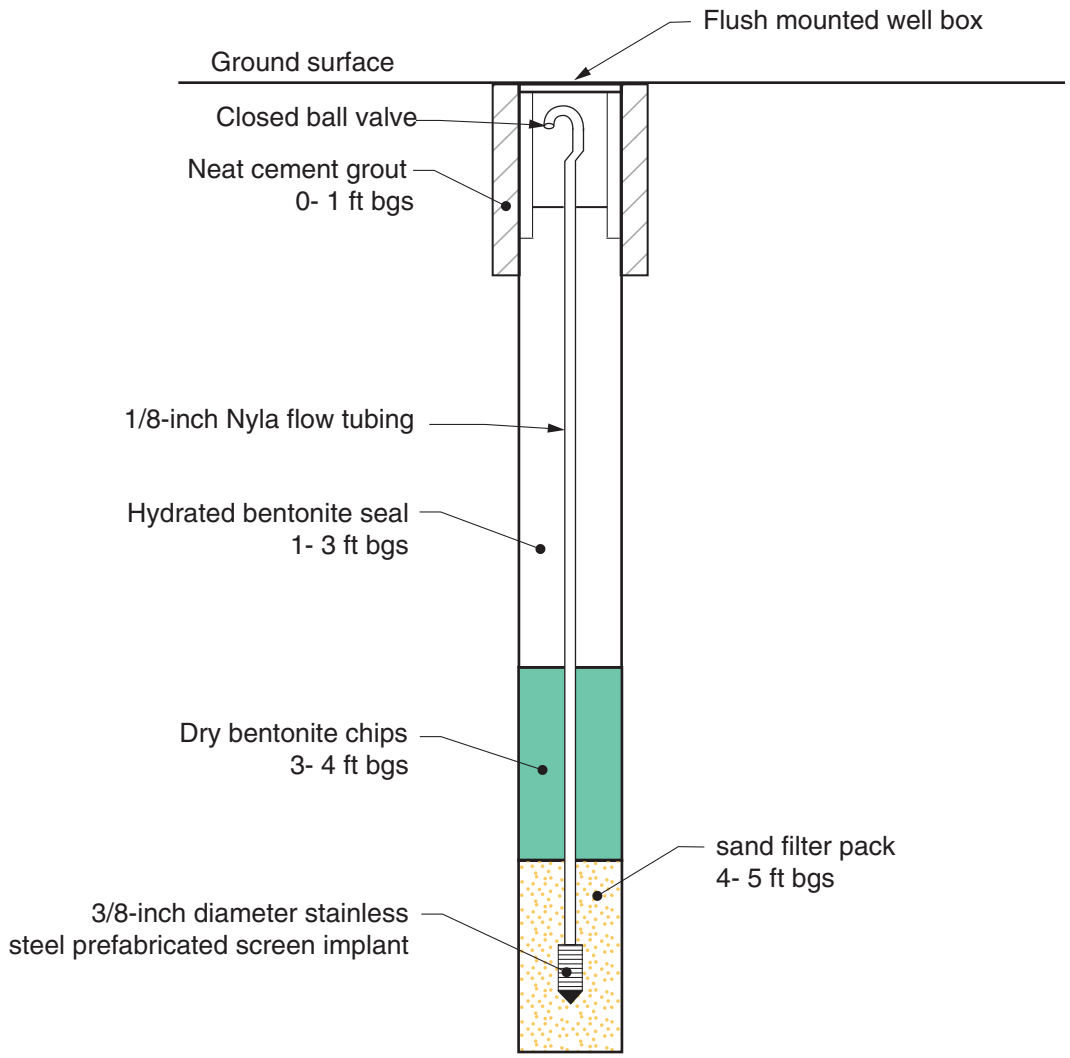
PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Franicisco, California

LOG OF TEST PIT
P6SB-10

Date 06/08/10	Project No. 4963.01	Figure A-102

Treadwell&Rollo

R:\Trgraphics\4900's\4963.01\4963.01 Test Pits.dwg 1/05/11



Not to scale

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

Treadwell&Rollo

SOIL GAS PROBE CONSTRUCTION DETAILS

Date 10/04/10	Project No. 4963.01	Figure A-103

PROJECT: POTRERO POWER PLANT
San Francisco, California

Log of Well No. TMW-28A

BORING LOCATION: N:2,103,941.00; E:6,017,775.49

TOP OF CASING ELEVATION AND DATUM: 10.78' MSL (NAVD 88)

DRILLING CONTRACTOR: Gregg Drilling & Testing, Inc.

DATE STARTED: 10/18/02 | DATE FINISHED: 10/18/02

DRILLING METHOD: Hollow-stem auger

TOTAL DEPTH (ft.): 25.0 | SCREEN INTERVAL (ft.): 15.1-24.0

DRILLING EQUIPMENT: Marl M5T

DEPTH TO WATER: FIRST 7.0 | COMPL. NA | CASING: 2" Sch. 40 PVC

SAMPLING METHOD: Modified California drive sampler [24"x1.5"&18"x1.5"]

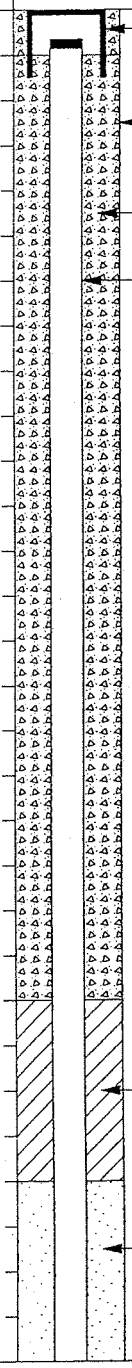
LOGGED BY: S. Mearon

HAMMER WEIGHT: NA | DROP: NA

RESPONSIBLE PROFESSIONAL: J. Carolan | REG. NO. C.HG. 589

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION (NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.)
					Surface Elevation: 11.19' MSL
0				0	ASPHALTIC CONCRETE
1					CLAYEY SAND with GRAVEL (SC): dark gray (2.5Y 4/1), moist, 70% fine to coarse sand, 15% fine to coarse gravel, 15% low plasticity fines [FILL]
2					very dark grayish brown (2.5Y 3/2), trace brick fragments
3				0	CLAYEY SAND (SC): dark grayish brown (2.5Y 4/2), moist, 75% fine to coarse sand, 20% low to medium plasticity fines, 5% fine to coarse gravel, brick fragments, wood debris [FILL]
4				0	
5				0	
6				0	dark yellowish brown (2.5Y 3/4)
7	TMW-28A-7.0			0	wet, 70% fine to coarse sand, 10% fine to coarse gravel
8				0	dark grayish brown (2.5Y 4/2)
9				0	
10				0	olive gray (5Y 4/2)
11				0	
12				0	CLAYEY SAND with GRAVEL (SC): very dark gray (5Y 3/1), wet, 65% fine to coarse sand, 20% fine to coarse gravel, 15% medium plasticity fines, trace brick fragments [FILL]
13				0	
14					wood debris
15				0	

WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS



* * 0 to 5 feet logged from hand auger cuttings. Hand augered to clear for utilities.

* OVM = Thermo Environmental Instruments 580B PID calibrated with 100 ppm isobutylene standard.

PROJECT: POTRERO POWER PLANT
San Francisco, California

Log of Well No. TMW-28A (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
16				0	CLAYEY SAND with GRAVEL (SC): cont'd	2" diameter, 0.010" slot, Schedule 40 PVC screen
17				0		
18				0		8.25" diameter borehole
19				0	olive gray (5Y 4/2)	#2/16 filter pack sand
20				0	trace brick fragments	
21	TMW-28A-21.5				sheen on pore water	
22	TMW-28A-23.0			5.1	LEAN CLAY (CL): bluish black (10B 2.5/1), moist, 95% fines, 5% fine sand, medium plasticity, firm, black, solid tar-like material, odor [FILL]	
23				75.3 64.4 57.6		
24				21.1	CLAYEY SAND (SC): dark gray (5Y 4/1), wet, 65% fine to coarse sand, 30% medium plasticity fines, 5% fine gravel, odor [FILL]	Schedule 40 PVC endcap
25				9.6	LEAN CLAY (CL): dark gray (5Y 4/1), moist, 95% fines, 5% fine to coarse sand, medium plasticity, soft [BAY MUD]	
26					Bottom of boring at 25.0 feet	
27						
28						
29						
30						
31						
32						
33						

Table A 1
Soil Gas Probe Construction Details
Pier 70 Site Investigation
San Francisco, CA

Well ID	Installation Date	Probe Diameter	Screen Diameter	Tubing Diameter	Depth to Bottom of Probe	Depth of Neat Cement Grout	Depth of Hydrated Bentonite Seal	Depth of Dry Bentonite Seal	Depth of Sand Filter Pack	Depth to Top of Soil Vapor Screen Implant	Depth to Bottom of Soil Vapor Screen Implant
		inches	inches	inches	feet bgs	feet bgs	feet bgs	feet bgs	feet bgs	feet bgs	feet bgs
P6SGP-01		1.5	0.375	0.125	5.5	0 - 1	1 - 3.5	3.5 - 4.5	4.5 - 5.5	4.875	5.0
P6SGP-02		1.5	0.375	0.125	5.5	0 - 1	1 - 3.5	3.5 - 4.5	4.5 - 5.5	4.875	5.0
SPSGP-01		1.5	0.375	0.125	5.5	0 - 1	1 - 3.5	3.5 - 4.5	4.5 - 5.5	4.875	5.0
SPSGP-02		1.5	0.375	0.125	5.5	0 - 1	1 - 3.5	3.5 - 4.5	4.5 - 5.5	4.875	5.0
SPSGP-03		1.5	0.375	0.125	5.5	0 - 1	1 - 3.5	3.5 - 4.5	4.5 - 5.5	4.875	5.0
SPSGP-04		1.5	0.375	0.125	5.5	0 - 1	1 - 3.5	3.5 - 4.5	4.5 - 5.5	4.875	5.0

Notes
feet bgs - feet below ground surface

Treadwell&Rollo
A LANGAN COMPANY

APPENDIX B

Historical Results

Table B-1
Summary of Previous Soil Results Exceeding TPH, VOC, PAH and SVOCs ESLs
Pier 70 Soil Environmental Site Investigation
San Francisco, California

				Compound Type	TPH		VOCs		PAHs/SVOCs																
				Chemical Name	TPHd	TPHmo	Acetone	Benzene	2-Methylnaph-thalene	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo (a)-anthracene	Benzo (a)-pyrene	Benzo (b)-fluoran-thene	Benzo (g,h,i)-perylene	Benzo (k)-fluoran-thene	Chrysene	Dibenzo (a,h)-anthracene	Fluoran-thene	Fluorene	Indeno-(1,2,3-cd)-pyrene	Naph-thalene	Phenan-threne	Pyrene
				Residential ESL	100	370	0.5	0.12	0.25	19	13	2.8	0.38	0.038	0.38	27	0.38	23	0.062	40	8.9	0.62	1.3	11	85
				Commercial ESL	180	2,500	0.5	0.27	0.25	19	13	2.8	1.3	0.13	1.3	27	1.3	23	0.21	40	8.9	2.1	2.8	11	85
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parcel	Location ID	Sample Date	Start Depth	End Depth																					
1	G-25-EE2000	07/06/00	0	0.5									0.6 J	**0.64 J**	.63 J							0.71 J			
	G-26-EE2000	07/06/00	0	0.5										0.11											
	G-27-EE2000	07/06/00	0	0.5			**2.2 J**							0.083	1										
2	G-01-EE2000	07/06/00	0	0.5										**0.29 J**	0.43 J										
		08/25/00	0	0.5		380								**0.29**	0.43										
		08/25/00	2	2.5		870								0.11											
		08/25/00	5	5.5										0.066											
	G-02-EE2000	07/06/00	0	0.5									1.1	**1.8**	**2.3**		1.1		0.16 J			**2.3**			
		08/25/00	0	0.5		750							1.1	**1.8**	**2.3**				0.16			**2.3**			
		08/25/00	2	2.5									0.68	**0.98**	0.98							0.78			
		08/25/00	5	5.5									0.74	**1**	0.89							0.89			
		08/25/00	7.5	8										**0.2**											
		08/25/00	9	9.5										**0.41**	0.42				0.11						
		08/25/00	11.5	12									0.59	**1.2**	**1.6**							0.73			
	G-31-EE2000	07/06/00	0	0.5										0.087											
	G-32-EE2000	07/06/00	0	0.5									**1.6 J**	**2.8 J**	**2.3 J**		**1.5 J**		0.14 J			**2.7 J**			
	G-34-EE2000	07/06/00	0	0.5									0.39	**0.77**	0.96							0.98			
	G-35-EE2000	07/06/00	0	0.5									0.43	**1.4**	**1.6**		0.67		0.21 J			**2.9 E**			
	G-36-EE2000	07/06/00	0	0.5										**.78 J**	1.1 J		0.48		0.067 J			0.87 J			
	G-37-EE2004	07/08/03	0	0.5		1,800								**.27 J**					**1.2 J**						
	G-38-EE2000	07/06/00	0	0.5										**0.23**	0.76										
	G-38-EE2004	07/08/03	0	0.5		**6,200**								0.1 J					**1.5 J**						
	G-39-EE2000	07/06/00	0	0.5			**1.1**						**2.2**	**3.3**	**4.5**		**2.7**		**0.29 J**			**2.5**		**25**	
	G-39-EE2004	07/08/03	0	0.5		**2,700**							1.3 J	**1.4 J**	**1.6 J**		.63 J		**4.1 J**			1.3 J			
	G-40-EE2000	07/06/00	0	0.5								**3.9**	**19**	**35**	**27**	**38**	**14**	**30**	**1.8 J**	**58**		**44**		**32**	
	G-40-EE2004	07/08/03	0	0.5		890								**0.29 J**					**0.72 J**						
3	G-44-EE2000	07/06/00	0	0.5										**0.36 J**											
	G-45-EE2000	07/06/00	0	0.5										0.11											
	G-46-EE2000	07/06/00	0	0.5				**0.53**						**0.39 J**											
	SB-01-TT	03/25/99	1	5									**3.2**	**8.8**	**7.2**				**2.8**			**5.6**			
4	B-01-TT	09/16/97	unknown	8.5	**2,600**	**2,700**																			
9	B-05-ERM	01/24/90	9.5	10	**790**																				
Crane Cove Park	G-10-EE2000	07/06/00	0	0.5									.5 J	**0.94**	1 J		0.39 J					0.92			
	G-33-EE2004	07/08/03	0	0.5										0.11 J					**0.55 J**						
	G-34-EE2004	07/08/03	0	0.5									**1.6 J**	**0.98 J**	1.3 J		0.59 J		**1.9 J**			0.65 J			
	G-35-EE2004	07/08/03	0	0.5		**7,500**								0.086 J					**1.7 J**						
	G-36-EE2004	07/08/03	0	0.5		**6,300**								**0.31 J**					**0.46 J**						
	B-01-EE2000	07/31/00	0	0.5										**0.44 J**	0.69 J				0.076 J						
	B-02-EE2000	07/31/00	0	0.5										**0.16**											
	B-03-EE2000	07/31/00	0	0.5										**0.32**											
	B-04-EE2000	07/31/00	0	0.5										**0.27**											
	B-06-EE2000	07/31/00	0	0.5										**0.3**	0.51										
	G-03-EE2000	07/06/00	0	0.5										**0.64**	0.63							0.66 J			
		08/25/00	0	0.5		420								**0.64**	0.63							0.66			
		08/25/00	2	2.5									0.69	**0.81**	0.84				0.074			0.77			
		08/25/00	5	5.5										**0.29**											
		08/25/00	7.5	8									0.85	**0.89**	0.94							0.66			
		08/25/00	9	9.5										**0.27**											
		08/25/00	11.5	12										**0.16**											
	G-04-EE2000	07/06/00	0	0.5									0.83	**1.7**	1.3		0.88		0.13 J			1.5			
	G-05-EE2000	07/06/00	0	0.5										**0.21**											
	G-06-EE2000	07/06/00	0	0.5									**1.9**	**2.5**	**2.7**		**1.5**					**2.6**			
	G-07-EE2000	07/06/00	0	0.5									.47 J	**0.93 J**	0.87 J		0.39 J					0.99 J			

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Summary of Previous Soil Results Exceeding TPH, VOC, PAH and SVOCs ESLs
Pier 70 Soil Environmental Site Investigation
San Francisco, California

				Compound Type	TPH		VOCs		PAHs/SVOCs																
				Chemical Name	TPHd	TPHmo	Acetone	Benzene	2-Methylnaph-thalene	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo (a)-anthracene	Benzo (a)-pyrene	Benzo (b)-fluoran-thene	Benzo (g,h,i)-perylene	Benzo (k)-fluoran-thene	Chrysene	Dibenzo (a,h)-anthracene	Fluoran-thene	Fluorene	Indeno-(1,2,3-cd)-pyrene	Naph-thalene	Phenan-threne	Pyrene
				Residential ESL	100	370	0.5	0.12	0.25	19	13	2.8	0.38	0.038	0.38	27	0.38	23	0.062	40	8.9	0.62	1.3	11	85
				Commercial ESL	180	2,500	0.5	0.27	0.25	19	13	2.8	1.3	0.13	1.3	27	1.3	23	0.21	40	8.9	2.1	2.8	11	85
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parcel	Location ID	Sample Date	Start Depth	End Depth																					
Crane Cove Park (Continued)	G-08-EE2000	07/06/00	0	0.5											0.76 J						0.85 J			
	G-09-EE2000	07/06/00	0	0.5										**0.5 J**	0.57 J						0.64 J			
	G-11-EE2000	07/06/00	0	0.5										**0.32 J**	0.43 J									
	G-12-EE2000	07/06/00	0	0.5										**0.51 J**	0.6 J									
	G-19-EE2000	07/06/00	0	0.5										0.1										
	G-20-EE2000	07/06/00	0	0.5										**1.8**	**2**		1.2		0.15 J			1.8			
	G-23-EE2000	07/06/00	0	0.5										**0.56 J**	0.41 J									
	G-24-EE2000	07/06/00	0	0.5										**0.23**										
	G-28-EE2000	07/06/00	0	0.5										0.049 J										
	G-30-EE2000	07/06/00	0	0.5			**0.99 E**						**3.1**	**4.6**	**4.4**		**2.8**		**0.35 J**			**2.9**			
	G-33-EE2000	07/06/00	0	0.5									0.41	**0.77**	0.78							0.65			
	SB-NW-01	10/18/04	9.5	10		950																			
	TP-04	04/19/07	unknown	1		2,070																			
Slipway Park	B-02-GR	01/23/89	4.5	6								**4.72**	**18.2**	**46.7**	**19**		**31**		**2.13**	**53.5**		**19.3**		**11.6**	
		01/23/89	10	11.5								**4.58**	**4.58**	**10.3**	**5.31**		**6.02**					**2.84**	**3.7**		
		01/23/89	15.5	16.5					**2,500**		**1,630**	**2,210**	**1,360**	**1,990**	**934**	**564**	**977**	**1,180**	**123**	**3,100**	**1,770**	**548**	**1,170**	**5,820**	**4,080**
	GB-31	08/03/06	15.8	16.3	**9,300**	**11,000**			**33**	**60**	**320**	**280**	**310**	**480**	**470**	**240**	**160**	**420**	**23**	**1,900**	**150**	**250**	**430**	**2,500**	**2,900**
	GW-04	01/20/89	3	3.5									**2.02**	**1.83**	**1.34**		**1.74**								
		01/20/89	6	6.5									**1.41**	**1.32**	1.08		1.15								

Notes:
All results are reported in microgram per kilogram (mg/kg).
ESL - Environmental Screening Levels taken from San Francisco Bay Regional Water Quality Control Board, California Environmental Protection Agency Screening for environmental concerns at Sites with contamination in soil and groundwater Table B - Groundwater and Soil for Residential and Commerical Land Use.
bold - indicates that the results exceeds residential and commerical ESLs.
J - indicates an estimated value
TPHd - Total Petroleum Hydrocarbons as Diesel Range (C10-C24), EPA Method 8015M
TPHmo - Total Petroleum Hydrocarbons as Motor Oil (C24-C36), EPA Method 8015M
PAHs - polycyclic aromatic hydrocarbons
VOCs - Volatile Organic Compounds, EPA 8260B
SVOCs - Semi volatile organic compounds, EPA Method 8270

Table B-2
Summary Previous of Soil Results Exceeding Metals and PCB ESLs
Pier 70 Environmental Site Investigation
San Francisco, California

				Compound Type	Metals														PCBs*	
				Chemical Name	Antimony	Arsenic	Barium	Cadmium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Aroclor 1254	Aroclor 1260
				Residential ESL	6.3	0.39	750	1.7	40	230	200	1.3	40	150	10	20	1.3	16	600	0.22	0.22
				Commercial ESL	40	1.6	1,500	7.4	80	230	750	10	40	150	10	40	16	200	600	0.74	0.74
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parcel	Location ID	Sample Date	Start Depth	End Depth																	
Parcel 1	G-25-EE2000	07/06/00	0	0.5		**2**												25.1			
	G-26-EE2000	07/06/00	0	0.5										**187 J**	**15.9 J**			25.4			
	G-27-EE2000	07/06/00	0	0.5														29.7			
	Dup	07/06/00	0	0.5														26.6			
Parcel 2	B-01-ERM	01/24/90	3.5	4						**350**				**500**							
		01/24/90	6.5	7										**1,000**							
		01/24/90	9.5	10										**650**							
	G-01-EE2000	07/06/00	0	0.5					**93**							**47**					
		08/25/00	2	2.5		**7.53**					**1,340**										
		08/25/00	5	5.5		1.52					454										
		08/25/00	7.5	8																	
		08/25/00	9	9.5		0.452															
		08/25/00	11.5	12																	
	G-02-EE2000	07/06/00	0	0.5	14.1	**43.6**	929			**1,880**	**887 J**	4.1		**194 J**	**61.6 J**			36.4	**2,560**		
		08/25/00	2	2.5		**14**					672										
		08/25/00	5	5.5		**151**					**2,780**										
		08/25/00	7.5	8		**54.9**					**1,650**										
		08/25/00	9	9.5		**28.1**					**871**										
		08/25/00	11.5	12		**9.9**															
	G-31-EE2000	07/06/00	0	0.5		**2**				**328**	217 J			**447 J**	**32.5**			34.4			
	G-32-EE2000	07/06/00	0	0.5		**10**				**588**	**778**	2.3		**369**	**68.8**			46.5	**949**		
	G-34-EE2000	07/06/00	0	0.5	23.9	**28.6**				**530**	615	9.7		**498**	**62.7**			39.9	**1,900**		
	G-35-EE2000	07/06/00	0	0.5		**57.4**				**1,890**	**1,320**	**86.8**		**253**	**33.1**			49.5	**2,370**		
	G-36-EE2000	07/06/00	0	0.5	10.2	**25.4**				**3,580**	423			**217**	**78.1**			**376**	**1,850**		
	Dup	07/06/00	0	0.5	6.6	**29.7**			40.7	**2,870**	532			**397**	**90.9**			**388**	**2,260**		
	G-37-EE2000	07/06/00	0	0.5											**10.3**						
	G-37-EE2004	07/08/03	0	0.5		**3.2**											2.5	62.9			
	G-38-EE2000	07/06/00	0	0.5	29.8	**16**				**1,000**	**1,230**			**382**	**75.5**			52.2	**901**		
	G-38-EE2004	07/08/03	0	0.5	9.9 J	**21.3**		2.9 J		**438**	246 J			**177**			3.8	52.8			
	G-39-EE2000	07/06/00	0	0.5	10.9 J	**53.1**		5.4 J		**2,630**	**1,050**	1.7		**194 J**	**39 J**			66.2 J	**2,680**		
	G-39-EE2004	07/08/03	0	0.5		**4.2**				**393**							2.2	40.3			
	G-40-EE2000	07/06/00	0	0.5		**8.6**				**599**	**1,180 J**	2.4		**158 J**	**47.8**	**72.1**		60.1			
	G-40-EE2004	07/08/03	0	0.5	6.8 J	**9.3**		2.7 J									2.9	55.7			
	Dup	07/08/03	0	0.5		**7.5**		2.2 J									2.9	55.3			
	G-41-EE2000	07/06/00	0	0.5					**112 J**					**735 J**	**35.5**			31.8			
Parcel 3	G-43-EE2000	07/06/00	0	0.5		**5.1**									**13.3**			42.1			
	G-44-EE2000	07/06/00	0	0.5	7.7				49.8		317			**977**				30.4			
	Dup	07/06/00	0	0.5					42.3		286			**878**				27.3			
	G-45-EE2000	07/06/00	0	0.5					49					**881**	**14**			32.8			
	G-46-EE2000	07/06/00	0	0.5		**6.1 J**			**112 J**	**382**	281 J			**592**	**14.6 J**			31.5			
	SB-01-TT	03/25/99	1	5						**660**	250	1.5		**280**				27			
	SB-02-TT	03/25/99	1	2														24			
	SB-03-TT	03/25/99	0.5	3					67					**1,300**				**710**			
	SB-04-TT	03/25/99	1	2					72					**1,600**				29			
	SB-05-TT	03/25/99	0.5	2					41					**850**				30			
	SB-06-TT	03/25/99	1	2		**3.8**			46	**660**				**620**				61			

Table B-2
Summary Previous of Soil Results Exceeding Metals and PCB ESLs
Pier 70 Environmental Site Investigation
San Francisco, California

				Compound Type	Metals															PCBs*	
				Chemical Name	Antimony	Arsenic	Barium	Cadmium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Aroclor 1254	Aroclor 1260
				Residential ESL	6.3	0.39	750	1.7	40	230	200	1.3	40	150	10	20	1.3	16	600	0.22	0.22
				Commercial ESL	40	1.6	1,500	7.4	80	230	750	10	40	150	10	40	16	200	600	0.74	0.74
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parcel	Location ID	Sample Date	Start Depth	End Depth																	
Parcel 3	SB-07-TT	03/25/99	0.5	2	27	**3.1**					330			**320**				46			
	SB-08-TT	03/25/99	1	2														55			
	SB-09-TT	03/25/99	0.5	2		**2.8**		2.4		**270**	**2,300**			**480**				48	**850**		
	SB-10-TT	03/25/99	1	2		**3.4**												37			
	SB-11-TT	03/25/99	0.5	2							**2,200**			**590**				33			
	SB-12-TT	03/25/99	1	2					49					**1,100**				28			
	SB-13-TT	03/25/99	0.5	2					72					**1,600**				22			
	SB-14-TT	03/25/99	0.5	2					80					**1,800**				37			
Parcel 4	G-47-EE2000	07/31/00	0	0.5		**448**				**282**	231			**191**	**27.9**			39.9			
	G-48-EE2000	07/31/00	0	0.5		**461**								**401**	**32.2**			44.4			
	Dup	07/31/00	0	0.5		**310**				**236**				**233**	**20.7**			35.8			
Parcel 6	B-01-GR	01/23/89	2.5	3.5		**63.1**						7.3			**21.8**		**96.6**	98.8			
		01/23/89	4.5	5	**49.5**	**164**		**8.9**	**83.6**	**274**	425	**63.3**		**186**	**25.6**		**70.7**	83.3			
		01/23/89	15	15.5	12.1	**83.9**			47.2			**14.6**		**192**	**42.7**		**95.9**	157			
		01/23/89	20	20.5	10.5	**70.8**			52.2			**12.6**			**31**		**61.7**	68.7			
		01/23/89	30	31.5		**65.4**						7.6			**29.7**		**61.3**	87.7			
		01/23/89	33.5	34		**40.5**						5.6			**18.6**		**38.6**	51.5			
	B-02-ERM	01/24/90	4	4.5		**15**				**260**	370	4.5									
		01/24/90	6.5	7		**8.1**				**360**	260										
		01/24/90	9.5	10		**16**				**360**	340			**160**							
	B-03-ERM	01/24/90	3.5	4		**10**				**940**	**1,800**								**1,200**		
		01/24/90	6.5	7		**47**				**3400**	**1,000**			**220**					**1,100**		
		01/24/90	9.5	10		**7**				**260**	**2,100**										
	B-03-GR	01/23/89	3	3.7	10.5	**14.9**						3.2					**18.8**	17.2	**664**		
	B-06-GR	01/24/89	5	6.5	10.1	**50.2**		2.3				**18.9**			**103**		**203**	30.5			
	Dup	01/24/89	5	6.5		**56.8**					**936**	2.6			**23.7**		**22.6**	56.8	**853**		
		01/24/89	11	11.5		**40.6**						**13.5**			**69.9**		**124**	33.7			
		01/24/89	15	15.5		**35.9**					316	8.1			**44.5**		**71.5**	36.9			
	GW-01	01/24/89	5.5	6.5		**11.2**						1.5						14.1			
		01/24/89	15	16	7.5	**42.2**					386	7			**34.5**		**47**	26.5			
Parcel 9	B-04-GR	01/23/89	5	6.5	9.1	**62.8**				**377**		**14.4**			**73.6**		**221**	38.5			
	Dup	01/23/89	5	6.5		**63.2**				**397**					**17.4**		**70.7**	46.5			
		01/23/89	11	11.5	14	**72.6**		2			231	**16.6**			**82.3**		**241**	45.7			
	B-05-GR	01/24/89	5	6.5		**24.5**					205	5.3			**43**		**83.7**		**1,020**		
	Dup	01/24/89	5	6.5		**69.8**					329	8.6			**42.1**		**57.2**	67.2			
		01/24/89	10	11.5		**42.4**						5			**19.1**		**31.7**	40.7			
	Dup	01/24/89	10	11.5		**50.9**						6.3			**24.6**		**40.1**	49.5			
		01/24/89	14.5	15		**42.1**						5.6			**21.3**		**34.5**	47.6			
	Dup	01/24/89	14.5	15		**62.9**						6.4			**27.5**		**42.8**	64.6			
		01/24/89	20	20.5		**56.9**						5.9			**25.3**		**40**	57.2			
	G-10-EE2000	07/06/00	0	0.5	7.6	**21.1**				**2,680**					**54.2 J**			67.3	**1,240**		
	G-33-EE2004	07/08/03	0	0.5		**5.5**		2.4 J			210 J						3.2	53.7			
	G-34-EE2004	07/08/03	0	0.5	10.8 J	**7.6**		4.3 J		**326**	**1,510 J**	6.3		**252**			3.8	41	**1,110**		
	G-35-EE2004	07/08/03	0	0.5		**4.8**											2.6	43.4			
	G-36-EE2004	07/08/03	0	0.5	21.2 J	**18**		6.2 J		**344**	**4,810 J**	5.5		**170**			6.3	43.6	**633**		

Table B-2
Summary Previous of Soil Results Exceeding Metals and PCB ESLs
Pier 70 Environmental Site Investigation
San Francisco, California

				Compound Type	Metals														PCBs*	
				Chemical Name	Antimony	Arsenic	Barium	Cadmium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Aroclor 1254	Aroclor 1260
				Residential ESL	6.3	0.39	750	1.7	40	230	200	1.3	40	150	10	20	1.3	16	600	0.22	0.22
				Commercial ESL	40	1.6	1,500	7.4	80	230	750	10	40	150	10	40	16	200	600	0.74	0.74
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parcel	Location ID	Sample Date	Start Depth	End Depth																	
Central Plaza Park	G-49-EE2000	07/31/00	0	0.5		**3.9**												27.7			
Crane Cove Park	B-01-EE2000	07/31/00	0	0.5		**1.8**			45.8		**778**	1.93		**757**	**20.9**			32.2	**810**		
	B-02-EE2000	07/31/00	0	0.5		**25.2**			48.4	**2,090**					**42.8**			77.2	**1,270**		
	B-03-EE2000	07/31/00	0	0.5		**29.3**				**1,060**				**273**	**23.7**			32.2	**869**		
	Dup	07/31/00	0	0.5		**17.2**				**798**	208			**239**	**19.6**			24.6			
	B-04-EE2000	07/31/00	0	0.5		**34.6**				**352**				**184**				34.7			
	B-05-EE2000	07/31/00	0	0.5		**41.3**				**654**	303				**19.4**						
	B-06-EE2000	07/31/00	0	0.5		**18.8**			49.9	**1,760**	529				**36.5**			73.1	**2,300**		
	G-03-EE2000	07/06/00	0	0.5		**27**				**1,940**	240 J				**53 J**			46.9	**1,120**		
		08/25/00	2	2.5		**38.9**					**811**										
		08/25/00	5	5.5		**12.2**					**957**										
		08/25/00	7.5	8		**11.9**					**1,640**										
		08/25/00	9	9.5		**15.5**					650										
		08/25/00	11.5	12		**2.07**					246.45										
	G-04-EE2000	07/06/00	0	0.5		**6**		1.8		**1,600**	478 J	**13.4**			**38.1 J**			30.9	**1,350**		
	G-05-EE2000	07/06/00	0	0.5	6.4	**10.5**				**1,410**	349 J				**65.9 J**			80.3	**1,500**		
	G-06-EE2000	07/06/00	0	0.5		**7.1**				**529**											
	G-07-EE2000	07/06/00	0	0.5	11.5	**38.2**				**2,100**	277 J			**238 J**	**58.5 J**			54.3	**1,250**		
	G-08-EE2000	07/06/00	0	0.5	6.7	**24.6**				**3,470**	295 J	5.3		**153 J**	**54.2 J**			73.2	**1,880**		
	G-09-EE2000	07/06/00	0	0.5	14.5	**107**			46.4 J	**2,410**	380 J			**164 J**	**74.1 J**			32.1	**2,000**		
	G-11-EE2000	07/06/00	0	0.5	8.3					**6,670**	361 J			**369 J**	**112 J**			53.6	**2,960**		
	Dup	07/06/00	0	0.5	7.4					**4,320**	391 J			**378 J**	**87.6 J**			68	**2,690**		
	G-12-EE2000	07/06/00	0	0.5	9.3	**24.1**				**2,050**	237 J			**324 J**	**51.1 J**			45.8	**1,340**		
	G-13-EE2000	07/06/00	0	0.5	7.1 J	**19**				**1,290**					**26.1**			70 J	**625**		
	G-15-EE2000	07/06/00	0	0.5		**54.5**				**930**					**12.5**						
	G-17-EE2000	07/06/00	0	0.5		**23.7**				**398**											
	Dup	07/06/00	0	0.5		**44**				**811**					**15.7**						
	G-18-EE2000	07/06/00	0	0.5		**6.1**				**282**				**309**				19.4			
	G-19-EE2000	07/06/00	0	0.5		**2.2**															
	G-20-EE2000	07/06/00	0	0.5		**3.9 J**				**791 J**								19.3 J			
	G-22-EE2000	07/06/00	0	0.5					**271**							**59.2**		20			
	G-23-EE2000	07/06/00	0	0.5				1.8			401 J			**270 J**	**39.9 J**			49.8	**942**		
	G-24-EE2000	07/06/00	0	0.5		**3.4**					205 J				**16.7 J**			41.5			
	Dup	07/06/00	0	0.5		**2.1**		1.9							**13.6 J**			37.5			
	G-28-EE2000	07/06/00	0	0.5		**3.3 J**									**10.4 J**			35.6			
	G-29-EE2000	07/06/00	0	0.5							438 J							24.6			
	G-30-EE2000	07/06/00	0	0.5	6.7	**11.4**		1.9		**394**	**816 J**	2.7		**467 J**	**43.2 J**			28.3	**1,320**		
	G-33-EE2000	07/06/00	0	0.5	10.6	**3.2**	1210			**909**	**1,400**			**200**	**117**			47	**1,660**		
	TP-01	04/19/07	Unknown	1														26			
		04/19/07	Unknown	4	9.6				44					**680**				18			
	TP-02	04/19/07	Unknown	1		**3.4**												31			
		04/19/07	Unknown	4														52		0.312	
	TP-03	04/19/07	Unknown	1		**4.4**															
		04/19/07	Unknown	4.5		**5.4**					**1,700**							24			
	TP-04	04/19/07	Unknown	1		**4**															
		04/19/07	Unknown	4	7.1				49					**930**							

Table B-2
Summary Previous of Soil Results Exceeding Metals and PCB ESLs
Pier 70 Environmental Site Investigation
San Francisco, California

				Compound Type	Metals														PCBs*	
				Chemical Name	Antimony	Arsenic	Barium	Cadmium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Aroclor 1254	Aroclor 1260
				Residential ESL	6.3	0.39	750	1.7	40	230	200	1.3	40	150	10	20	1.3	16	600	0.22	0.22
				Commercial ESL	40	1.6	1,500	7.4	80	230	750	10	40	150	10	40	16	200	600	0.74	0.74
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parcel	Location ID	Sample Date	Start Depth	End Depth																	
Crane Cove Park	TP-05	04/19/07	Unknown	1	7.6	**20**		1.8		**2,700**	**850**	**17**							**1,400**		**2.37**
		04/19/07	Unknown	4		**6.8**				**920**	590	1.6						32	**700**		
	TP-06	04/19/07	Unknown	1	6.8	**8.2**				**570**	260	2.8						18	**980**		**2.62**
		04/19/07	Unknown	4	6.8	**5**				**960**	500	8.6							**630**	0.342	
	TP-07	04/19/07	Unknown	1	16	**19**				**1,200**	210			**170**				85			0.43
		04/19/07	Unknown	4		**9**				**700**	400	3.1									
	TP-08	04/19/07	Unknown	1	7.3	**10**				**780**	260	1.5						38	**760**		**3.81**
		04/19/07	Unknown	3	6.8	**5**				**2,800**	720	4.9						19			0.554
	TP-09	04/19/07	Unknown	1	8.8	**14**				**820**	480	2.4						29	**770**		**3.73**
		04/19/07	Unknown	4		**8.2**				**1,100**	480	4.2							**1,200**	**3.61**	
	TP-10	04/19/07	Unknown	1		**4.4**												68			
		04/19/07	Unknown	4	6.9	**4.1**				**540**	340	2.6						19	**1,200**	**3.58**	
	TP-11	04/19/07	Unknown	1		**6.8**				**370**		2.4						22		**1.5**	
		04/19/07	Unknown	3.5	16	**12**				**870**	310	2.8						24		**1.35**	
	TP-12	04/19/07	Unknown	1		**3.2**												24			
Slipway Park	B-02-GR	01/23/89	4.5	6	10.3	**53.8**					326	10			**31.5**		**70.5**	76.6			
		01/23/89	10	11.5	10.9	**47.8**						**10.4**			**30.4**		**64.2**	55.8			
	Dup	01/23/89	10	11.5		**34.6**						6.6			**24**		**59.9**	45.7			
		01/23/89	15.5	16.5		**32.1**						6.5			**19.2**		**49.7**	39.1			
	GW-02	01/24/89	9	9.5		**46.8**			41.5					**571**	**33.8**		**25.6**	32.6			
		01/24/89	15	16.5		**56.5**						5.9		**189**	**26**		**36.1**	49			
	Dup	01/24/89	15	16.5		**53.5**						6.3		**263**	**24**		**32.5**	43			
		01/24/89	22.5	23		**33.6**			65.6			9.8		**1,090**	**31**		**41.2**	23			
	GW-03	01/20/89	3	4	18.5	**53.7**		1.8				2.1			**10.1**		**20.2**		**700**		
		01/20/89	5	5.5	8.7	**35**						6.1			**14.5**		**31.2**	22.5			
	GW-04	01/20/89	3	3.5	7.2	**29.6**				**323**		9.2			**13**		**28.4**	20			
		01/20/89	6	6.5	8.1	**23**				**633**	304	7.8			**16.2**		**65.5**		**1,220**		

Notes:
All results are reported in microgram per kilogram (mg/kg).
ESL - Environmental Screening Levels taken from San Francisco Bay Regional Water Quality Control Board, California Environmental Protection Agency Screening for environmental concerns at Sites with contamination in soil and groundwater Table B - Groundwater and Soil for Residential and Commerical Land Use.
* - ESLs listed are for total PCBs
PCBs - polychlorinated biphenyls
bold - indicates that the results exceeds residential and commerical ESLs.

Table B-3
Summary of Previous Groundwater Results Exceeding ESLs
Pier 70 Environmental Site Investigation
San Francisco, California

					Metals																TPH			PAHs/SVOCs			
				Chemical Name	Antimony	Arsenic	Barium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Silver	Thallium	Vanadium	Zinc	TPHd	TPHmo	TPHg	Benzo (a)-anth-racene	Naphtha-lene	Phenan-threne	Pyrene
				Groundwater ESL	30	36	1,000	1.6	0.25	180	3	3.1	2.5	0.025	8.2	0.19	4	19	81	210	210	210	0.027	24	4.6	2
				Unit	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Parcel	Location ID	Sample Date	Start Depth	End Depth																							
2	B-04-TT	09/17/97	unknown	10.8																1,100						
	G-01-EE2000	08/25/00	7	9						2,490		473	808	14,200	10,100				2,330							
	G-02-EE2000	08/25/00	7	9		51.8						820	10,000	24,900	446				3,880							
4	B-01-TT	09/16/97	unknown	8.6																41,000		430				
6	GW-01	03/24/89	5	15								70	330				100		130							
	GW-01	03/01/90	5	15		40		400				30	9	1					220							
Crane Cove Park	G-03-EE2000	08/25/00	7	9		41			50.4	608		1,670	1,780	9,820	1,940				8,240							
	GB-03-TR	05/09/07	4.5	8										0.7												
	GB-05-TR	05/08/07	5	10																	342					
Slipway Park	GW-02	03/24/89	4	20								30	100		200			20								
	GW-02	03/01/90	4	20	110			2,370			30	40	220	1	200	10	300	40	380							
	GW-03	03/24/89	2.5	8								280	330		100		300		1,420							
	GW-03	03/01/90	2.5	8	110			2,490				30	190	1	100	10	400	40	550							
	GW-04	03/24/89	2	8.5		100	1,180			200	40	920	1,150		300		500	110	2,190							
	GW-04	03/01/90	2	8.5	140			2,750			40	790	920	8	200	20	300	110	1,710							
	TMW-28A	10/29/02	15	24																1400				140	32	
	TMW-28A	10/14/03	15	24																						6.3
	TMW-28A	02/23/04	15	24																			0.2			11
	TMW-28A	07/28/06	15	24																						6.2 J
	TMW-28A	08/04/06	15	24																						7.4
	TMW-28A	10/29/07	15	24																						6.8
	TMW-28A	11/08/07	15	24																						7.1

Notes:
All results are reported in microgram per liter (µg/L).
ESL - Environmental Screening Levels taken from San Francisco Bay Regional Water Quality Control Board, California Environmental Protection Agency Screening for environmental concerns at Sites with contamination in soil and groundwater Table B - Groundwater and Soil for Residential and Commerical Land Use.
J - indicates an estimated value
Unvalidated data, unable to verify data quality.
TPHd - Total Petroleum Hydrocarbons as Diesel Range (C10-C24), EPA Method 8015M
TPHmo - Total Petroleum Hydrocarbons as Motor Oil (C24-C36), EPA Method 8015M
TPHg - Total Petroleum Hydrocarbons as Gasoline (C7-C12), EPA Method 8015M
PAHs - polycyclic aromatic hydrocarbons EPA Method 8270
VOCs - Volatile organic compounds, EPA 8260B
SVOCs - Semi volatile organic compounds, EPA Method 8310
* Pyrene was anlayzed by both EPA Method 8270 and 8310.

Legend

Sample Results by Matrix

Soil
- Exceeds ESL
- Detected
- Not Detected

Groundwater
- Exceeds ESL
- Detected
- Not Detected

Shoreline
- Existing
- Historical

Surface Feature
- Fence
- Other
- Road Edge
- Building
- Parcel Boundary

Notes:

1. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, http://archive.casil.ucdavis.edu/casil/.
2. Shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip.
3. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
4. Standards used to determine exceedances taken from SF Bay Regional Water Quality Control Board, California EPA, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater (May 2008)*, *Summary Table B* Groundwater and Soil for Residential Land Use. http://www.waterboards.ca.gov/sanfranciscobay/esl.htm.
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 150 300 600
Feet

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

HISTORICAL METALS RESULTS AND ESL EXCEEDANCES

Date 9/9/2010	Project 4963.01	Figure B-1

Treadwell&Rollo

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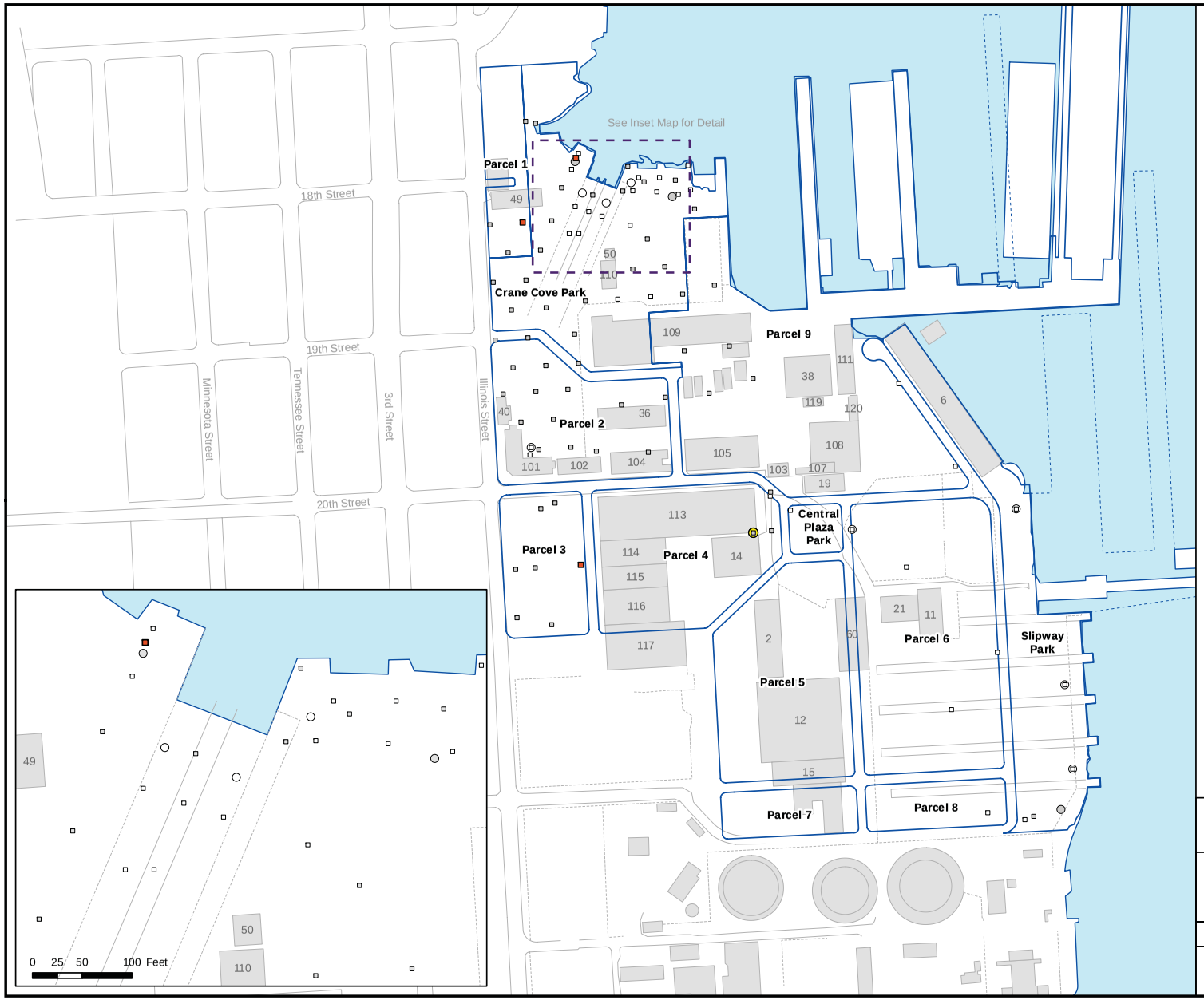

N

Legend

Sample Results by Matrix

Soil
- Exceeds ESL
- Detected
- Not Detected

Groundwater
- Exceeds ESL
- Detected
- Not Detected

Shoreline
- Existing
- Historical

Surface Feature
- Fence
- Other
- Road Edge
- Building
- Parcel Boundary

Notes:

1. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, http://archive.casil.ucdavis.edu/casil/.
2. Shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip.
3. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
4. Standards used to determine exceedances taken from SF Bay Regional Water Quality Control Board, California EPA, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater (May 2008)*, *Summary Table B* Groundwater and Soil for Residential Land Use. http://www.waterboards.ca.gov/sanfranciscobay/esl.htm.
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 150 300 600
Feet

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

HISTORICAL VOC RESULTS AND ESL EXCEEDANCES

Date 9/9/2010	Project 4963.01	Figure B-2

Treadwell&Rollo

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Sample Results by Matrix

Soil
- Exceeds ESL
- Detected
- Not Detected

Groundwater
- Exceeds ESL
- Detected
- Not Detected

Shoreline
- Existing
- Historical

Surface Feature
- Fence
- Other
- Road Edge
- Building
- Parcel Boundary

Notes:

1. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, http://archive.casil.ucdavis.edu/casil/.
2. Shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip.
3. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
4. Standards used to determine exceedances taken from SF Bay Regional Water Quality Control Board, California EPA, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater (May 2008)*, *Summary Table B* Groundwater and Soil for Residential Land Use. http://www.waterboards.ca.gov/sanfranciscobay/esl.htm.
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 150 300 600
Feet

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

HISTORICAL PAH/SVOC RESULTS AND ESL EXCEEDANCES

Date 9/9/2010	Project 4963.01	Figure B-3

Treadwell&Rollo

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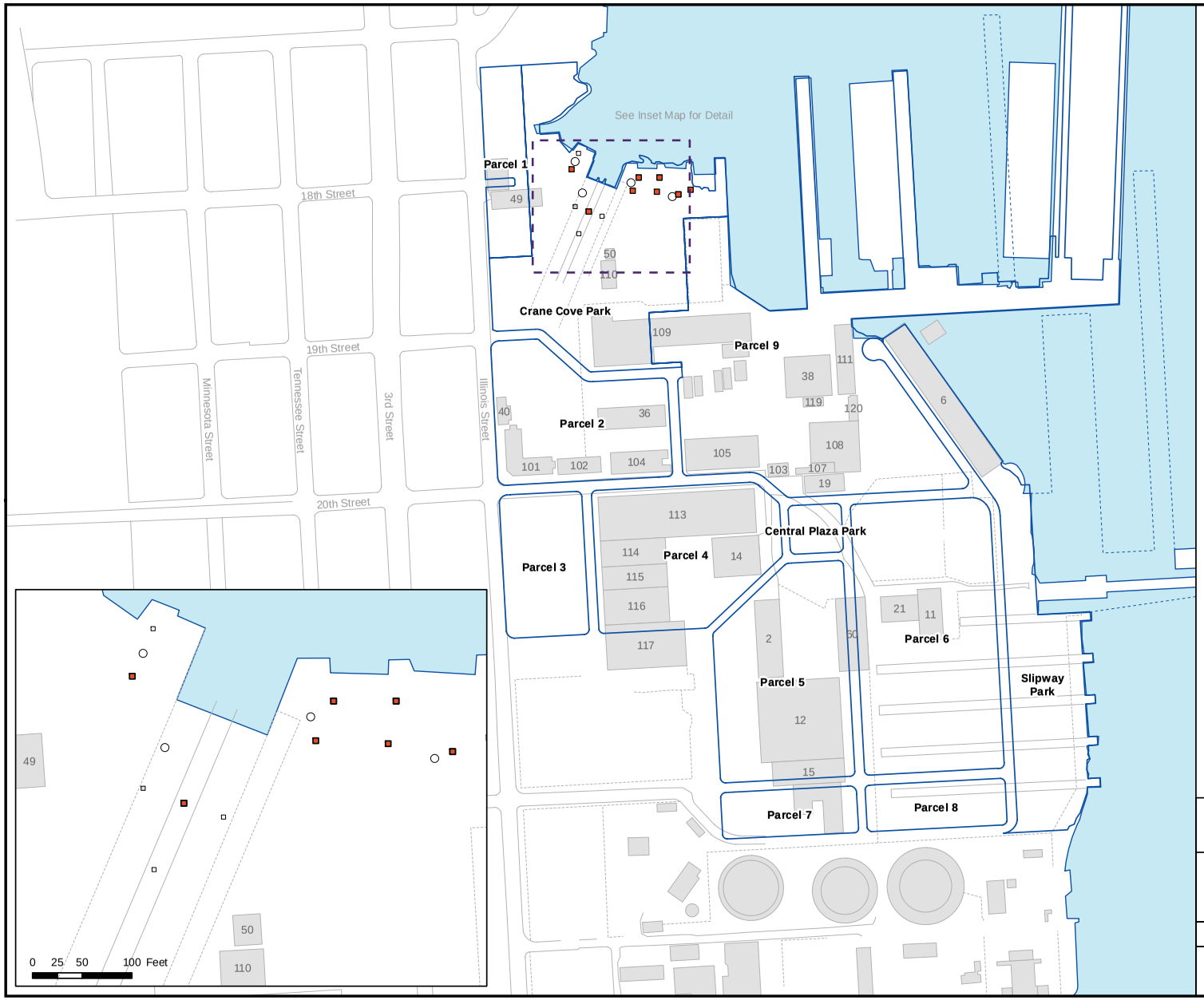

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Legend

Sample Results by Matrix

Soil
- Exceeds ESL
- Detected
- Not Detected

Groundwater
- Exceeds ESL
- Detected
- Not Detected

Shoreline
- Existing
- Historical

Surface Feature
- Fence
- Other
- Road Edge
- Building
- Parcel Boundary

Notes:

1. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, http://archive.casil.ucdavis.edu/casil/.
2. Shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip.
3. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
4. Standards used to determine exceedances taken from SF Bay Regional Water Quality Control Board, California EPA, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater (May 2008)*, *Summary Table B* Groundwater and Soil for Residential Land Use. http://www.waterboards.ca.gov/sanfranciscobay/esl.htm.
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 150 300 600
Feet

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

HISTORICAL PCB/PESTICIDE RESULTS AND ESL EXCEEDANCES

Date 5/27/2010	Project 4963.01	Figure B-4

Treadwell&Rollo

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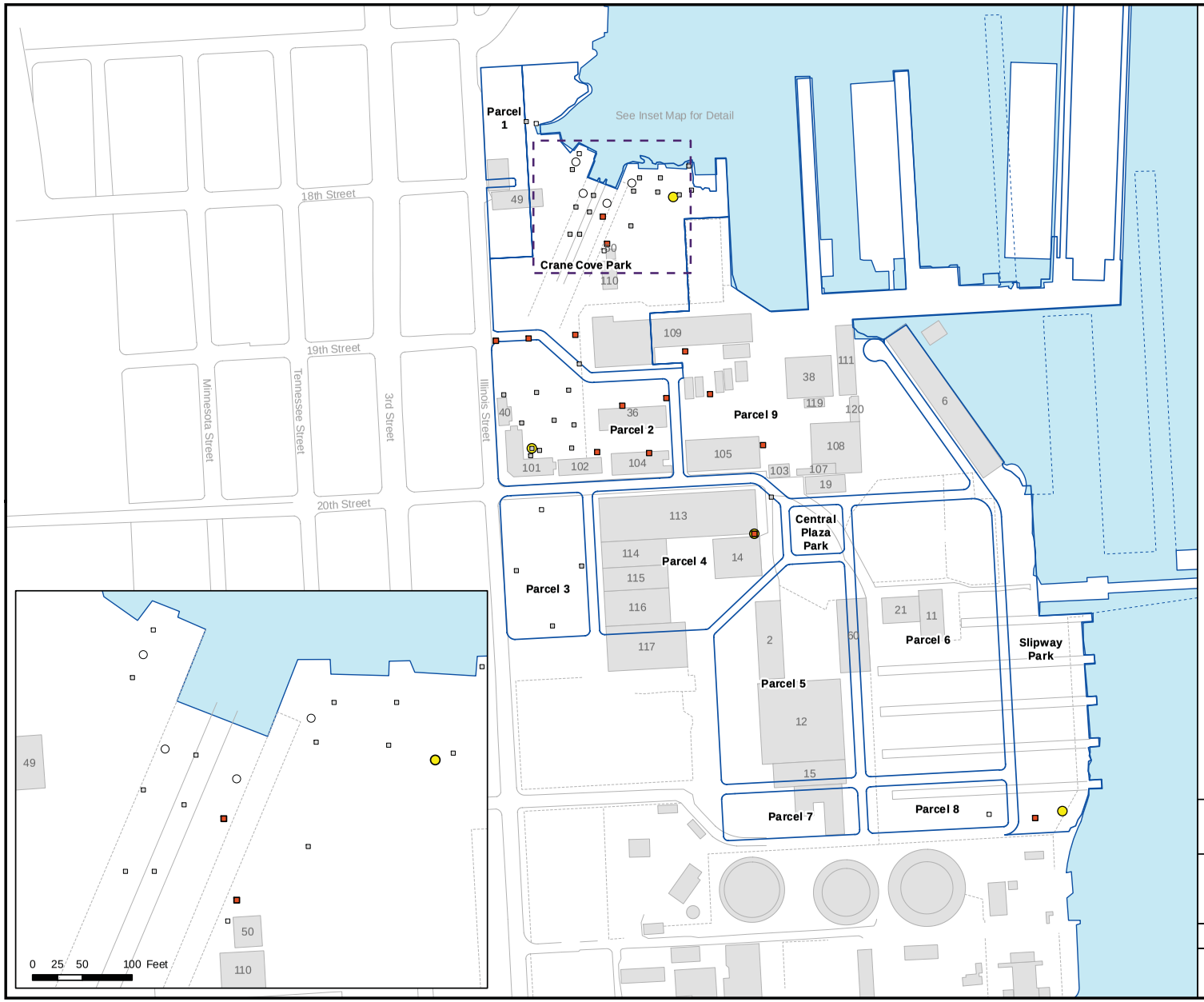

N

Legend

Sample Results by Matrix

Soil
- Exceeds ESL
- Detected
- Not Detected

Groundwater
- Exceeds ESL
- Detected
- Not Detected

Shoreline
- Existing
- Historical

Surface Feature
- Fence
- Other
- Road Edge
- Building
- Parcel Boundary

Notes:

1. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, http://archive.casil.ucdavis.edu/casil/.
2. Shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip.
3. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
4. Standards used to determine exceedances taken from SF Bay Regional Water Quality Control Board, California EPA, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater (May 2008)*, *Summary Table B* Groundwater and Soil for Residential Land Use. http://www.waterboards.ca.gov/sanfranciscobay/esl.htm.
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 150 300 600
Feet

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

HISTORICAL TPH RESULTS AND ESL EXCEEDANCES

Date 9/9/2010	Project 4963.01	Figure B-5

Treadwell&Rollo

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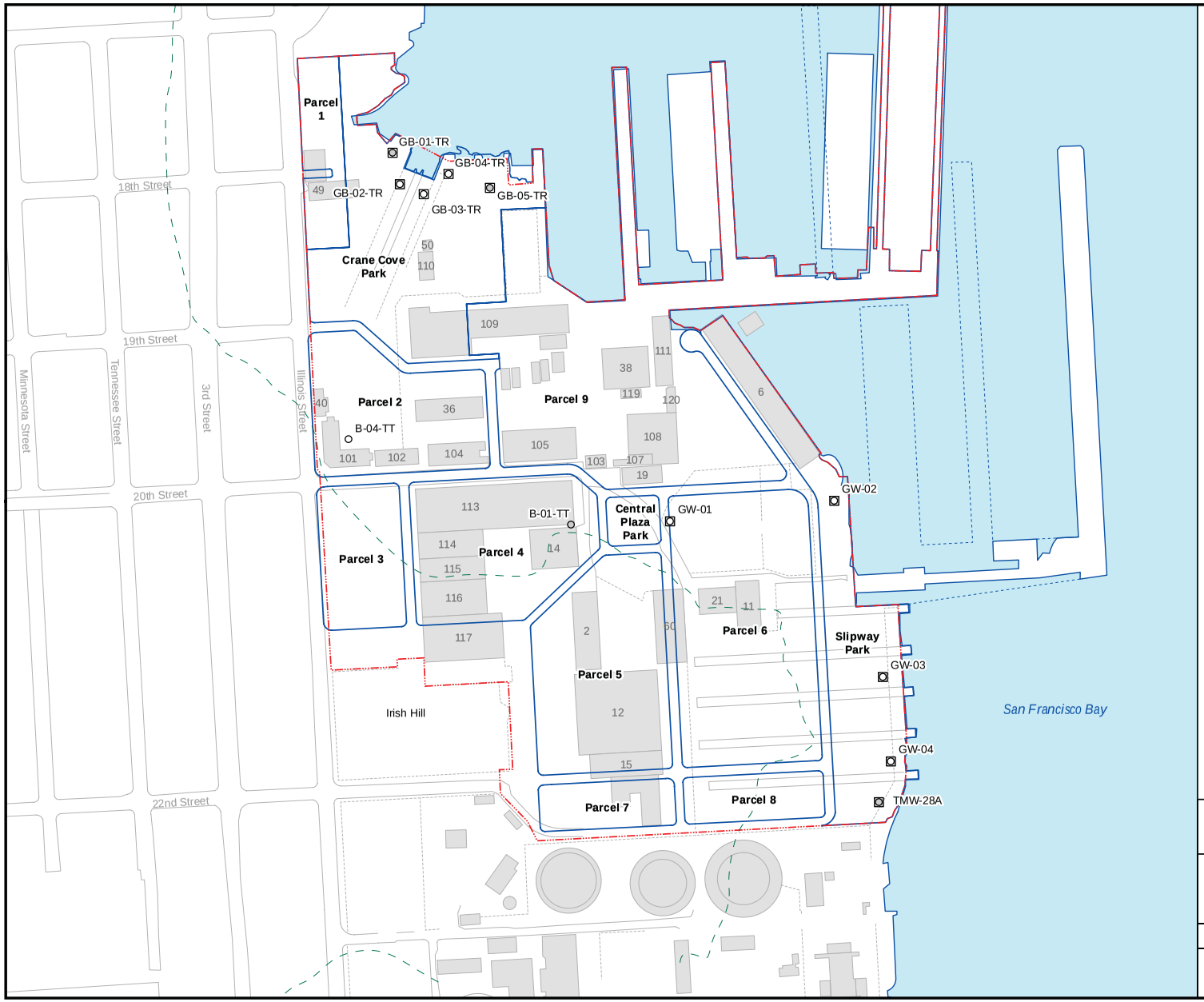

Legend

Compound Type

VOC
- Exceeds ESL
- Detected
- Not Detected

SVOC
- Detected
- Not Detected

Shoreline
- Existing
- Historical

Surface Feature
- Fence
- Other
- Road Edge
- Approximate 1869 Shoreline
- Building
- Parcel Boundary
- Pier 70 Site Area

Notes:

1. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, http://archive.casil.ucdavis.edu/casil/.
2. Shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip.
3. Approximate 1869 Shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
4. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
5. Standards used to determine exceedances taken from SF Bay Regional Water Quality Control Board, California EPA, *Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater (May 2008)*, *Table E-1, Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion Concerns*, Residential values, http://www.waterboards.ca.gov/sanfranciscobay/esl.htm.
6. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 150 300 600
Feet

PIER 70 ENVIRONEMNTAL SITE INVESTIGATION
San Francisco, California

HISTORICAL GROUNDWATER RESULTS AND VAPOR INTRUSION ESL EXCEEDANCES

Date 9/9/2010	Project 4554.02	Figure B-6

Treadwell&Rollo

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APPENDIX C

Soil Vapor Pressure versus Time Graphs for P9SG-01 and P6SGP-02

Figure C-1 Soil Vapor Pressure vrs Time P9SG-01

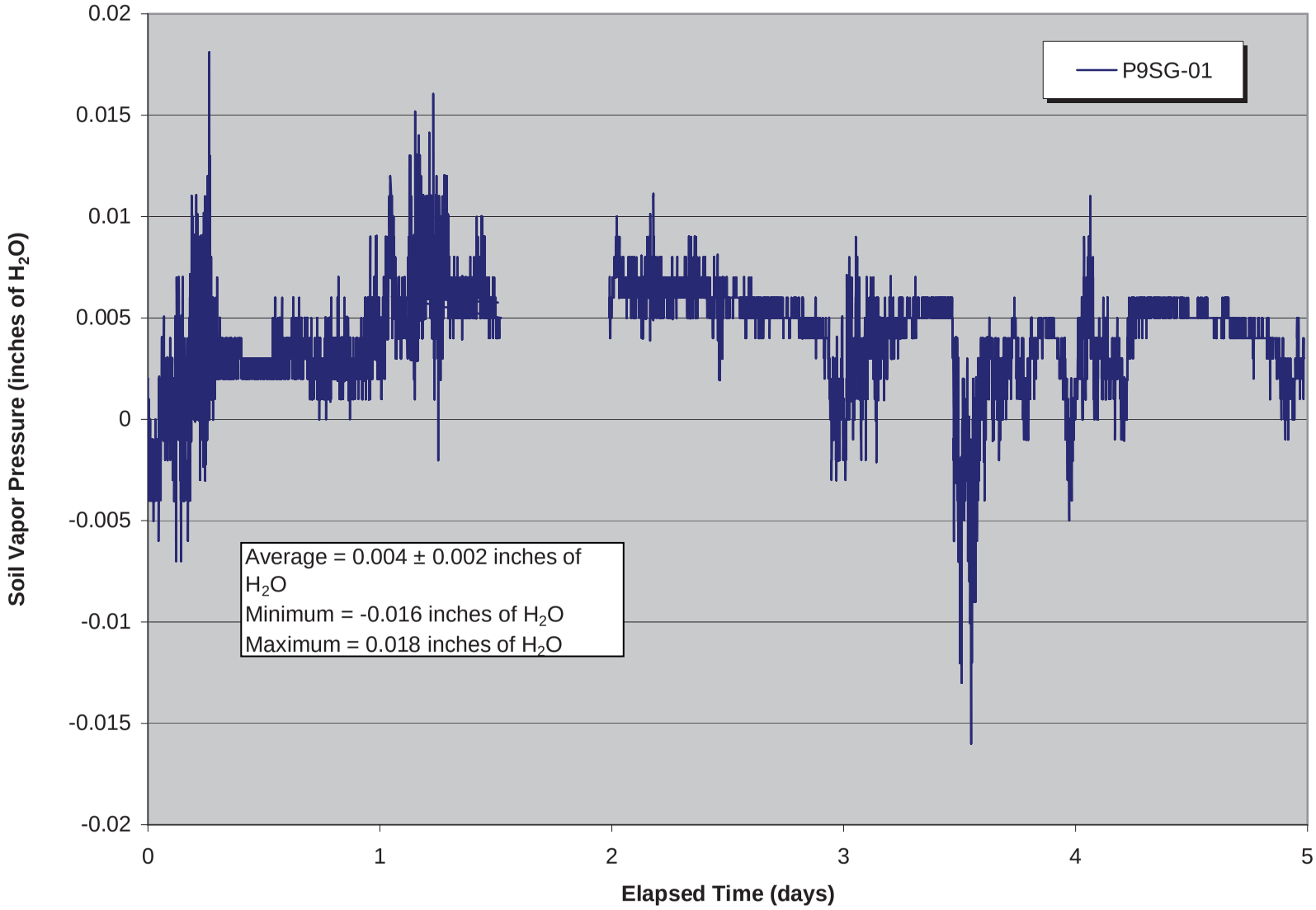
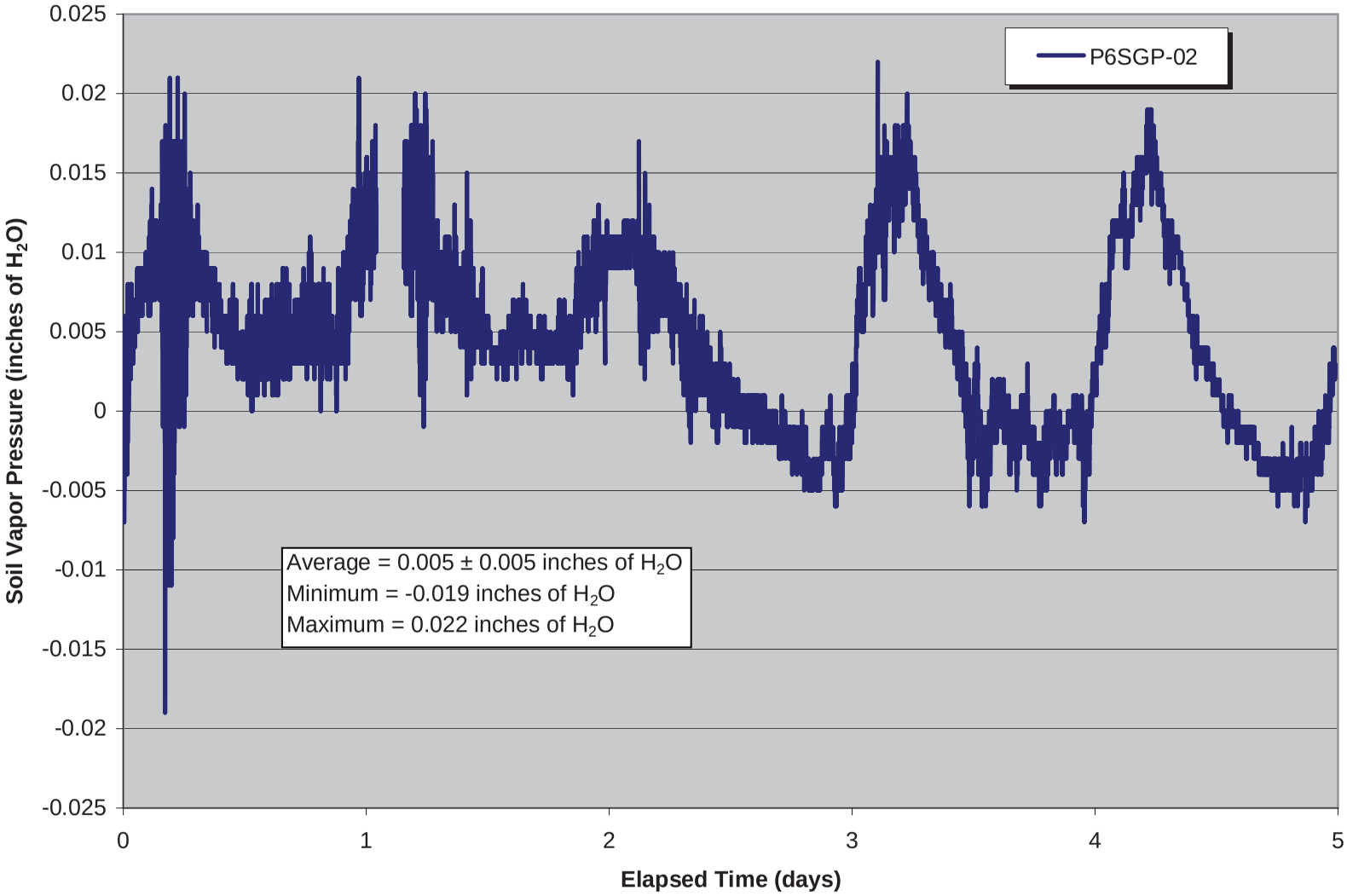


Figure C-2 Soil Vapor Pressure vrs Time P6SGP-02



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APPENDIX D

Monitoring Well Development, Groundwater Gauging, and Sampling Forms

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: PIER 70
Well ID: CPMW-01
Date: 10-1-09
Developed by: Garcia Well & Pump

Depth to Water: 10.3
Total Depth of Well: 15.1
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge/Pump/Bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (15 ft – 10.3 ft) * (0.17 gal/ft) * (10)

V = 7.99 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (MS)	REMARKS (color, ~~turbidity~~, sediment) NTU
08:02	0	20.2		6.34		1132	904.6 ppm
08:05	3	21.9		6.49		670.9	462.6
08:10	6	21.1		6.47		637.9	436.2
08:15	9	21.4		6.50		623.7	427.1
08:20	12	20.7		6.50		623.1	427.3
08:25	15	21.1		6.54		619.5	425.5
08:30	18	21.3		6.55		619.2	424.4
08:35	21	21.5		6.58		618.5	423.6
08:40	24	21.6		6.56		620.1	424.5
08:45	27	21.6		6.54		619.4	423.7
08:50	30	21.6		6.54		620.8	425.0

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963.01
Project Name: Pier 70
Well ID: P8MW-01
Date: 10.1.09
Developed by: Garcia Well + Pump

Depth to Water: 7.7
Total Depth of Well: 25.0
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge/pump/bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (25 ft – 7.7 ft) * (0.17 gal/ft) * (10)

V = 29.41 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (uS)	REMARKS (color, turbidity, sediment) NTU Turbidity
0905	0	20.3		6.87		3300	2458
0911	3	20.6		7.30		3169	2386
0918	6	20.5		7.20		3154	2407
0930	9	21.3		7.32		2806	2088
0933	12	21.3		7.50		2893	2160
0936	15	21.2		7.41		2620	1937 ppm
0938	18	20.4		7.49		2131	1557 ppm
0940	21	20.3		7.42		2276	1661 ppm
0941	24	20.4		7.42		22-37	1632 ppm
0943	27	20.9		7.33		2111	1530 ppm
0946	30	20.7		7.44		2108	1527 ppm

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: Pier - 70
Well ID: P3MW-01
Date: 10-1-09
Developed by: Garcia well + pump

Depth to Water: 13.7
Total Depth of Well: 18.3
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge/pump/bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (18.3 ft – 13.7 ft) * (0.17 gal/ft) * (10)

V = 7.8 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (US)	REMARKS (color, turbidity, sediment) NTU
1109	0	22.0		7.62		1983	1432 PPM
1119	3	20.1		7.45		1984	1432 PPM
1125	6	19.2		7.33		1761	1261 PPM
1130	9	20.4		6.98		1243	878.9 PPM
1136	12	21.1		7.18		1116	784.5 "
1142	15	20.5		7.19		1077	755.0 "
1147	18	20.4		7.16		1028	720.0 "
1152	21	20.6		7.20		1032	723.00 "
1156	24	23.4		7.28		1013	707.5 "
1201	27	21.7		7.36		1005	702.3
1207	30	20.7		7.29		1004	702.7

Remarks:

MONITORING WELL DEVELOPMENT FORM

Project Number: 11963-01
Project Name: Pier 70
Well ID: SPMW-01
Date: 10-1-09
Developed by: Garcia Well & pump

Depth to Water: 8.7
Total Depth of Well: 15
Well Diameter: 2"
Total Volume Removed: 32 gal
Method of Developing: Surge/pump/bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (15 ft – 8.7 ft) * (0.17 gal/ft) * (10)

V = 10.71 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (MS)	REMARKS (color, turbidity, sediment) NTU PPT
1:30	0	22.4		7.35		33.56	34.10 PPT
1:40	3	20.6		7.41		38.06	39.74
1:48	6	26.7		6.95		149.8	95.50
1:55	9	21.2		7.39		41.44	43.86
2:04	14	21.9		7.35		42.15	44.50
2:07	17	21.4		7.23		43.93	46.65
2:12	20	20.9		7.21		43.96	46.83
2:17	23	21.3		7.15		43.85	46.43
2:22	26	21.6		7.15		44.34	47.04
2:27	29	22.4		7.28		44.20	47.03
2:31	32	22.2		7.27		43.00	46.96

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: PIER 70
Well ID: P2 MW-01
Date: 10/2/9
Developed by: Gaia Well + Pump

Depth to Water: 6.7
Total Depth of Well: 18
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge / Bail / Pump

Minimum volume to be removed: V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (18 ft – 6.7 ft) * (0.17 gal/ft) * (10)

V = 19.21 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (US)	REMARKS (color, turbidity, sediment) NTU
09:30	0	20.9		6.67		7303	5941 PPM
09:39	3	21.8		6.87		4711	3670
09.49	6	22.4		6.56		3449	2609
09.53	9	22.5		6.63		3442	2604
09:58	12	22.3		6.69		3469	2628
10:03	15	22.7		6.70		3475	2624
10:09	18	22.3		6.78		3416	2582
10:13	21	22.4		6.69		3365	2535
10:17	24	22.3		6.70		3336	2515
10:22	27	22.4		6.67		3282	2480
10:26	30	22.9		6.69		3236	2428

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: PIER 70
Well ID: CCMW-01
Date: 10-27-09
Developed by: Garcia Well + Pump

Depth to Water: 5'
Total Depth of Well: 20.5
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge / bail / Pump

Minimum volume to be removed: V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (20.5 ft – 5' ft) * (0.17 gal/ft) * (10)

V = 26.35 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (uS)	REMARKS (color, ~~turbidity~~, sediment) NTU
11:10	0	22.4		7.71		7416	6018 PPM
11:18	3	22.0		7.78		8017	6560
11:53	6	20.9		8.26		8701	7225
12:48	9	23.5		8.95		8407	6937
12:53	12	23.1		8.27		4867	3997
12:58	15	23.5		8.21		3968	3032
01:05	18	23.3		8.12		4097	3144
01:10	21	21.6		7.82		7216	5850
01:20	24	25.0		7.82		6915	5542
01:30	27	25.7		7.90		5001	3898
01:35	30	25.1		7.87		4122	3153

Remarks:

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: Pier 70
Well ID: P9MW-02
Date: 10/2/19
Developed by: Gartin Well + Pump

Depth to Water: 7'
Total Depth of Well: 18'
Well Diameter: 2"
Total Volume Removed: 20 gal
Method of Developing: Surge/bail/pump

Minimum volume to be removed: V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (18 ft – 7 ft) * (0.17 gal/ft) * (10)

V = 18.7 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND ( )	REMARKS (color, turbidity, sediment)
	20						

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: PIER 70
Well ID: PQMW-01
Date: 10/2/9
Developed by: Garcia Well + Pump

Depth to Water: 10.8
Total Depth of Well: 18.5
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge/bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (18.5 ft – 10.8 ft) * (0.17 gal/ft) * (10)

V = 13.9 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND ( )	REMARKS (color, turbidity, sediment)
	30						

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: PIER 70
Well ID: CPMW-01
Date: 10-1-09
Developed by: Garcia Well & Pump

Depth to Water: 10.3
Total Depth of Well: 15.1
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge/Pump/Bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (15 ft – 10.3 ft) * (0.17 gal/ft) * (10)

V = 7.99 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (MS)	REMARKS (color, ~~turbidity~~, sediment) NTU
08:02	0	20.2		6.34		1132	904.6 ppm
08:05	3	21.9		6.49		670.9	462.6
08:10	6	21.1		6.47		637.9	436.2
08:15	9	21.4		6.50		623.7	427.1
08:20	12	20.7		6.50		623.1	427.3
08:25	15	21.1		6.54		619.5	425.5
08:30	18	21.3		6.55		619.2	424.4
08:35	21	21.5		6.58		618.5	423.6
08:40	24	21.6		6.56		620.1	424.5
08:45	27	21.6		6.54		619.4	423.7
08:50	30	21.6		6.54		620.8	425.0

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963.01
Project Name: Pier 70
Well ID: P8MW-01
Date: 10.1.09
Developed by: Garcia Well + Pump

Depth to Water: 7.7
Total Depth of Well: 25.0
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge/pump/bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (25 ft – 7.7 ft) * (0.17 gal/ft) * (10)

V = 29.41 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (uS)	REMARKS (color, turbidity, sediment) NTU Turbidity
0905	0	20.3		6.87		3300	2458
0911	3	20.6		7.30		3169	2386
0918	6	20.5		7.20		3154	2407
0930	9	21.3		7.32		2806	2088
0933	12	21.3		7.50		2893	2160
0936	15	21.2		7.41		2620	1937 ppm
0938	18	20.4		7.49		2131	1557 ppm
0940	21	20.3		7.42		2276	1661 ppm
0941	24	20.4		7.42		22-37	1632 ppm
0943	27	20.9		7.33		2111	1530 ppm
0946	30	20.7		7.44		2108	1527 ppm

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: Pier - 70
Well ID: P3MW-01
Date: 10-1-09
Developed by: Garcia well + pump

Depth to Water: 13.7
Total Depth of Well: 18.3
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge/pump/bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (18.3 ft – 13.7 ft) * (0.17 gal/ft) * (10)

V = 7.8 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (US)	REMARKS (color, turbidity, sediment) NTU
1109	0	22.0		7.62		1983	1432 PPM
1119	3	20.1		7.45		1984	1432 PPM
1125	6	19.2		7.33		1761	1261 PPM
1130	9	20.4		6.98		1243	878.9 PPM
1136	12	21.1		7.18		1116	784.5 "
1142	15	20.5		7.19		1077	755.0 "
1147	18	20.4		7.16		1028	720.0 "
1152	21	20.6		7.20		1032	723.00 "
1156	24	23.4		7.28		1013	707.5 "
1201	27	21.7		7.36		1005	702.3
1207	30	20.7		7.29		1004	702.7

Remarks:

MONITORING WELL DEVELOPMENT FORM

Project Number: 11963-01
Project Name: Pier 70
Well ID: SPMW-01
Date: 10-1-09
Developed by: Garcia Well & pump

Depth to Water: 8.7
Total Depth of Well: 15
Well Diameter: 2"
Total Volume Removed: 32 gal
Method of Developing: Surge/pump/bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (15 ft – 8.7 ft) * (0.17 gal/ft) * (10)

V = 10.71 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (MS)	REMARKS (color, turbidity, sediment) NTU PPT
1:30	0	22.4		7.35		33.56	34.10 PPT
1:40	3	20.6		7.41		38.06	39.74
1:48	6	26.7		6.95		149.8	95.50
1:55	9	21.2		7.39		41.44	43.86
2:04	14	21.9		7.35		42.15	44.50
2:07	17	21.4		7.23		43.93	46.65
2:12	20	20.9		7.21		43.96	46.83
2:17	23	21.3		7.15		43.85	46.43
2:22	26	21.6		7.15		44.34	47.04
2:27	29	22.4		7.28		44.20	47.03
2:31	32	22.2		7.27		43.00	46.96

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: PIER 70
Well ID: P2 MW-01
Date: 10/2/9
Developed by: Gaia Well + Pump

Depth to Water: 6.7
Total Depth of Well: 18
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge / Bail / Pump

Minimum volume to be removed: V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (18 ft – 6.7 ft) * (0.17 gal/ft) * (10)

V = 19.21 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (US)	REMARKS (color, turbidity, sediment) NTU
09:30	0	20.9		6.67		7303	5941 PPM
09:39	3	21.8		6.87		4711	3670
09.49	6	22.4		6.56		3449	2609
09.53	9	22.5		6.63		3442	2604
09:58	12	22.3		6.69		3469	2628
10:03	15	22.7		6.70		3475	2624
10:09	18	22.3		6.78		3416	2582
10:13	21	22.4		6.69		3365	2535
10:17	24	22.3		6.70		3336	2515
10:22	27	22.4		6.67		3282	2480
10:26	30	22.9		6.69		3236	2428

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: PIER 70
Well ID: CCMW-01
Date: 10-27-09
Developed by: Garcia Well + Pump

Depth to Water: 5'
Total Depth of Well: 20.5
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge / bail / Pump

Minimum volume to be removed: V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (20.5 ft – 5' ft) * (0.17 gal/ft) * (10)

V = 26.35 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND (uS)	REMARKS (color, ~~turbidity~~, sediment) NTU
11:10	0	22.4		7.71		7416	6018 PPM
11:18	3	22.0		7.78		8017	6560
11:53	6	20.9		8.26		8701	7225
12:48	9	23.5		8.95		8407	6937
12:53	12	23.1		8.27		4867	3997
12:58	15	23.5		8.21		3968	3032
01:05	18	23.3		8.12		4097	3144
01:10	21	21.6		7.82		7216	5850
01:20	24	25.0		7.82		6915	5542
01:30	27	25.7		7.90		5001	3898
01:35	30	25.1		7.87		4122	3153

Remarks:

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: Pier 70
Well ID: P9MW-02
Date: 10/2/19
Developed by: Gartin Well + Pump

Depth to Water: 7'
Total Depth of Well: 18'
Well Diameter: 2"
Total Volume Removed: 20 gal
Method of Developing: Surge/bail/pump

Minimum volume to be removed: V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (18 ft – 7 ft) * (0.17 gal/ft) * (10)

V = 18.7 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND ( )	REMARKS (color, turbidity, sediment)
	20						

Remarks:

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL DEVELOPMENT FORM

Project Number: 4963-01
Project Name: PIER 70
Well ID: PQMW-01
Date: 10/2/9
Developed by: Garcia Well + Pump

Depth to Water: 10.8
Total Depth of Well: 18.5
Well Diameter: 2"
Total Volume Removed: 30 gal
Method of Developing: Surge/bail

Minimum volume to be removed:

V = (Total Depth of Well – Depth to Water) * (Volume gal/ft) * (# of Casing Volumes)

V = (18.5 ft – 10.8 ft) * (0.17 gal/ft) * (10)

V = 13.9 gal

Well Diameter (in)	0.52"	1.0"	2.0"	3.0"	4.0"	5.0"	6.0"
Volume (gal/ft)	0.0157	0.0409	0.1636	0.3682	0.6545	1.0227	1.4726

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED	TEMP (°C)	D.O. ( )	pH (units)	O.R.P. ( )	COND ( )	REMARKS (color, turbidity, sediment)
	30						

Remarks:

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Environmental and Geotechnical Consultants

MONITORING WELL SAMPLING LOG (Normal, Low Flow, and Low Yield)

Site / Area: Pier 70 (Crane Cove) | Well No.: P2MW-01

Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other

Recorded By: J. Gekov | Sampled by: J. Gekov | Date: 10-5-09

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other

Borehole diameter: 8 inches

Well Total Depth (TD, ft. below TOC): 18.10

Depth to Water (WL, ft. below TOC): 6.73

Depth to free phase (FP, ft. below TOC): NM

Number of borehole volumes to be purged: [ ] 3 [ ] Not Applicable [X] Other

Liquid in a 1 Foot Section of a Boring (gallons)

Borehole Size	Casing Size	Water Volume/Ft
8	2	0.9
10	4	1.68
12	4	2.22

PURGE METHOD

[X] Low Flow [ ] Normal [ ] Modified (max 5 gpm) [ ] Other

PURGING EQUIPMENT

[ ] Bailer \ Type

[X] Pump \ Type: peri

PUMP INTAKE

[X] Near top Depth (ft): 13.0

[ ] Near Bottom Depth (ft):

[ ] Other

PURGE VOLUME CALCULATION

Water Column Length X Water Volume/ft X No. Vols = gals CALCULATED PURGE VOLUME

Total Purge Time:

Recharge Rate:

Purge Rate: 250 ml/min

gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter Type:

Time / Liters or Gallons	pH	Temp (C) °F	DO (mg/L)	Sp. COND (mS/cm)	ORP (mV)	Turbidity (NTU)	~~Comments~~ DTW
0 / ~~250~~ 0	6.77	21.65	~~10.26~~ 0.92	4.107	-45		6.78
4 / 1.0	6.76	21.87	0.59	4.065	-76		6.79
8 / 2.0	6.76	22.09	0.44	3.982	-86.2		6.79
12 / 3.0	6.74	22.19	0.36	3.796	-96.6		6.79
16 / 4.0	6.72	22.17	0.34	3.678	-103.5		6.80
/							
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/							

Comments: Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled: 10.5.09 / 0920

Sampling Equipment: Pump - Type: peri | Bailer - Type: | Other:

Sample Filtered: Yes / (No) | Filtered Sample Analysis:

SAMPLING PROGRAM

Sample No.	Container #/Volume	Laboratory	COC #	Comments
P2MW-01-00-5-2009	9	CFT		

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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Environmental and Geotechnical Consultants

MONITORING WELL SAMPLING LOG (Normal, Low Flow, and Low Yield)

Site / Area: Pier 70 | Well No.: CC MW-01
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: RNM | Sampled by: RNM | Date: 10-5-09

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other
Borehole diameter _____ inches
Well Total Depth (TD, ft. below TOC): 20.45
Depth to Water (WL, ft. below TOC): 4.82
Depth to free phase (FP, ft. below TOC):
Number of borehole volumes to be purged: [ ] 3 [ ] Not Applicable [ ] Other

Liquid in a 1 Foot Section of a Boring (gallons)

Borehole Size	Casing Size	Water Volume/Ft
8	2	0.9
10	4	1.68
12	4	2.22

PURGE METHOD: [X] Low Flow [ ] Normal [ ] Modified (max 5 gpm) [ ] Other

PURGING EQUIPMENT: [ ] Bailer \ Type _____ [X] Pump \ Type Peri

PUMP INTAKE: [X] Near top Depth (ft) 6 ft [ ] Near Bottom Depth (ft) _____ [ ] Other _____

PURGE VOLUME CALCULATION

_____ (Water Column Length) X _____ (Water Volume/ft) X 150 ml (No. Vols) = _____ gals CALCULATED PURGE VOLUME

Total Purge Time _____
Recharge Rate _____ Purge Rate _____

_____ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type _____

Time	/ Liters or Gallons	pH	Temp °C *F	DO (mg/L)	Sp. COND (mS/cm)	ORP (mV)	Turbidity (NTU)	Comments DTW
0	/ 0	7.95	22.51	2.11	3.802	-0.7		4.91
4	/ .670	7.77	22.62	0.55	3.755	-1.5		5.12
8	/ 1.200	7.80	22.90	0.40	3.625	-4.5		5.30
12	/ 1.870	7.80	23.27	0.29	3.603	-12.2		5.32
16	/ 2.470	7.80	23.46	0.23	3.588	-14.2		5.30
	/							
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	/							
	/							
	/							

Comments _____ Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 10-5-09 1100

Sampling Equipment: Pump - Type Peri | Bailer - Type _____ | Other _____
Sample Filtered: Yes / No | Filtered Sample Analysis: _____

SAMPLING PROGRAM

Sample No.	Container #/Volume	Laboratory	COC #	Comments
CC MW-01-20091005				

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL SAMPLING LOG (Normal, Low Flow, and Low Yield)

Site / Area: Pier 70 | Well No.: P3MW-01

Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other

Recorded By: Rob Milano | Sampled by: RNM | Date: 10-5-09

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other

Borehole diameter: _____ inches

Well Total Depth (TD, ft. below TOC): 18.20

Depth to Water (WL, ft. below TOC): 13.52

Depth to free phase (FP, ft. below TOC):

Number of borehole volumes to be purged: [ ] 3 [ ] Not Applicable [ ] Other

Liquid in a 1 Foot Section of a Boring (gallons)

Borehole Size	Casing Size	Water Volume/Ft
8	2	0.9
10	4	1.68
12	4	2.22

PURGE METHOD

[X] Low Flow [ ] Normal [ ] Modified (max 5 gpm) [ ] Other

PURGING EQUIPMENT

[ ] Bailer \ Type: _____

[X] Pump \ Type: peri

PUMP INTAKE

[X] Near top Depth (ft): 15 ft

[ ] Near Bottom Depth (ft): _____

[ ] Other: _____

PURGE VOLUME CALCULATION

Water Column Length _____ X Water Volume/ft _____ X No. Vols 250 ml/m = _____ gals CALCULATED PURGE VOLUME

Total Purge Time: _____

Recharge Rate: _____ Purge Rate: _____

_____ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter Type: _____

Time min /	Liters or Gallons	pH	Temp °C °F	DO (mg/L)	Sp. COND (mS/cm)	ORP (mV)	Turbidity (NTU)	Comments
0 /	0	7.81	20.11	1.88	3.017	-81.2		DTW 13.58'
4 /	1.0	7.56	19.80	0.75	2.064	-62.6		13.45
8 /	2.0	7.33	20.05	0.13	1.603	-51.6		13.46
12 /	3.0	7.09	19.71	0.12	1.303	-42.0		13.50
16 /	4.0	7.03	19.69	0.15	1.140	-43.2		13.46
20 /	5.0	7.04	19.51	0.16	1.013	-34.6		13.56
/								
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/								

Comments: _____ Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled: 10-5-09 / 1405

Sampling Equipment: Pump - Type: peri Bailer - Type: _____ Other: _____

Sample Filtered: Yes / No Filtered Sample Analysis: _____

SAMPLING PROGRAM

Sample No.	Container #/Volume	Laboratory	COC #	Comments
P3MW-01-2009-10-5				

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL SAMPLING LOG (Normal, Low Flow, and Low Yield)

Site / Area: Pier 70 | Well No.: SPMW-01

Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other

Recorded By: RNM | Sampled by: RNM | Date: 10-5-09

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other

Borehole diameter _____ inches

Well Total Depth (TD, ft. below TOC): 14.79

Depth to Water (WL, ft. below TOC): 7.54

Depth to free phase (FP, ft. below TOC):

Number of borehole volumes to be purged: [ ] 3 [ ] Not Applicable [ ] Other

Liquid in a 1 Foot Section of a Boring (gallons)

Borehole Size	Casing Size	Water Volume/Ft
8	2	0.9
10	4	1.68
12	4	2.22

PURGE METHOD

[X] Low Flow [ ] Normal [ ] Modified (max 5 gpm) [ ] Other

PURGING EQUIPMENT

[ ] Bailer \ Type _____

[X] Pump \ Type peri

PUMP INTAKE

[X] Near top Depth (ft) 10ft

[ ] Near Bottom Depth (ft) _____

[ ] Other _____

PURGE VOLUME CALCULATION

_____ (Water Column Length) X _____ (Water Volume/ft) X 300 ml/min= _____ (No. Vols) gals CALCULATED PURGE VOLUME

Total Purge Time _____

Recharge Rate _____ Purge Rate _____ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter Type _____

Time	/	Liters or Gallons	pH	Temp °C °F	DO (mg/L)	Sp. COND (mS/cm)	ORP (mV)	Turbidity (NTU)	Comments
									DTW
0	/	0	7.26	20.75	5.04	44.15	-161.8		7.51
3	/	.300	7.17	20.08	0.38	43.29	-165.9		7.52
6	/	.600	7.13	19.67	0.19	43.02	-168.1		7.55
9	/	.900	7.11	19.44	0.15	42.82	-144.1		7.56
12	/	1.200	7.06	19.28	0.12	42.68	-143.4		7.54
	/								
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Comments _____ Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled: 10-5-09 / 1520

Sampling Equipment: Pump - Type peri | Bailer - Type _____ | Other _____

Sample Filtered: Yes / No | Filtered Sample Analysis: _____

SAMPLING PROGRAM

Sample No.	Container #/Volume	Laboratory	COC #	Comments
SPMW-01-2009-10-5				

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL SAMPLING LOG (Normal, Low Flow, and Low Yield)

Site / Area: Pier 70 | Well No.: P8MW-01

Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other

Recorded By: RNM | Sampled by: RNM | Date: 10-6-09

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other

Borehole diameter: _____ inches

Well Total Depth (TD, ft. below TOC): 24.85

Depth to Water (WL, ft. below TOC): 6.75

Depth to free phase (FP, ft. below TOC):

Number of borehole volumes to be purged: [ ] 3 [ ] Not Applicable [ ] Other

Liquid in a 1 Foot Section of a Boring (gallons)

Borehole Size	Casing Size	Water Volume/Ft
8	2	0.9
10	4	1.68
12	4	2.22

PURGE METHOD

[X] Low Flow [ ] Normal [ ] Modified (max 5 gpm) [ ] Other

PURGING EQUIPMENT

[ ] Bailer \ Type: _____

[X] Pump \ Type: Peri

PUMP INTAKE

[ ] Near top Depth (ft): 8 ft

[ ] Near Bottom Depth (ft): _____

[ ] Other: _____

PURGE VOLUME CALCULATION

_____ (Water Column Length) X _____ (Water Volume/ft) X 150 ml/min (No. Vols) = _____ gals CALCULATED PURGE VOLUME

Total Purge Time: _____

Recharge Rate: _____ Purge Rate: _____

_____ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter Type: _____

Time	Liters or Gallons	pH	Temp °C °F	DO (mg/L)	Sp. COND (mS/cm)	ORP (mV)	Turbidity (NTU)	Comments
0	0	7.4	21.11	5.78	1.675	262.0		DTW 6.75
4	1,600	7.45	21.34	3.90	1.717	260.8		6.90
8	1,700	7.47	21.72	3.28	1.740	256.5		6.95
12	1,800	7.48	21.93	2.99	1.756	249.8		7.00
16	2,400	7.46	21.99	2.35	1.752	247.8		7.05

Comments: _____ Purge water storage/disposal: [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD

Date/Time Sampled: 10-6-09 / 0978

Sampling Equipment: Pump - Type: Peri Bailer - Type: _____ Other: _____

Sample Filtered: Yes / No Filtered Sample Analysis: _____

SAMPLING PROGRAM

Sample No.	Container #/Volume	Laboratory	COC #	Comments
P8MW-01-2009-10-6				

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL SAMPLING LOG (Normal, Low Flow, and Low Yield)

Site / Area: Pier 70 | Well No.: CPMW-01
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: RNM | Sampled by: RNM | Date: 10-6-09

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other
Borehole diameter _____ inches

Well Total Depth (TD, ft. below TOC): 14.45
Depth to Water (WL, ft. below TOC): 10.15
Depth to free phase (FP, ft. below TOC):

Number of borehole volumes to be purged
[ ] 3 [ ] Not Applicable [ ] Other

Liquid in a 1 Foot Section of a Boring (gallons)

Borehole Size	Casing Size	Water Volume/Ft
8	2	0.9
10	4	1.68
12	4	2.22

PURGE METHOD
[X] Low Flow [ ] Normal [ ] Modified (max 5 gpm) [ ] Other

PURGING EQUIPMENT
[ ] Bailer \ Type _____
[X] Pump \ Type peri

PUMP INTAKE
[X] Near top Depth (ft) 12.00'
[ ] Near Bottom Depth (ft) _____
[ ] Other _____

PURGE VOLUME CALCULATION

_____ (Water Column Length) X _____ (Water Volume/ft) X 300 ml/m (No. Vols) = _____ gals CALCULATED PURGE VOLUME

Total Purge Time _____
Recharge Rate _____ Purge Rate _____

_____ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter Type _____

Time	/	Liters or Gallons	pH	Temp °C *F	DO (mg/L)	Sp. COND (mS/cm)	ORP (mV)	Turbidity (NTU)	Comments
									PJW
0	/	"	7.10	21.63	8.34	0.543	-118.5		10.18
3	/	.300	6.86	21.76	1.03	0.540	-133.0		10.19
6	/	.600	6.86	21.86	0.46	0.540	-133.0		10.20
9	/	.900	6.85	21.86	0.42	0.539	-137.9		10.20
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Comments _____ Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 10-6-09 / 1020

Sampling Equipment: Pump - Type peri | Bailer - Type _____ | Other _____
Sample Filtered: Yes / No | Filtered Sample Analysis: _____

SAMPLING PROGRAM

Sample No.	Container #/Volume	Laboratory	COC #	Comments
CPMW-01-2009-10-6				

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL SAMPLING LOG (Normal, Low Flow, and Low Yield)

Site / Area: Pier 70 | Well No.: P9MW-01
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: RNM | Sampled by: RNM | Date: 10-6-09

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other
Borehole diameter _____ inches

Well Total Depth (TD, ft. below TOC) : 20.16
Depth to Water (WL, ft. below TOC) : 10.80
Depth to free phase (FP, ft. below TOC) :

Number of borehole volumes to be purged: [ ] 3 [ ] Not Applicable [ ] Other

Liquid in a 1 Foot Section of a Boring (gallons)

Borehole Size	Casing Size	Water Volume/Ft
8	2	0.9
10	4	1.68
12	4	2.22

PURGE METHOD: [X] Low Flow [ ] Normal [ ] Modified (max 5 gpm) [ ] Other

PURGING EQUIPMENT: [ ] Bailer \ Type _____ [X] Pump \ Type peri

PUMP INTAKE: [X] Near top Depth (ft) 12 ft [ ] Near Bottom Depth (ft) _____ [ ] Other _____

PURGE VOLUME CALCULATION

_____ (Water Column Length) X _____ (Water Volume/ft) X 400 ml/min (No. Vols) = _____ gals CALCULATED PURGE VOLUME

Total Purge Time _____
Recharge Rate _____ Purge Rate _____

_____ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter Type _____

Time	Liters or Gallons	pH	Temp °C *F	DO (mg/L)	Sp. COND (mS/cm)	ORP (mV)	Turbidity (NTU)	Comments
0	0	7.00	22.8	1.40	25.15	-93		DTW 10.78
3	0.400	7.20	20.9	1.45	25.21	-130		10.80
6	0.800	7.23	20.6	1.51	24.96	-149		10.79
9	1.200	7.23	20.3	1.25	24.61	-138		10.81

Comments _____ Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 10-6-09 / 1200

Sampling Equipment: Pump - Type peri Bailer - Type _____ Other _____
Sample Filtered: Yes / No Filtered Sample Analysis: _____

SAMPLING PROGRAM

Sample No.	Container #/Volume	Laboratory	COC #	Comments
P9MW-01-2009-10-6				

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultants

MONITORING WELL SAMPLING LOG (Normal, Low Flow, and Low Yield)

Site / Area: Pier 70 | Well No.: PGMW-02

Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other

Recorded By: RNM | Sampled by: RNM | Date: 10-6-09

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other

Borehole diameter _____ inches

Well Total Depth (TD, ft. below TOC): 17.88

Depth to Water (WL, ft. below TOC): 7.12

Depth to free phase (FP, ft. below TOC):

Liquid in a 1 Foot Section of a Boring (gallons)

Borehole Size	Casing Size	Water Volume/Ft
8	2	0.9
10	4	1.68
12	4	2.22

Number of borehole volumes to be purged: [ ] 3 [ ] Not Applicable [ ] Other

PURGE METHOD

[X] Low Flow [ ] Normal [ ] Modified (max 5 gpm) [ ] Other

PURGING EQUIPMENT

[ ] Bailer \ Type _____ [X] Pump \ Type peri

PUMP INTAKE

[X] Near top Depth (ft) 9 ft

[ ] Near Bottom Depth (ft) _____

[ ] Other _____

PURGE VOLUME CALCULATION

_____ (Water Column Length) X _____ (Water Volume/ft) X 500 ml/min (No. Vols) = _____ gals CALCULATED PURGE VOLUME

Total Purge Time _____

Recharge Rate _____ Purge Rate _____

_____ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS

Meter Type _____

Time	/	~~Liters~~ or Gallons	pH	Temp °C °F	DO (mg/L)	Sp. COND (mS/cm)	ORP (mV)	Turbidity (NTU)	Comments
0	/	0	6.81	19.7	2.41	14.25	-86		DTW 7.12
4	/	.500	6.70	19.6	1.81	14.44	-76		7.12
8	/	1.000	6.66	19.2	1.90	14.35	-70		7.11
12	/	1.500	6.69	19.1	1.65	14.45	-88		7.12
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Comments _____ Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 10-6-09 / 1240

Sampling Equipment: Pump - Type peri Bailer - Type _____ Other _____

Sample Filtered: Yes / No Filtered Sample Analysis: _____

SAMPLING PROGRAM

Sample No.	Container #/Volume	Laboratory	COC #	Comments
PGMW-02-2009-10-6				

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultants

GROUNDWATER GAUGING FORM

Project Name: Pier 70 Project No.: 4963.01

IP#: Date: 10-6-09

Measured from: GRADE \ TOP OF CASING (Circle one) Gauged by: RNM

Time	Well I.D.	Depth to Bottom (Feet)	Well Diameter (inches)	Depth to Water (Feet)	Depth to Product (Feet)	Product Thickness (Feet)	CALC. 80% RECHG.	COMMENTS Please note if well needs repair
	PMW-01	20.23	2	10.80				
	PMW-02	17.88	2	7.12				
1339	SPMW-01	14.65	2	8.58				
	PSMW-01	24.92	2	6.67				
	CPMW-01	14.67	2	10.12				
	P3MW-01	18.10	2	13.56				
	P2MW-01	17.95	2	6.75				
1425	CCMW-01	20.31	2	4.75				

Treadwell&Rollo
Environmental and Geotechnical Consultants

GROUNDWATER GAUGING FORM

Project Name: Pier 70 Project No.: 4963.01

IP#: Date: 12-1-09 - Begin gauging @ 1535

Measured from: GRADE \ TOP OF CASING (Circle one) Gauged by: RNM

Well I.D.	Depth to Bottom (Feet)	Well Diameter (inches)	Depth to Water (Feet)	Depth to Product (Feet)	Product Thickness (Feet)	CALC. 80% RECHG.	COMMENTS Please note if well needs repair
P9MW-01	20.3	2	10.4	15.2			
P9MW-02	18.1	2	—	6.8			product - logging probe unable to get accurate WL reading
P8MW-01	24.9	2	6.5	—			
CPMW-01	14.8	2	10.5	—			
SPMW-01	15.0	2	9.0	13.8			
P3MW-01	18.1	2	13.2	—			
P2MW-01	18.2	2	6.6	11.3			
CCMW-01	20.3	2	3.9	—			

Treadwell&Rollo
Environmental and Geotechnical Consultants

GROUNDWATER SAMPLING FORM

Project Name: PIER 70 | Well No.: P9MW02
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/17/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD. ft. below TOC)
Depth to Water (WL, ft. below TOC): 6.25
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: geo pump easy load
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 9.0
[ ] Near Bottom Depth (ft)
[ ] Other

PURGE VOLUME CALCULATION

Water Column Length	X Multiplier	X No. Vols	= gals CALCULATED PURGE VOLUME
			gals ACTUAL PURGE VOLUME

Total Purge Time | (Multiplier 2" = 0.17 4" = 0.66, 6" = 1.5)
Recharge Rate | Purge Rate

GROUNDWATER PARAMETER MEASUREMENTS Meter Type

Time / Gallons	pH	mS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1208 / 0	6.36	60.91	16.3	8.70	-98	6.25	
1210 / 0.5	6.70	11.39	16.3	8.80	-105		
1213 / 1.0	6.77	11.51	16.3	8.93	-114		
1216 / 1.5	6.80	11.61	16.3	8.98	-113	6.26	
/							
/							
/							
/							

Comments during well purge: observed sheen on water & product. Used hand held meters Ultra meter & DO meter
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/13/10 / 1225
Bailer - Type [ ] | Sample port [ ] | Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
P9MW-02-2010-3-17	3 VOAS	TPH-g	HCl		
	2 1L Amber	TPH-d/MO			
	1 500mL	dissolved metals	None		
	3 VOAS	VOCs	HCl		
	1 500mL	Hexavalent Chromium	None		
	1 500mL	total metals	HNO_3		

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.
	Dup-1-2010-3-17

all except VOCs & Hexavalent Chromium

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: P9MW-04
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/17/2010

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC):
Depth to Water (WL, ft. below TOC): 10.70
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged: [ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 13.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

Water Column Length	X Multiplier	X No. Vols	= gals CALCULATED PURGE VOLUME
			gals ACTUAL PURGE VOLUME

Total Purge Time:
Recharge Rate:
(Multiplier . 2" = 0.17, 4" = 0.66, 6" = 1.5)
Purge Rate:

GROUNDWATER PARAMETER MEASUREMENTS Meter Type: YSI 556 MPS & 600 pump

Time / Gallons	pH	MS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1344 / 0	8.08	26048	15.87	19.25	-343.0	10.70	
1347 / 0.5	8.11	25657	15.69	14.60	-348.7	10.70	
1349 / 1.0	8.13	25617	15.66	11.51	-360.1	10.70	
1351 / 1.5	8.14	25609	15.69	11.43	-371.6	10.70	
1354 / 2.0	8.16	25575	15.61	13.24	-379.7	10.70	
/							
/							
/							

Comments during well purge: water is clear, observed
Purge water storage/disposal: [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/17/2010 / 1358

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type:

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp [ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /					

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
P9MW-04-2010-3-17				Curtis & Tompkins	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Tier 70 | Well No.: PQMW-01
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE / RNM | Sampled by: ARSE / RNM | Date: 3/17/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC)
Depth to Water (WL, ft. below TOC): 10.81
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 14.0
[ ] Near Bottom Depth (ft)
[ ] Other

PURGE VOLUME CALCULATION

_____ (Water Column Length) X _____ (Multiplier) X _____ (No. Vols) = _____ gals CALCULATED PURGE VOLUME

Total Purge Time
(Multiplier 2" = 0.17 4" = 0.66, 6" = 1.5)
Recharge Rate | Purge Rate
_____ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type

Time / Gallons	pH	Cond. (~~mmhos~~ µS/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	~~Color / Odor~~ Remarks
1433 / 0	7.74	17507	17.51	18.25	-287.2	10.82	
1435 / 0.5	7.71	17164	17.07	5.73	-294.3	10.82	
1437 / 1.0	7.70	17053	16.76	5.15	-297.7	10.82	
1439 / 1.5	7.69	16946	16.71	4.30	-299.6	10.82	
1441 / 2.0	7.69	16871	16.69	4.30	-301.9	10.82	
1443 / 2.5	7.69	16827	16.67	4.26	-303.2	10.83	
/							
/							

Comments during well purge: Clear

Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/17/10 / 1450

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp [ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /					

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
PQMW-01-2010-3-17					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: P9 MW-03
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE / RNM | Sampled by: ARSE / RNM | Date: 3/17/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC):
Depth to Water (WL, ft. below TOC): 4.47
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[ ] Pump \ Type
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 7.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

Water Column Length	X Multiplier	X No. Vols	= gals CALCULATED PURGE VOLUME

Total Purge Time
Recharge Rate
(Multiplier 2" = 0.17, 4" = 0.66, 6" = 1.5)
Purge Rate
gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type

Time / Gallons	pH	MS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1521 / 0	7.04	22172	17.40	26.30	-188.3	4.51	cloudy
1523 / 0.5	6.99	21853	17.14	16.85	-186.8	4.52	cloudy
1525 / 1.0	7.0	21473	16.98	14.07	-185.4	4.54	cloudy
1528 / 1.5	7.03	21438	16.99	12.49	-185.4	4.57	cloudy
1530 / 2.0	7.04	21349	16.95	10.87	-187.0	4.60	cloudy
1532 / 2.5	7.05	21298	16.96	9.98	-189.2	4.62	cloudy
/							
/							

Comments during well purge

Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/17/10 / 1535

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp [ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /					

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
P9MW-03-2010-3-17					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: P2MW-01
Project Number: 4963.01 | Well Type: [ ] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/17/10

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC):
Depth to Water (WL, ft. below TOC): 5.71
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft) 9.0
[ ] Near Bottom Depth (ft)
[ ] Other

PURGE VOLUME CALCULATION

Water Column Length	X Multiplier	X No. Vols	= gals CALCULATED PURGE VOLUME

Total Purge Time
(Multiplier 2" = 0.17 4" = 0.66, 6" = 1.5)
Recharge Rate | Purge Rate

gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type

Time / Gallons	pH	MS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1656 / 0	6.99	5371	19.77	13.03	-192.4	5.76	cloudy gray
1658 / 0.5	6.92	4864	19.33	6.01	-202.6	5.76	cloudy gray
1700 / 1.0	6.90	4460	19.15	4.78	-209.3	5.76	cloudy gray
1702 / 1.5	6.89	4072	19.00	4.01	-216.1	5.76	cloudy gray
1704 / 2.0	6.89	3830	18.89	3.50	-218.9	5.76	cloudy gray
1706 / 2.5	6.87	3707	18.81	3.54	-212.1	5.76	cloudy gray
1708 / 3.0	6.86	3659	18.72	3.49	-207.9	5.76	cloudy gray
/							

Comments during well purge

Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 3/17/10 / 1715

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
P2MW-01-2010-3-17	3 VOAs, 1 500ML poly	TPH-d	HCL		

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: TMW-28A
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC): 25.4 (measured w/ WL meter)
Depth to Water (WL, ft. below TOC): 9.22
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged: [ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type:
[X] Pump \ Type: easy load geo pump
[ ] Other:

PUMP INTAKE

[X] Near top Depth (ft): 12.0
[ ] Near Bottom Depth (ft):
[ ] Other:

PURGE VOLUME CALCULATION

16.18 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 8.25 gals — CALCULATED PURGE VOLUME

Total Purge Time: | (Multiplier . 2" = 0.17, 4" = 0.66, 6" = 1.5)
Recharge Rate: | Purge Rate:

8 gals — ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / ~~Gallons~~ liters	pH	µS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
0926 / 0	6.90	21176	15.37	90.24	96.9	9.5	clear
0928 / 0.5	6.95	21278	15.33	86.90	89.5	9.57	
0929 / 1.0	6.98	21347	15.44	82.45	77.9		
0931 / 1.5	7.0	21403	15.49	82.43	74.7		
0932 / 2.0	7.01	21439	15.55	80.00	66.5		
0934 / 2.5	7.02	21489	15.53	76.00	47.5	9.62	
0936 / 3.0	7.05	21730	15.67	72.15	-5.2	9.65	
0938 / 3.5	7.09	22424	15.76	67.65	-173.8		

Comments during well purge: Mike of Geomatrix had to unlock the lock on the well to sample it. Mike collect sample too
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/10 / 1047
Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TMW-28A-2010-3-18					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: TMW - 28A
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE/ RNM | Date: 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC): 25.4 (measured w/ WL meter)
Depth to Water (WL, ft. below TOC): 9.22
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged: [ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: easy load geo pump
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 12.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

16.18 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 8.25 gals — CALCULATED PURGE VOLUME

Total Purge Time:
Recharge Rate:
(Multiplier: 2" = 0.17, 4" = 0.66, 6" = 1.5)
Purge Rate:

8.0 gals — ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / Gallons (2 gal)	pH	Cond. (mS/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
0939 / 4.0	7.80	34099	16.38	14.79	-294.2		clear
0940 / 4.5	8.10	36036	16.72	8.67	-312.9		
0941 / 5.0	8.16	36228	16.76	7.39	-321.6	9.68	
0943 / 5.5	8.21	36374	16.74	6.06	-329.4	9.68	
0944 / 6.0	8.24	36476	16.82	5.50	-335.0		
0946 / 6.5	8.25	36467	16.73	5.12	-339.4		
0947 / 7.0	8.26	36475	16.76	4.86	-342.4		
0948 / 7.5	8.26	36469	16.75	4.67	-342.9		

Comments during well purge: Mike of Geomatrix had to unlock the lock to sample the well. Mike collect samples too.
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/10 / 1047
Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /					

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TMW-28A-2010-3-18					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: TMW-28A
Project Number: 4963 01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC): 25.4 (measured w/ WL meter)
Depth to Water (WL, ft. below TOC): 9.22
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged: [ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: easy load geo pump
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 12.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

16.18 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 8.25 gals CALCULATED PURGE VOLUME

Total Purge Time:
Recharge Rate:
(Multiplier: 2" = 0.17 4" = 0.66, 6" = 1.5)
Purge Rate:

8 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / Gallons (liters)	pH	mS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)		Color / Odor Remarks
0949 / 8.0	8.27	36596	16.90	4.03	-348.4	9.71	clear, observed odor
0951 / 8.5	8.28	36613	16.92	3.72	-348.4		
0952 / 9.0	8.29	36672	16.97	3.38	-351.6		
0953 / 9.5	8.30	36736	17.0	3.20	-355.7		
0954 / 10.0	8.30	36752	17.01	3.18	-353.4		
0955 / 10.5	8.31	36762	16.97	3.75	-358.2		
0957 / 11.0	8.31	36775	16.97	3.20	-359.7	9.71	
0958 / 11.5	8.31	36757	16.98	3.13	-360.4	9.71	

Comments during well purge: Need key from Geomatrix to open lock @ well. used flow through cell Geomatrix collect sample too
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/10 / 1047

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TMW-28A-2010-3-2010					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: TMW-28A
Project Number: 496301 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC): 25.4
Depth to Water (WL, ft. below TOC): 9.22
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: easy load geo pump
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 12.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

16.18 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 8.25 gals — CALCULATED PURGE VOLUME

Total Purge Time:
Recharge Rate:
(Multiplier: 2" = 0.17, 4" = 0.66, 6" = 1.5)
Purge Rate:

8.0 gals — ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / ~~Gallons~~ Liters	pH	mS Cond. (~~mmhos~~/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
0959 / 12.0	8.31	36771	16.98	3.05	-362.2	9.71	
1001 / 12.5	8.31	36769	16.97	2.96	-364.0	9.71	
1002 / 13.0	8.31	36782	16.98	2.92	-364.1		
1004 / 13.5	8.31	36813	16.97	3.17	-362.2		
1005 / 14.0	8.31	36839	16.99	3.07	364.4		
1006 / 14.5	8.31	36842	17.0	3.06	-364.3		
1007 / 15.0	8.31	36823	16.98	3.05	-364.5	9.72	
1009 / 15.5	8.31	36810	16.97	3.06	-362.0	9.72	

Comments during well purge: Needs key from Geomatrix to unlock the lock @ well.
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/10 1047
Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp [ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /					

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TMW-28-A-2010-3-18	see COC				

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name Pier 70 | Well No. TMW-28A
Project Number 4963.01 | Well Type [X] Monitor [ ] Extraction [ ] Other
Recorded By ARSE | Sampled by ARSE / RNM | Date 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC) 25.4 (measured w/ WL meter)
Depth to Water (WL, ft. below TOC) 9.22
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type geo pump easy load
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft) 12.0
[ ] Near Bottom Depth (ft)
[ ] Other

PURGE VOLUME CALCULATION

16.18 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 8.25 gals — CALCULATED PURGE VOLUME

Total Purge Time
Recharge Rate
(Multiplier: 2" = 0.17 4" = 0.66, 6" = 1.5)
Purge Rate

8 gals — ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type

Time / Gallons	pH	µS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	Color / Odor Remarks
1010 / 16.0	8.31	36864	17.03	3.04	-364.5	
1011 / 16.5	8.31	36837	17.10	3.03	-357.5	9.73
1013 / 17.0	8.31	36892	17.06	3.12	-363.5	9.73
1014 / 17.5	8.31	36893	17.05	3.05	-361.0	9.73
1015 / 18.0	8.31	36882	17.02	2.88	-359.4	9.73
1018 / 18.5	8.32	36847	17.01	2.91	-364.4	9.73
1019 / 19.0	8.32	36865	17.01	3.08	-366.7	9.73
1020 / 19.5	8.31	36867	17.04	2.94	-364.5	9.73

Comments during well purge: Needs key from Geomatrix to unlock the lock on the well. Geomatrix collect samples too.
Purge water storage/disposal [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 3/18/10 / 1047

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp [ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /					

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TMW-28A-2010-3-18					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

Treadwell&Rollo
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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: TMW-28A
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE/RNM | Date: 8/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter: [X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC): 25.4 (measured w/ WL meter)
Depth to Water (WL, ft. below TOC): 9.22
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged: [ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: easy load geo pump
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 12.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

16.18 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 8.25 gals — CALCULATED PURGE VOLUME

Total Purge Time:
Recharge Rate:
(Multiplier : 2" = 0.17 4" = 0.66, 6" = 1.5)
Purge Rate:

8.0 gals — ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / Gallons	pH	mS Cond. (~~mmhos~~/cm)	Temp °C	DO (mg/L)	ORP (mV)	Color / Odor Remarks
1022 / 20.	8.31	36882	17.03	2.79	-366.4	9.73
1023 / 20.5	8.31	36906	17.06	2.71	-367.9	9.73
1024 / 21	8.31	36927	17.08	2.67	-369.1	9.73
1026 / 21.5	8.30	36930	17.05	14.07	-371.3	9.73 the monitor turned off
1028 / 22.	8.32	36907	16.99	4.52	-377.9	9.73
1029 / 22.5	8.32	36894	17.0	3.61	-375.7	9.73
1030 / 23.0	8.32	36894	16.98	3.12	-378.2	9.73
1031 / 23.5	8.32	36903	16.98	3.00	-377.7	9.73

Comments during well purge: Needs key from Geomatrix to unlock the lock of the well cap. Geomatrix collected samples too.
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/10 / 1047

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TMW-28A-2010-3-18					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: TMW-28A
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: | Date: 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC): 25.4
Depth to Water (WL, ft. below TOC): 9.22
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: easy load geo pump
[ ] Other

PUMP INTAKE

[ ] Near top Depth (ft)
[ ] Near Bottom Depth (ft)
[ ] Other

PURGE VOLUME CALCULATION

16.18 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 8.25 gals — CALCULATED PURGE VOLUME

Total Purge Time
Recharge Rate
(Multiplier: 2" = 0.17, 4" = 0.66, 6" = 1.5)
Purge Rate: 0.5 L/min

8.0 gals — ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / Gallons	pH	Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1034 / 24.0	8.31	36867	16.97	2.82	-374.8	9.73	
1035 / 24.5	8.32	36873	16.96	2.69	-376.0	9.73	
1037 / 25.0	8.32	36920	16.96	2.83	-375.4	9.73	
1038 / 25.5	8.32	36966	16.98	2.69	-373.2	9.73	
1039 / 26	8.32	36978	16.99	2.46	-375.1	9.73	
1040 / 26.5	8.33	37017	17.01	2.46	-375.8	9.73	
1042 / 27.	8.33	36940	16.96	2.46	-372.9	9.73	
1043 / 27.5	8.33	36933	16.97	2.50	-369.4	9.73	
1044 / 28.0	8.33	36956	17.0	2.43	-374.9	9.73	

Comments during well purge:

Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/2010 1047

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
TMW-28A-2010-3-18					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.
	Dup-1-2010-3-18

Blank Samples

Type	Sample No.
Trip	Trip Blank-1-2010-3-18
Rinsate	
Transfer	
Other:	

1330

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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: SPMW-1
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC):
Depth to Water (WL, ft. below TOC): 8.77
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: easy load geo pump
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 11.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

Water Column Length X Multiplier X No. Vols = gals CALCULATED PURGE VOLUME

Total Purge Time: (Multiplier 2" = 0.17, 4" = 0.66, 6" = 1.5) gals ACTUAL PURGE VOLUME
Recharge Rate: Purge Rate:

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / ~~Gallons~~ Liters	pH	mS Cond. (~~mmhos~~/cm)	Temp °C	DO (mg/L)	ORP (mV)	TRW Color / Odor Remarks
1255 / 0	7.94	30615	16.36	13.11	-158.6	8.87 - observed organic matter
1256 / 0.5	7.70	30089	15.70	6.22	-169.2	8.87 (white) floating in
1257 / 1.0	7.62	30010	15.58	5.16	-180.2	8.87 the water. Water is
1258 / 1.5	7.57	29987	15.56	3.98	-191.4	8.87 clear
1300 / 2.0	7.54	29932	15.60	3.46	-197.3	8.87
1302 / 2.5	7.52	29875	15.52	3.26	-204.6	8.87
1304 / 3.0	7.50	29863	15.64	3.17	-208.1	8.87
/						

Comments during well purge: use flow through cell
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/2010 / 1320

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
SPMW-1 - 2010-3-18					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: P3 MW-01
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/18/10

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD. ft. below TOC)
Depth to Water (WL, ft. below TOC): 12.60
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: easy load geo pump
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 19.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

___ (Water Column Length) X ___ (Multiplier) X ___ (No. Vols) = ___ gals CALCULATED PURGE VOLUME

Total Purge Time
(Multiplier 2" = 0.17 4" = 0.66, 6" = 1.5)
Recharge Rate | Purge Rate
___ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / ~~Gallons~~ Liter	pH	µS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1520 / 0	7.31	599	17.70	17.47	-112.7	12.61	water is clear
1521 / 0.5	7.28	589	16.78	17.35	-110.8	12.61	
1522 / 1.0	7.28	586	16.70	16.64	-109.9	12.61	
1524 / 1.5	7.28	585	16.63	16.55	-107.8	12.61	
1525 / 2.0	7.29	584	16.62	16.59	-106.9	12.61	
1527 / 2.5	7.29	584	16.65	16.33	-106.9	12.61	
/							
/							

Comments during well purge: used flow through cell
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/10 / 1535
Bailer - Type [ ] Sample port [ ] Other [ ]

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
P3MW-1-2010-3-18	3 VOAs	TPH-g	HCl	CT	
	2-1 L Amber	8270M	none	↓	
	1-500mL Amber	TPH-d/mo	none		
	1-500 mL poly	dissolved metals	none		
	1-500mL poly	total metals	HNO3	↓	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: P8MW-01
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC):
Depth to Water (WL, ft. below TOC): 6.29
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: geo pump easy load
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 9.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

Water Column Length X Multiplier X No. Vols = gals CALCULATED PURGE VOLUME

Total Purge Time:
(Multiplier . 2" = 0.17 4" = 0.66, 6" = 1.5)
Recharge Rate: Purge Rate:
gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / Gallons / liters	pH	µS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1346 / 0	7.40	2026	18.77	15.32	-141.8	6.38	
1348 / 0.5	7.38	1767	18.10	11.73	-140.5	6.43	
1350 / 1.0	7.39	1547	17.87	9.70	-139.8	6.45	
1351 / 1.5	7.39	1379	17.80	9.45	-139.8	6.51	
1353 / 2.0	7.38	1283	17.77	9.67	-139.4	6.54	
1355 / 2.5	7.36	1204	17.81	9.06	-138.8	6.58	
/							
/							

Comments during well purge: use flow through cell
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/10 / 1400
Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp [ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /					

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
P8MW-1-2010-3-18	3 voas	TPH-g	HCl	CT	
	3 voas	VOCs	HCl		
	1L Amber	8270	none		
	1L Amber	8270	none		
	1 500mL	TPH-d/mo	none		
	500 mL poly	total metals	HNO3		
2	500 mL poly	dissolve metals & Hexavalent Chromium	none		

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: CPMW-01
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE/RNM | Date: 3/18/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC):
Depth to Water (WL, ft. below TOC): 10.03
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type: Geo pump easy load
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 12.0
[ ] Near Bottom Depth (ft):
[ ] Other

PURGE VOLUME CALCULATION

___ (Water Column Length) X ___ (Multiplier) X ___ (No. Vols) = ___ gals CALCULATED PURGE VOLUME

Total Purge Time:
(Multiplier: 2" = 0.17, 4" = 0.66, 6" = 1.5)
Recharge Rate: Purge Rate:
___ gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / Gallons / Liters	pH	µS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1430 / 0	7.22	437	19.91	6.62	-201.6	10.07	water is clear
1432 / 0.5	7.08	418	19.52	2.98	-202.2	10.07	
1433 / 1.0	7.01	412	19.36	2.26	-207.9	10.08	
1435 / 1.5	6.96	413	19.37	1.99	-211.1	10.08	
1437 / 2.0	6.94	412	19.31	1.76	-212.8	10.08	
1439 / 2.5	6.93	410	19.35	1.72	-216.6	10.08	
/							
/							

Comments during well purge: use flow through cell
Purge water storage/disposal: [X] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/18/10 / 1445
Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: YSI

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	[ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
CPMW-1-2010-3-18	3 VOAs	TPH-g	HCl		
	2-1L Amber	8270M			
	1-500ml Amber	TPH d/mo			
	1-500mL poly	total metals	HNO3		
	1-500 mL poly	dissolved metals			

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER SAMPLING FORM

Project Name Pier 70 | Well No. SBGWDG3
Project Number 4963.01 | Well Type [X] Monitor [ ] Extraction [ ] Other
Recorded By ARSE | Sampled by ARSE / RNM | Date 3/19/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC) 8.5
Depth to Water (WL, ft. below TOC) 3.92
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft) 5.0
[ ] Near Bottom Depth (ft)
[ ] Other

PURGE VOLUME CALCULATION

4.08 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 2.08 gals CALCULATED PURGE VOLUME

Total Purge Time
(Multiplier . 2" = 0.17 4" = 0.66, 6" = 1.5)
Recharge Rate | Purge Rate

2.0 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type

Time / ~~Gallons~~ Liters	pH	µS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
0947 / 0	7.19	2511	16.89	19.38	-161.9	4.06	water is opaque
0948 / 0.5	7.82	2502	16.89	15.65	-186.7	4.07	observed oil that is
0950 / 1.0	8.11	2498	16.93	12.93	-200.9	4.09	light & floats in the
0951 / 1.5	8.24	2499	16.96	11.90	-209.8	4.09	water
0953 / 2.0	8.32	2500	16.96	11.28	-215.9	4.09	
0954 / 2.5	8.38	2502	16.95	10.33	-223.1	4.10	
0956 / 3.0	8.42	2505	16.96	9.36	-227.3	4.11	
0957 / 3.5	8.44	2506	16.96	9.65	-230.6	4.12	

Comments during well purge

Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled 3/19/10 / 1008

Bailer - Type [ ] Sample port [ ] Other [ ]

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	[ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
SBGWDG3-2010-3-19					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: SBGWDG3
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/19/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC): 8.5
Depth to Water (WL, ft. below TOC): 3.92
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type
[ ] Other

PUMP INTAKE

[ ] Near top Depth (ft)
[ ] Near Bottom Depth (ft)
[ ] Other

PURGE VOLUME CALCULATION

( ) Water Column Length X ( ) Multiplier X ( ) No. Vols = 2.08 gals CALCULATED PURGE VOLUME

Total Purge Time
(Multiplier: 2" = 0.17, 4" = 0.66, 6" = 1.5)
Recharge Rate | Purge Rate
2.0 gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type

Time / Gallons / liters	pH	Cond. (~~mmhos~~ µS/cm)	Temp	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
0959 / 4.0	8.46	2511	17.01	8.43	-236.6	4.13	- water is opaque
1000 / 4.5	8.47	2514	17.00	9.20	-259.6	4.13	
1001 / 5.0	8.48	2514	17.03	8.51	-245.2	4.13	
1003 / 5.5	8.49	2520	17.05	8.08	-248.6	4.13	
1004 / 6.0	8.49	2522	17.07	7.99	-250.7	4.14	
1005 / 6.5	8.50	2518	17.08	8.24	-253.7	4.14	
1006 / 7.0	8.50	2523	17.10	8.19	-257.2	4.14	
/							

Comments during well purge

Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/19/10 / 1008

Bailer - Type [ ] Sample port [ ] Other [ ]

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	[ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: SBGWDG4
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE / RNM | Date: 3/19/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other ____
Well Total Depth (TD, ft. below TOC): 7.5
Depth to Water (WL, ft. below TOC): 3.81
Depth to free phase hydrocarbons (FP, ft. below TOC): ____
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other ____

PURGE METHOD

[ ] Bailer \ Type ____
[ ] Pump \ Type ____
[ ] Other ____

PUMP INTAKE

[X] Near top Depth (ft): 5.0
[ ] Near Bottom Depth (ft): ____
[ ] Other ____

PURGE VOLUME CALCULATION

3.69 (Water Column Length) x 0.17 (Multiplier) x 3 (No. Vols) = 1.88 gals (CALCULATED PURGE VOLUME)

Total Purge Time: ____ (Multiplier: 2" = 0.17, 4" = 0.66, 6" = 1.5)
Recharge Rate: ____ Purge Rate: 0.5 L/min

____ gals (ACTUAL PURGE VOLUME)

GROUNDWATER PARAMETER MEASUREMENTS Meter Type: ____

Time / ~~Gallons~~ Liters	pH	µC Cond. (~~mmhos~~/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1031 / 0	7.73	1238	16.58	20.58	-196.0	4.04	- water is clear
1032 / 0.5	7.58	1217	16.53	8.10	-190.6	4.11	- observe decay organic
1033 / 1.0	7.52	1105	16.47	7.49	-187.0	4.1	material
1035 / 1.5	7.47	1000	16.36	6.64	-183.3	4.22	
1037 / 2.0	7.45	951	16.31	6.21	-180.0	4.25	
1039 / 2.5	7.44	941	16.29	5.92	-177.6	4.29	
1041 / 3.0	7.45	943	16.25	5.78	-175.0	4.31	
1043 / 3.5	7.45	958	16.24	5.64	-172.5	4.32	

Comments during well purge ____

Purge water storage/disposal [ ] Drummed onsite [ ] Other ____

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/19/10 / 1055

Bailer - Type [ ] ____ Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type: ____

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	[ ] deg C [ ] deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
SBGWDG4-2010-3-19					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: SBGWDG4
Project Number: 4963.01 | Well Type: ☐ Monitor ☐ Extraction ☐ Other
Recorded By: ARSE | Sampled by: ARSE/ RNM | Date: 3/19/10

WELL PURGING

PURGE VOLUME

Well casing diameter
☒ 2-inch ☐ 4-inch ☐ Other
Well Total Depth (TD, ft. below TOC): 7.5
Depth to Water (WL, ft. below TOC): 3.81
Depth to free phase hydrocarbons (FP, ft. below TOC):
Number of casing volumes to be purged
☐ 4 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer \ Type
☒ Pump \ Type
☐ Other

PUMP INTAKE

☒ Near top Depth (ft): 5.0
☐ Near Bottom Depth (ft):
☐ Other

PURGE VOLUME CALCULATION

3.69 (Water Column Length) X 0.17 (Multiplier) X 3 (No. Vols) = 1.88 gals — CALCULATED PURGE VOLUME

Total Purge Time:
Recharge Rate:
(Multiplier 2" = 0.17 4" = 0.66, 6" = 1.5)
Purge Rate:

gals — ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type:

Time / Gallons	pH	µS Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1044 / 4.0	7.46	977	16.25	5.45	-170.6	4.34	
1046 / 4.5	7.47	999	16.26	5.46	-169.6	4.37	
1047 / 5.0	7.48	1011	16.26	5.30	-168.5	4.37	
1048 / 5.5	7.48	1033	16.26	5.20	-167.1	4.37	
1050 / 6.0	7.48	1072	16.25	5.11	-164.2	4.39	
1052 / 6.5	7.49	1111	16.27	5.35	-163.4	4.40	
1053 / 7.0	7.50	1138	16.26	5.39	-162.6	4.41	
/							

Comments during well purge:

Purge water storage/disposal ☐ Drummed onsite ☐ Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 3/19/10 / 1055

Bailer - Type ☐ | Sample port ☐ | Other ☒ pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type:

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	☐ deg C ☐ deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
SBGWDG4-2010-3-19					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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Environmental and Geotechnical Consultant

GROUNDWATER SAMPLING FORM

Project Name: Pier 70 | Well No.: CCMW-01
Project Number: 4963.01 | Well Type: [X] Monitor [ ] Extraction [ ] Other
Recorded By: ARSE | Sampled by: ARSE/RNM | Date: 8/19/2010

WELL PURGING

PURGE VOLUME

Well casing diameter
[X] 2-inch [ ] 4-inch [ ] Other
Well Total Depth (TD, ft. below TOC)
Depth to Water (WL, ft. below TOC): 2.39
Depth to free phase hydrocarbons (FP, ft. below TOC)
Number of casing volumes to be purged
[ ] 4 [ ] 10 [ ] Other

PURGE METHOD

[ ] Bailer \ Type
[X] Pump \ Type
[ ] Other

PUMP INTAKE

[X] Near top Depth (ft): 5
[ ] Near Bottom Depth (ft)
[ ] Other

PURGE VOLUME CALCULATION

Water Column Length X Multiplier X No. Vols = gals CALCULATED PURGE VOLUME

Total Purge Time
(Multiplier 2" = 0.17, 4" = 0.66, 6" = 1.5)
Recharge Rate | Purge Rate

gals ACTUAL PURGE VOLUME

GROUNDWATER PARAMETER MEASUREMENTS Meter Type

Time / ~~Gallons~~ liters	pH	Cond. (mmhos/cm)	Temp °C	DO (mg/L)	ORP (mV)	DTW	Color / Odor Remarks
1140 / 0	8.10	2883	17.07	23.06	-120.4	2.77	- water is opaque.
1142 / 0.5	8.08	2910	16.56	4.77	-122.7	2.86	
1144 / 1.0	8.09	2917	16.55	3.68	-121.6	2.91	
1146 / 1.5	8.10	2918	16.57	3.10	-126.4	2.95	
1147 / 2.0	8.13	2909	16.63	2.96	-136.8	2.96	
1149 / 2.5	8.18	2888	16.72	2.60	-152.3	2.96	
/							
/							

Comments during well purge

Purge water storage/disposal [ ] Drummed onsite [ ] Other

WELL SAMPLING

SAMPLING METHOD Date/Time Sampled: 8/19/2010/ 1200

Bailer - Type [ ] Sample port [ ] Other [X] pump tubing

GROUNDWATER SAMPLE PARAMETER MEASUREMENTS Meter Type

Date / Time / % Recharge	pH	Cond. (mmhos/cm)	Temp	deg C / deg F	Turbidity (NTU)	Color / Odor Remarks
/ /						

SAMPLING PROGRAM

Sample No.	Container #/Volume	Analysis	Preservatives	Laboratory	Comments
CCMW-01-2010-8-19					

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.
	Dup-1-2010-8-19

Blank Samples

Type	Sample No.
Trip	
Rinsate	
Transfer	
Other:	

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GROUNDWATER GAUGING FORM

Project Name: Pier 70 Project No.: 4963 01

IP#: Date: 3/19/2010

Measured from. GRADE / TOP OF CASING (Circle one) Gauged by: ARSE/ RNM

Well I.D.	Depth to Bottom (Feet)	Well Diameter (inches)	Depth to Water (Feet)	Depth to Product (Feet)	Product Thickness (Feet)	CALC. 80% RECHG.	COMMENTS Please note if well needs repair
ECMW-01			2.35				
SBEWD64			3.86				
SBEWD63			4.94				
P2MW-01			5.80				
SPMW-01			8.65				
P9MW-01			10.81				
P9MW-04			10.77				
P9MW-03			4.48				
P9MW-02			6.31				
P8MW-01			6.21				
CPMW-01			10.02				
P3MW-01			12.61				

TMW-28A - not measured because the cap on the well has a lock & Geomatrix is the only one that has the key to open it.

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APPENDIX E

Sample Location Survey Coordinates and Groundwater Surface Elevation

Table E-1
Sample Location Survey Coordinates and Ground Surface Elevations
Pier 70 Environmental Site Investigaiton
San Francisco, California

Parcel	Location	X Coordinate	Y Coordinate	Groud Surface Elevations
Crane Cove Park	CCMW-01	6016580.33	2105637.01	11.49
	CCSB-01	6016305.85	2105584.63	11.09
	CCSB-02	6016425.09	2105356.76	11.38
	CCSB-03	6016581.50	2105639.39	11.14
	CCSB-04	6016307.44	2105895.50	13.04
	CCSB-05	6016585.64	2105780.43	10.04
	CCSS-06	6016173.20	2105577.06	13.58
	CCSS-07	6016527.75	2105548.99	11.45
	CCTP-01	6016596	2105794	NA
	CCTP-03	6016548	2105786	NA
	GWDG3	6016410.92	2105680.69	9.67
	GWDG4	6016432.36	2105668.49	9.80
Central Plaza Park	CPMW-01	6017008.09	2104793.69	13.98
	CPSB-01	6017004.86	2104792.37	13.96
	CPSB-02	6016933.19	2104736.90	14.41
	CPSB-03	6017051.77	2104697.61	13.89
	CPSB-04	6016918.00	2104853.96	13.48
	CPSB-04A	6016918.00	2104853.96	13.48
	CPSB-04B	6016918.00	2104853.96	13.48
Parcel 1	P1SB-01	6016053.97	2106151.16	11.68
	P1SB-02	6016053.75	2105925.10	13.82
	P1SB-03	6016123.69	2105835.59	16.68
	P1SB-04	6016045.15	2105658.21	14.74
	P1SG-01	6016069.60	2105933.25	13.57
	P1SG-02	6016086.63	2105742.69	13.89
	P1SG-03	6016143.73	2105953.92	7.70
	P1SG-04	6016114.33	2105906.50	9.26
Parcel 2	P2MW-01	6016215.35	2105274.25	12.35
	P2SB-01	6016215.35	2105274.25	12.04
	P2SB-02	6016185.27	2105025.52	15.05
	P2SB-03	6016484.60	2105261.74	11.37
	P2SB-04	6016268.23	2105025.73	14.78
	P2SB-05	6016487.40	2105041.93	12.91
	P2SB-06	6016073.38	2105384.49	14.08
	P2SB-07	6016190.77	2105274.19	12.79
	P2SB-08	6016214.58	2105250.58	12.46
	P2SB-09	6016240.62	2105273.64	12.18
	P2SB-10	6016454.34	2105167.00	12.81
	P2SG-01	6016118.52	2105304.88	13.01
	P2SG-02	6016278.84	2105123.34	13.15
	P2SG-03	6016420.28	2105160.72	12.68
	P2SG-04	6016502.62	2105165.25	12.63
	P2SG-05	6016384.91	2105160.37	12.80
	P2SG-06	6016416.94	2105224.45	13.02
Parcel 3	P3MW-01	6016349.16	2104725.52	19.05
	P3SB-01	6016131.42	2104736.56	34.27
	P3SB-02	6016349.70	2104727.47	18.82
	P3SG-01	6016273.51	2104752.18	20.74
Parcel 4	P4SB-01	6016580.38	2104913.24	12.44
	P4SB-03	6016408.75	2104698.79	12.24
	P4SB-04	6016670.25	2104721.36	12.94
	P4SB-05	6016489.85	2104695.62	12.54
	P4SB-06	6016537.87	2104535.64	12.99
	P4SB-07	6016718.35	2104633.37	11.99
	P4SB-08	6016844.93	2104638.64	13.02
	P4SB-09	6016594.43	2104388.95	14.91
	P4SB-10	6016427.61	2104410.68	13.86
	P4SB-11	6016848	2104741	NA
	P4SB-12	6016689.89	2104724.20	13.02
	P4SB-13	6016778.75	2104629.95	13.15
	P4SB-14	6016716.06	2104607.76	13.50
	P4SB-15	6016681.97	2104631.42	13.13
	P4SB-16	6016605.26	2104534.06	13.88
	P4SB-17	6016567	2104912	NA
	P4SB-18	6016639	2104729	NA
	P4SG-02	6016769.37	2104710.75	13.12
	P4SG-03	6016534.84	2104643.95	13.49
	P4SG-04	6016429.18	2104686.86	12.31
	P4SG-05	6016346.46	2104812.86	19.76
	P4SG-07	6016448.45	2104534.17	12.42
	P4SG-08	6016425.31	2104485.13	13.78
	P4SG-09	6016441.41	2104575.39	12.45
	P4TP-AEW-01S	6016610	2104518	NA
	P4TP-AEW-02B	6016611	2104522	NA
	P4TP-AEW-03S	6016599	2104517	NA
	P4TP-AEW-04B	6016596	2104514	NA

Table E-1
Sample Location Survey Coordinates and Ground Surface Elevations
Pier 70 Environmental Site Investigaiton
San Francisco, California

Parcel	Location	X Coordinate	Y Coordinate	Groud Surface Elevations
Parcel 5	P5SB-01	6016732.71	2104482.93	13.67
	P5SB-02	6016891.02	2104365.50	15.95
	P5SB-03	6017021.81	2104437.14	13.97
	P5SB-04	6016756.81	2104170.04	14.90
	P5SB-05	6017060.86	2104185.23	13.45
	P5SG-01	6017040.73	2104543.43	13.91
	P5SG-02	6016879.08	2104508.86	15.89
	P5SG-03	6017090.15	2104086.62	13.49
	P5SG-04	6016873	2104471	NA
	P5SS-06	6017045.90	2104077.22	13.58
	P5SS-07	6016853.07	2104064.55	13.81
	P5SS-08	6017058.64	2104496.44	13.81
Parcel 6	P6SB-01	6017130.42	2104863.33	11.68
	P6SB-02	6017400.28	2104771.64	13.16
	P6SB-03	6017309.93	2104609.04	12.20
	P6SB-04	6017355.47	2104393.74	12.03
	P6SB-05	6017137.68	2104436.44	12.60
	P6SB-06	6017348.48	2104218.39	12.04
	P6SB-07	6017538.29	2104228.29	11.71
	P6SB-08	6017300.74	2104493.84	12.63
	P6SB-09	6017517.97	2104299.59	11.91
	P6SB-10	6017537.90	2104171.69	11.96
	P6SG-02	6017253.56	2104608.52	12.28
	P6SG-03	6017271.40	2104309.65	11.66
	P6SG-04	6017353	2104117	NA
	P6SGP-01	6017488.72	2104788.07	14.32
	P6SGP-02	6017315.42	2104668.24	13.42
	P6SS-11	6017237.67	2104266.76	12.07
Parcel 7	P7SB-01	6016861	2103953	NA
	P7SB-02	6017047	2103893	NA
Parcel 8	P8MW-01	6017372.36	2103905.50	11.97
	P8SB-01	6017371.48	2103906.63	11.79
	P8SB-02	6017521.01	2103910.64	11.98
	P8SG-01	6017292.49	2103931.00	11.88
	P8SG-02	6017659.65	2103917.13	12.38
	P8SG-03	6017741.88	2103924.96	11.97
	TGU-18	6017562.74	2103951.59	11.70
Parcel 9	P9MW-01	6017192.92	2105216.41	14.50
	P9MW-02	6016681.48	2105087.50	12.31
	P9MW-03	6016879.21	2105401.26	10.64
	P9MW-04	6017224.82	2105325.23	15.06
	P9SB-01	6016654.50	2105368.59	11.38
	P9SB-02	6016552.46	2105330.63	12.22
	P9SB-03	6016982.16	2105354.46	10.20
	P9SB-04	6016686.75	2105094.04	16.78
	P9SB-05	6017005.54	2105116.67	9.71
	P9SB-06	6017192.80	2105217.63	14.23
	P9SB-07	6017191.69	2105267.54	14.64
	P9SB-08	6017242.74	2105222.11	15.11
	P9SB-09A	6016979.49	2105293.60	11.55
	P9SB-09B	6016878.33	2105401.41	10.59
	P9SB-10	6016785.61	2105136.59	12.86
	P9SB-11	6016826.30	2105202.86	12.17
	P9SB-12	6017168.26	2105336.42	14.65
	P9SB-13	6017270.77	2105235.19	15.01
	P9SB-14	6017223.89	2105323.55	15.09
	P9SG-01	6016853.11	2105089.83	12.18
	P9SG-02	6017080.50	2105132.61	10.74
	P9SG-03	6017188.25	2105116.58	13.32
	P9SG-04	6017159.52	2104907.81	11.62
	P9SG-05	6016873.96	2105122.67	11.22
	P9SG-06	6016883.00	2105085.61	11.21
Slipway Park	SPMW-01	6017604.85	2104533.21	12.23
	SPSB-01	6017304.23	2105257.98	13.95
	SPSB-02	6017416.92	2105095.78	13.01
	SPSB-03	6017623.02	2104833.19	11.70
	SPSB-04	6017606.63	2104535.16	12.30
	SPSB-05	6017665.84	2103943.25	11.95
	SPSGP-01	6017757.05	2104460.78	10.91
	SPSGP-02	6017783.03	2104311.90	11.51
	SPSGP-03	6017802.49	2104188.60	11.42
	SPSGP-04	6017794.70	2103994.09	12.08
	SPSS-05	6017636.11	2104752.37	12.13
	SPSS-06	6017786.99	2104333.54	11.43
	SPSS-07	6017743.64	2104109.41	13.05
	SPSS-08	6017751.74	2103971.91	12.01

Table E-1
Sample Location Survey Coordinates and Ground Surface Elevations
Pier 70 Environmental Site Investigaiton
San Francisco, California

Parcel	Location	X Coordinate	Y Coordinate	Groud Surface Elevations
Slipway Park	SPTP-01	6017731	2104435	NA
	SPTP-02	6017685	2104328	NA
	SPTP-03	6017735	2104203	NA
	SPTP-04	6017746	2104040	NA
	SPTP-05	6017543.06	2104446.36	11.88
	SPTP-06	6017793	2104208	NA
	TGU-16	6017668.81	2103913.51	12.25
	TGU-23	6017747.76	2103990.93	12.17
	TGU-24	6017797.74	2104046.06	10.68
	TMW-28A	6017774.18	2103943.62	12.14

Note:
X and Y Coordinates are presented in the California State Plane Coordinate System, Zone 3, US Survey Feet, North American Datum of 1983 (NAD83).

Elevations are presented in US Survey Feet with respect to the North American Vertical Datum of 1988 (NAVD88).
SB - soil boring
MW - monitoring well
SG - soil gas boring
SGP - soil gas probe
GW - B 50 Monitoring Well
TP - test pit
TMW 28 A - AMEC Geomatrix Monitoring Well

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APPENDIX F

William Self Associates Archeological Report

ARCHAEOLOGY AND HISTORIC PRESERVATION

MEMORANDUM

TO: **Dustyne J. Sutherland**
Treadwell & Rollo

DATE: March 29, 2010

FROM: **James M. Allan, Ph.D., RPA**
Vice-President

SUBJECT: **Archaeological Monitoring of Environmental Site Investigations within the Pier 70 Master Plan Area, San Francisco**

In accordance with our agreement, William Self Associates, Inc. (WSA) conducted archaeological monitoring of Treadwell & Rollo's environmental site investigations within the upland portion of the Pier 70 Master Plan Area, San Francisco, California. The Pier 70 Master Plan Area is located on the eastern shoreline of San Francisco within the Potrero Point area and is roughly bounded by 22nd Street to the south, Illinois Street to the west, and San Francisco Bay to the north and east. The Site encompasses approximately 64 acres and is largely underlain by fill material placed seaward of the San Francisco historic shoreline between the late 1800s to early 1900s. Treadwell & Rollo's environmental site investigations were conducted to support redevelopment of the Site in accordance with the Master Plan.

Archaeological monitoring of the environmental site investigations was conducted by WSA archaeologists, Drew Bailey, David Buckley, Angela Cook, Leigh Martin, Rhonda Robichaud, Jeffrey Schaeffer, Eric Strother, and Tom Young, between August 26, 2009 and February 16, 2010. Copies of the archaeological monitoring logs are provided in Appendix A.

Site History

A site history of the Pier 70 Master Plan area was prepared for the Pier 70 Preferred Master Plan (Port of San Francisco 2009) and by Treadwell & Rollo (2009) for the Work Plan for Environmental Site Investigation, Pier 70 Master Plan Area. The Central Waterfront Cultural Resources Survey, Summary Report and Draft Context Statement also encompassed the Pier 70 Master Plan Area (San Francisco Planning Department 2001). The site history is briefly summarized in this memo.

The project area encompasses an area that, prior to historic development, consisted of a hilly outcrop at Potrero Point, originally referred to as Point San Quentin, an approximately 450 ft. wide tidal flat along the shoreline of Potrero Point, and the shallow waters of San Francisco Bay. In the late 1800s and early 1900s, the tidal flat and part of the Bay waters were filled primarily with serpentine rock blasted from nearby hills. The newly created land was used for the manufacture, maintenance, and repair of marine vessels. The most well-known of the shipbuilding companies included the Union Iron Works, Bethlehem Steel, Todd Shipyards, Risden Iron Works, Southwest Marine, and SF Drydock. Many of the workers at the shipyards and other industrial businesses were Irish immigrants who lived on nearby Irish Hill, also within the Pier 70 Master Plan Area. Recent land use has included metals recycling, automobile recycling and storage, ship repair, and warehousing (Treadwell & Rollo 2009).

Tidal Flat and Bay Waters

Approximately two-thirds of the geotechnical testing occurred within the area formerly characterized by tidal flats and shallow Bay waters. In this area, gravelly fill was encountered in the geotechnical bores to a depth of up to approximately 21 ft. below ground surface. In some areas, the fill contained fragments of wood, brick, rubber and glass (Table 1). The fill layer was underlain by marine deposits.

Table 1 Testing Areas Containing Brick, Wood, Rubber and/or Glass

Testing Location	Depth (ft. below surface, approx.)	Cultural Materials	Comments
SPSB-01	1.5	small brick fragments	within fill layer
P9SB-06	0-5	red brick fragments, slag	within fill layer
Northwest end of Bldg 6	4.5	small brick fragments	within fill layer
SPSB-02	10	layer of decomposed brick?	underlying fill, maximum depth of bore was 10 ft.
P9SB-03	3-4	brick and wood fragments	within fill layer
P9SB-05	0-5	brick, wood, rubber and glass fragments	within fill layer
P1SB-04	1-2	small brick fragments	within fill layer
P2SB-01	5	wood fragments	within fill layer
CCSB-03	1.5	wood debris	possible creosote-soaked piling
	5-8	wood debris	similar to wood observed at 1.5 ft. below surface
P3SB-02	10-10.5	green bottle glass fragment	within fill layer
CPSB-03	10-13	red brick fragments, slag	within fill layer
SPSB-04	10-11	red brick fragments	at base of fill layer/upper portion of marine deposits
P6SB-01	6.5	corroded metal, slag, charcoal	within fill layer
P2SB-06	0-6.5	wood, small brick fragments (larger brick fragments from 5-6.5 ft.)	within fill layer

Testing Location	Depth (ft. below surface, approx.)	Cultural Materials	Comments
P9SB-04	1-5	small brick fragments	within fill layer
SPSB-05	0-10	brick fragments	within fill layer
monitoring well, Crane Cove Park	8	wood and metal fragments, slag	within fill layer
CPSB-04	3	brick and glass fragments	within fill layer
	4.5	concrete	possible footing

It is likely that some of the brick and wood fragments represent debris from the demolition of various brick buildings that formerly existed at Pier 70. Cobblestones were encountered in P4SB-01 within the 20th Street alignment and may represent a former road surface.

In CCSB-03, wood that appeared to have been soaked in creosote (used as a preservative), was encountered at 18 in. below surface and at 8 ft. below surface. CCSB-03 is located within Slip No. 3 in the northeastern portion of the project area (Photo 1). The wood may represent a piling from the slipway, as during the late 1800s and early 1900s, wood pilings treated with creosote were used in the construction of slips (*The Railway Age* 1901:267).

A shell deposit was encountered within P2SB-02, located east of Building 101. A layer of marine deposits containing mussel and clam shell was encountered from 14 ft. to 15 ft. below surface. The lower 3 in. of this shell-bearing layer consisted of a fine black clayey sand (Photo 2). No cultural material, faunal bone or charcoal was observed within this material and it appeared to be natural in origin. Bore P2SB-02 was located approximately 100 ft. east of the historic-period shoreline, at the location of the former tidal flats.

Fragmentary shell was also found in CCSB-05. Marine deposits were encountered below an approximately 8-ft.-thick layer of fill and shell fragments were encountered from 14 to 15 ft. below surface. No artifacts, faunal bone or charcoal was observed in association with the shell. CCSB-05 was located approximately 975 ft. from the historic shoreline and it is likely a naturally-occurring deposit.

Slipway Park

Geotechnical testing in Slipway Park did not extend beneath the level of the concrete slipways, constructed in the 1940s and backfilled ca. 1965. The fill material contained wood and wood fragments, with some brick, metal and window glass fragments (Photo 3). No temporally diagnostic artifacts were observed. The concrete slipways were encountered at depths ranging from approximately 4.5 to 6.5 ft. below surface

Irish Hill

Within the Irish Hill area, sand and serpentine rock fill was found overlying serpentine bedrock (Photo 4). The fill was likely spread in this area when Irish Hill was partially leveled in the late 1800s and used to fill parts of the Bay (Olmsted 1986:30). Irish Hill was graded further in the early 1900s for expansion of the Bethlehem Steel shipyard (San Francisco Planning Department 2001:12, 14). Closer to the shoreline, bedrock was encountered at approximately 7 ft. below surface, overlain by gravelly fill containing some red brick fragments.

Table 2 Testing Areas Containing Brick, Wood, and/or Glass

Testing Location	Depth (ft. below surface, approx.)	Cultural Materials	Comments
P5SB-01	5-7	red brick fragments	within fill layer
monitoring well, east of Bldg 14	4.5-5	slag, burnt material, 1 non-diagnostic clear glass fragment	within fill layer
P4SB-14	2.5	small brick fragments	within fill layer

Subsurface concrete slabs or footings were encountered during testing including in P5SB-05 where concrete was encountered between 3 in. and 2 ft. below surface, and P5SB-02 where concrete occurred between 1 and 1.5 ft. below surface.

Recommendations

No diagnostic artifacts or intact archaeological deposits were encountered during archaeological monitoring of Treadwell & Rollo's environmental site investigations. However, should any previously undiscovered historic or prehistoric resources be found during future projects that involve ground disturbance, work should stop, in accordance with relevant State and/or Federal regulations, until such time that the resource can be evaluated by a qualified archaeologist and appropriate mitigative action taken as determined necessary by the City or County Lead Agency.

In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code should be followed. Section 7050.5(b) of the California Health and Safety Code states:

> *In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning*

> *treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.*

The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within 24 hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction."

References

Olmsted, Nancy

1986 *Vanished Waters, A History of San Francisco's Mission Bay*. Mission Creek Conservancy, San Francisco, CA.

Port of San Francisco

2009 Pier 70 Draft Preferred Master Plan, Pier 70 Northeastern Shoreline, San Francisco, California.

San Francisco Planning Department

2001 Central Waterfront Cultural Resources Survey, Summary Report and Draft Context Statement. Prepared by the San Francisco Planning Department, San Francisco, CA.

The Railway Age

1901 The Santa Fe's San Francisco Terminals. *The Railway Age*. September 20, p. 267.

Treadwell & Rollo

2009 Work Plan for Environmental Site Investigation, Pier 70 Master Plan Area, San Francisco, California. Prepared for the Port of San Francisco, San Francisco, CA.

Photographs

Photo 1: Drilling of CCSB-03 within Slip No. 3, view north.

Photo 2: P2SB-02, 14-15 ft. marine deposit containing shell.

Photos 1 and 2	**Pier 70 Master Plan Area** **Archaeological Monitoring** **San Francisco, California**

Photo 3: SPTP-03, excavated test pit, concrete slip visible in base of trench.

Photo 4: P5SB-02, 1-4 ft. below surface of building floor.

Photos 3 and 4	**Pier 70 Master Plan Area** **Archaeological Monitoring** **San Francisco, California**

Archaeological Monitoring Logs

WSA
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Daily Log
Construction Monitoring

Monitor: David Buckley	**Date:** 8/26/09	**Day:** Wednesday
General Location: 20th St @ Bldg 105, San Francisco, CA		
Onsite Construction Supervisor:	**Arrival Time:** 7:30 AM	
Equipment Operator(s) (if known): Justin - Vironex - Environ Field Services	**Departure Time:** 4:30 pm	
Native American Monitor(s) Present: n/a		
Agency/Project Personnel Present During Workday: Dustyne Sutherland - Treadwell & Rollo; Ross Williams - Treadwell & Rollo		

List Construction Activities Monitored:	Location:
Direct Push method geotech boring	W/in compound of Bldg 105 (see map)

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS 0

Noteworthy soil to keep in mind was found in bore hole P2SB-02 @ a depth of 14' below the surface, which consisted of a dark gray to black, wet, peat-like silty clayey sand with high organic matter and organic/oil odor with bits of shell present (mussels/clam). Bottom 3" is a firm black clayey sand w/ same characteristics. (Millin-like).

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Met up with T&R and driller @ 7:30 in front of Bldg. 105. Had safety training. 3 bore holes were completed. The first was P2SB-04. It was located w/in BAE property in the N side of W corner of Bldg 102. Was drilled to 15'. T&R conducted several other tests & collected groundwater. Next bore hole (P2SB-02) was 65 ft to the W-NW of 1st hole. Drilled down to 15' with dark gray to black clayey sand, organic soil w/sheen present @ 14'. Moved to bore hole P2SB-03 @ N side of Bldg 38. 3 attempts to hand auger down to 5 ft failed b/c of large (up to 1½" rock/gravel) & pieces of asphalt in hole. Hole abandoned. T&R then moved to bore hole P2SB-05 @ NW corner of Bldg 105 and drilled (direct push) to 10'.

Was there a need for work stoppage or redirection? If so, explain:

Only work stoppage / relocation was due to difficulty boring in first 5 ft. w/ hand auger because of gravel and rock & hard pieces of asphalt that prevented further digging.

Additional Comments:

3 bore holes were completed today. The first 2 were to 15', while the last was bored to a depth of only 10 ft.

Signature:	**Date:** 8/26/09

Continuation Sheets Used? Yes [✓] No [ ] (Field book notes attached)

8/26/09

Treadwell & Rollo - Pier 70

- Arrived @ Bldg 105 and met Dustyne from Treadwell & Rollo. Had safety training.

- Today there is only 1 rig, and they will be doing ≈3-4 holes today to a depth of 10 ft using direct push method. Hand clearing hole to 5 ft. Tomorrow they will have 3 rigs, ∴ 3 people needed to monitor.

First bore hole is P2SB-04 to 10 ft.

0-3' - 2" concrete, followed by dark brownish gray soil - mostly gravel and rock. Silty loam. [fill]
@ 2' soil becomes brownish gray w/ yellow, poorly sorted w/ gravels - loamy sand

4-5' - mottled dark gray + tan loamy silt w/ clay

5-10' — s. plastic [fill]
- rocks/gravelly, moist - mottled dark gray + tan silt w/ clay to clayey sandy silt

10-15'
- transition to very dark bluish-gray clay w/ silt @ 13-13½ ft.
- Groundwater @ 13'3".

P2SB-02 ~68' from previous bore hole

0-3'

Same as previous hole @ same depth.

4-5'

Same hole @ same depth.

5-10'

Gravelly & rocky mottled dark gray & tan, slightly moist, poorly sorted clayey, sandy silt. (gravelly clayey silt.

10-15'

Transition @ 13½' to more wet, less rocky soil, still fill. Transition @ 14' to dark gray to black, wet peat-like bay mud with high organic matter, and organic/oil odor; bits of shell present. Mussel/clam. Soil is clay w/sand to a fine black clayey sand @ bottom 3".

P9SB-03

0-3'

First 2" is asphalt/concrete. Mostly rocky - up to 1½" length

T:p: Decided to relocate hole ~3½' away from original b/c of excess gravel & rock & not much soil.

0-2½'

2" asphalt. Then silty loam, mottled dark gray & tan with lots of gravely & rocks.

3'-4'

mottled, slightly moist, dark gray/blue & tan, gravelly silty clay. Mod. odor. [fill]. Brick fragments observed, as well as wood fragments. Also clayey silt w/gravel @4'. Abandoned @4' b/c of bad gravels & pieces of asphalt. Moved over 3½' again. Same [illegible]

P9SB-05

0-5' [fill]

2" asphalt then rocky/gravelly dark grayish & brown gravelly loamy silt w/ brick, wood, rubber & glass fragments.

5-10'

Transition @ ~7' from gravelly fill to a darker gray to black, more wet, fine clayey silty sand, with large gravel inclusions still. Organics present. Organic odor present

WSA
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Daily Log
Construction Monitoring

Monitor: Rhonda ROBICHAUD	Date: 8/27/09	Day: Thursday
General Location: Pier 70 Parcel 9 + 6		
Onsite Construction Supervisor:	Arrival Time: 7:30	
Equipment Operator(s) (if known): Austin	Departure Time: 4:20	
Native American Monitor(s) Present:		
Agency/Project Personnel Present During Workday: ROB Treadwell & Rollo		

List Construction Activities Monitored:	Location:
Push Bore 3" diameter	Parcel 9 + 6 (See back of Log)

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS 0

Brick frags noted in 2 of the borings.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)
Treadwell & Rollo sampling at 2', 5' + 10' only 1 bores extended beyond 10' to 12'
Monitored the excavation of 3 direct push bores – 2 in Parcel 9 (SPSB-01 & SPSB-02) & 1 in Parcel 6 (P6SB-02). Strats on back.

Was there a need for work stoppage or redirection? If so, explain: NO

Additional Comments:

Signature: Rhonda Robichaud Date: 8/27/09

Continuation Sheets Used? Yes [ ] No [X]

Parcel 9 - SPSB-01

0 - 2½" asphalt
2½" - 2½' medium brown, sandy silt w/ gravel
2½' - 3½' orange brown clayey sand w/ no inclusions (fill layer)
3½' - 7' medium brown clayey sand w/ some gravel
7' - 10' gray green silty sand w/ serpintine inclusions

note: ~ 1½' ↓ small flags of brick

Parcel 9 - SPSB-02

0 - 2½" asphalt
2½" - 4' medium brown fine dry silt w/ gravel
4' - 10' light brown sandy silt w/ shale inclusions
10' layer of wet homogenous dark red matter - (disintegrated brick?)

Parcel 6 - P6SB-02

0 - 2½" asphalt
2½" - 4' ~~(concrete (green gray tint~~) medium brown sandy silt w/ some clay & gravel
4' - 5' concrete (green gray tint)
5' - 6' Medium brown w/ gravel (in tube - didn't get to touch it)
* 6' - 8½' concrete ; (green gray tint)
8½' - 9½' fill layer - (fell back in hole before it could be examined)
9' - 12' Black Bay Mud

* operator thought we were on another slab and tube came out with gray green concrete dust all around the interior but on examination the dust contained flecks of medium brown hard packed clayey silt & gravel

TREADWELL + ROLLO / PIER 70

[redacted]

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Daily Log
Construction Monitoring

Monitor: DREW BAILEY	**Date:** 8/27/09	**Day:** THURSDAY
General Location: PIER 70, SAN FRANCISCO		
Onsite Construction Supervisor: DUSTINE (TREADWELL)	**Arrival Time:** 7:30 AM	
Equipment Operator(s) (if known): JACK	**Departure Time:** 4:00 PM	
Native American Monitor(s) Present: —		

Agency/Project Personnel Present During Workday:
TREADWELL + ROLLO, HALEY + ALDRICH

List Construction Activities Monitored:	Location:
POTHOLING	NORTHERN END OF SLIPWAY PARK

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS 0 ***FILL OUT BAG LOG***

LAYER CONTAINING A DENSE CONCENTRATION OF WOOD AND WOOD FRAGMENTS LOCATED BETWEEN APPROX. 2.5 - 5 FT. LAYER ALSO CONTAINED SOME METAL FRAGMENTS AND WINDOW GLASS. ENCOUNTERED A POSSIBLE CONCRETE SLAB AT APPROX. 6.5 FT.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

DIGGING DELAYED BECAUSE OF A FLAT TIRE ON BACKHOE (ARRIVED @ 12PM) DUG STP-01 IN NORTH END OF SLIPWAY PARK. EXCAVATION STOPPED SHORT OF PLANNED 8-9 FT BECAUSE OF CONCRETE SLAB. TEST PIT BACK-FILLED AND COMPACTED AT THE END OF THE DAY.

Was there a need for work stoppage or redirection? If so, explain:

NO.

Additional Comments: MARK FROM TREADWELL + ROLLO, AND AN ENGINEER CAME ON SITE NEAR THE END OF THE DAY.

Signature: [signature] **Date:** 8/27/09

Continuation Sheets Used? Yes [ ] No [X] **Page** 1 **of** 1

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Daily Log
Construction Monitoring

Monitor: David Buckley	**Date:** 8/28/09	**Day:** Friday
General Location: 20th St. - Pier 70 @ Bldg 105 - W/in BAE Property S.F.		
Onsite Construction Supervisor: —	**Arrival Time:** 7:00 AM	
Equipment Operator(s) (if known): Joel - Enterprise	**Departure Time:** 4:45 PM	
Native American Monitor(s) Present: n/a		
Agency/Project Personnel Present During Workday: Rob Milano - Treadwell & Rollo Dustyne Sutherland - Treadwell & Rollo		

List Construction Activities Monitored:	Location:
Geo Tech boring (Direct Push Method)	W/in BAE Property by Bldg. 105

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS —

No artifacts or cultural soils observed or collected

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Arrived on site @ 7:30 am and met Dustyne Sutherland & Rob Milano of T&R and Joel of Enviro-X as well as Tom Young & Leigh Martin of WSA. Tailgate Tailgate w/ Dustyne + — went w/ Rob & Enviro-X crew and proceeded to bore hole P25B-05 w/in BAE property. First bore hole was P25B-02, followed by P15B-01 after both were located outside of BAE ppty. to have low Pile. Final bore hole of day was P25B-01. (See map for precise locations & field notes for more detailed info on bore holes).

Was there a need for work stoppage or redirection? If so, explain:

No need for work stoppage or redirection.

Additional Comments:

Will continue with Geo-Tech/Environmental boring through next week.

Signature: [signature] **Date:** 8/28/09

Continuation Sheets Used? Yes [✓] No [ ] **Page** 1 **of** 3

P9SB-05

0-5'

[Fill]

2" asphalt then rocky/gravelly dark grayish & brown gravelly loamy silt w/ brick, wood, rubber & glass fragments.

5-10'

Transition @ ~7' from gravelly fill to a darker gray to black, more wet, fine clayey silty sand, with large gravel inclusions still. Organics present. Organic odor present

8/28/09

Treadwell & Rollo - Pier 70, S.F. CA

Arrived on site @ 7 am. Met Dustyn & Rob w/ T&R @ 7:30, along with Tod of Marinco and Leigh Martin & Tom Gray of USA. Leigh & Tom went w/ Dustyn to monitor hollow stem drilling & test pits. I went w/ Rob w/ Olde property to monitor the direct push geo-tech borings.

P25B-05

Will be bored to depth of 10'. Only soil samples

0-1'

First 2-3" is asphalt, followed by silty, gravelly dry, loose, light gray loam w/ med-large pieces of asphalt and rocks & gravels. (up to 6" in length).

1-2'

Transition to grayish brown w/ tan gravelly silt, dry, loose, poorly sorted

2 - 3½'

Transition black gravelly sandy silt asphalt-like [illegible]

3½ - 5'

Transition to yellowish-gray sandy gravelly silt, loose

5-10' (50% recovery)

brownish yellow-gray gravelly & rocky, moist, sandy silt w/clay.

P9SB-02 · To 10'. Located N of prev. hole; S of [illegible] 52.

0 - 1½'

2-3" asphalt, followed by rocky/gravelly, dark grayish brown, loose, [illegible], dry loamy silt w/sand.

(bore hole moved 1' E b/c rig hitting something hard @ that depth)

0-1½'

S.A.A. @ same depth. Encountered some hard material (possible concrete pad). Moved hole ~3½' to SW.

2-3½'

Med-dark brown, loose, gravelly sandy silt; dry

3-5'

Black gravelly sandy silt asphalt-like silt; loose; poorly sorted, mottled w/some tan/brown.

5-10' (45% recovery)

Transition @ 8' to dark gray to black mottled, wet, clayey sandy silt w/gravel (getting into Bay Mud?); oily smell.

Took lunch @ 12:15.

• @ 1:30 moved over to Port of S.F. property to bore P1SB-04. Soil sample only. To 10'.

P1SB-04

0-1'

1-2" asphalt followed by med gray, loose, dry, rocky & gravelly sandy silt.

1-2'

Trans. to darker brown color w/ some brick frag debris up to 1½" in length.

2'-5'

Gray-olive, loose, slightly moist silty sand, very fine, mottled w/ lighter tan

5-10'

Continuation of grayish olive silty sand w/clay; grades to w/ gravel & angular rocks. Mottled w/ brown & [illegible] in some areas. Moist.

P2SB-01 · To 10'

0-1'

dry, loose, gravelly & rocky light brown-gray sandy silt.

1-5'

Grades to dark gray to black sandy silt w/ inclusions/debris (brick, rock, gravel). Some wood frags @ ~5'

5-10' - (35-40% recov)

Transition @ 8½' to dark gray to black, wet, gravelly, silty, sandy silt.

#1

Treadwell & Rollo: Pier 70

WSA
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Daily Log
Construction Monitoring

Monitor: Leigh Martin	Date: 8/27/09	Day: Thursday
General Location: BAE back parking lot, Parcel 9, Org site no. P9SB-06. Adjacent to Bldg. 120		
Onsite Construction Supervisor: Jeremy Gekor	Arrival Time: 7:15 am	
Equipment Operator(s) (if known): P. Robbidges, M. Baylon	Departure Time: 4:00 pm	
Native American Monitor(s) Present: None		

Agency/Project Personnel Present During Workday:
Treadwell & Rollo: Jeremy Gekor, ~~Justine~~ Oustyne Rod (415) 509-3447

List Construction Activities Monitored:	Location:
8" bore drill	P9SB-06
Hand auger. 1st 5 feet	"
Core drill to 30 feet	"

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____
None observed or collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)
Drilling preformed by New Drilling Co. of E Palo Alto (650) 322-2651. All crew viewed ~~Safety~~ by video before beginning work. Goal of geotechnical work was to ~~test~~ found water and obtain soil core samples for examination →

Was there a need for work stoppage or redirection? If so, explain:
No

Additional Comments: BAE safety video viewed by crew in trailer. Good weather. Slow start to day one of testing. Hole filled and capped with concrete at 2:00. Backfill put in 55 gal. barrels and removed to lab for testing.

Signature: Leigh Martin Date: 8/27/09

Continuation Sheets Used? Yes [ ] No [X] Page 1 of 1

(over)

as per ~~and~~ environmental protocol by Treadwell and Rollo.
No cultural material observed during drilling.

Levels	Asphalt surface
0-5 feet:	Scattered red clay brick fragments within loose / fine, medium brown soil mixed with small shale pieces, small fragments of slag. Approx. 3 inches of asphalt overlay on top. Disturbed fill
5'-6.5'	Continuation of disturbed fill
8.5-10'	Shale w/iron oxide & fine med. brown soil. Some small gravel. Hit water at 11 feet.
13.5-15	Black, heavy, oily sludge, possibly diesel fuel or crude oil mixed with water
18.5-20	Bay mud level reached at approximately 18 feet.
23.5-25.5	Same as above.
25.5-30	Same as above.

(#2)

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Daily Log
Construction Monitoring

Monitor: Leigh Martin	**Date:** 8/27-28/09	**Day:** Thurs. & Fri.
General Location: CCSB-03 - Crane Cove Park - Parcel 1 (N-E)		
Onsite Construction Supervisor: Jeremy Gerow	**Arrival Time:** 7:15 am	
Equipment Operator(s) (if known): Perfecto Rodriguez	**Departure Time:** 4:00 pm	
Native American Monitor(s) Present: None		
Agency/Project Personnel Present During Workday: Treadwell & Rollo		

List Construction Activities Monitored:	Location:
8" bore - hollow core	CCSB-03
Hand auger to 5 feet	"
Core sampling to 30 feet	"

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

None observed or collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Began drill on site CCSB Thurs afternoon & finished concrete backfill ~ 11:00 on Friday. Surface area of fill and gravel overlay w/ scattered thin metal strips ~ 12" long and scattered slag surrounding drill hole. →

Was there a need for work stoppage or redirection? If so, explain:

Additional Comments:

Photos 9-11, Photo 12 shows washing of drill flights. Flights placed in water trough and power washed to remove oily/muddy soil as not to cross-contaminate.

Signature: Leigh Martin	**Date:** 8/28/09

Continuation Sheets Used? Yes [ ] No [X] **Page** 1 **of** 1

(over)

Abandon RR tracks 50' W of drill site, cranes, dilapitated bldgs. Aprox. 100' from shoreline, area smells toxic, weeds & Pampas grass.

0-5' Lt. brown friable/sandy soil. Some wood debris, at 18" hit possible creosote soaked RR tie or piling.

5-8' Core extracted w/ more creosote wood and wet bay mud at 8' ℄

8-15' Wet bay mud (oily) Water has some oil & algae in it.

15-30 Bay mud - grey and clean

WSA
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Daily Log
Construction Monitoring

Monitor: Tom Young	**Date:** 08/28/09	**Day:** Friday
General Location: Pier 70, San Francisco		
Onsite Construction Supervisor: Dustyne	**Arrival Time:**	7:30 AM
Equipment Operator(s) (if known): Jack	**Departure Time:**	4:00 PM
Native American Monitor(s) Present: n/a		
Agency/Project Personnel Present During Workday: ERRG, Treadwell and Rollo		

List Construction Activities Monitored:	Location:
Test pit excavation (SPTP 02 and SPTP 03)	Slipwell park

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS 0

Historic fill debris was found in both test pits, which was mainly wood fragments, with some deteriorated metal and brick fragments. No intact features were encountered. No artifacts were collected. A concrete slip was hit in each of the pits, but at different depths (see narrative below).

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

SPTP 02 and SPTP 03 were dug. SPTP 02 was 39 in. wide and 81 in. long., and SPTP 03 was 37 in. wide and 72 in. long. They were both excavated to the depth that they hit the concrete slips, which was different in each test pit. SPTP 01 (excavated 08/27) hit the slip at 6 1/2 ftBS, SPTP 02 hit the slip at 4 1/2 ftBS, and SPTP 03 hit the slip at 5 1/2 ftBS. There was historic fill debris in both pits dug today, which was first hit at about 1 1/2 ftBS, and was not very dense; at about 2 ftBS, the amount of historic fill debris increased, and continued to the depth of the concrete slip.

Was there a need for work stoppage or redirection? If so, explain:

Additional Comments:

I showed up on site at 7:30, but it was n't until 9:55 that the first test pit was dug (SPTP 02). The operator had to saw-cut the asphalt for each pit. Dustyne took samples at 3 ftBS, and I drew soil profiles of each pit. At the end of the day, Dustyne decided to put in another test pit, closer to the water's edge, to get the depth of the slip there. They will continue digging in slipwell park on Monday.

Signature: [signature] **Date:** 08/28/09

Continuation Sheets Used? Yes [ ] No [x]

T. YOUNG NOTES

PIER 70

8/28/09

Treadwell + Rollo

Pier 70 monitoring

9/28/09

- met Leigh @ 6:30 @ office loaded the truck w/ supplies. Left on the road @ 6:45
- Arrived @ Pier 70 - 7:30 am. met Dustyne (Treadwell + Rollo) + we went to Heritage Park. Leigh dropped me off & I drove to her dig location in Crane Cove Park.
- The backhoe operator began cutting the asphalt in the test pit areas. While he was doing that I walked around + took some photos. He cut 2 test pits. The cutting began @ 7:30 and went until about 9:30. Photos #5-23 were of the buildings and existing environment. Photo #24 was one of the test pits after backfilling. It was dug yesterday.
- The test pit we will be digging this morning is SPTP-02. The operator (Jack) removed the asphalt and then we waited for Dustyne to return. At 9:50, we held a tailgate safety meeting. The digging began at 9:54

Treadwell + Rollo Pier 70 8/23/07

SPTP-02 39 in W x 81 in L Began @ 9:54 am

- Metal (sheet) and Redwood bits @ 1½' bs
- Soil is a Lt Brown/yellow grey fine grained sandy silt
- In the top 3 ft, there is a lot of wood fragments + sandy fill
- At 4½ ft BS, a concrete slip was hit. This same slip was hit in SPTP 01 but at 6½ ft BS
- At 2 ft 8 in. BS, the amount of historic fill material (wood, brick, metal) increased until we hit the concrete @ 4½ ft
- The test pit was abandoned at 4½ ft. (10:45 am)

Photos:

25 ~~25~~) SPTP-02 - opened up
26 ~~26~~) SPTP 02 - 0-1½ ft BS
27 ~~27~~) SPTP 02 - 1½ ft BS
28 ~~28~~) SPTP 02 - 3 ft BS
~~29-30~~) SPTP 02 - 4½ ft BS, concrete slip
29-31

Treadwell + Rollo Pier 70 8/23/07

SPTP-03 37 in W x 72 in L

Began at 10:50 am

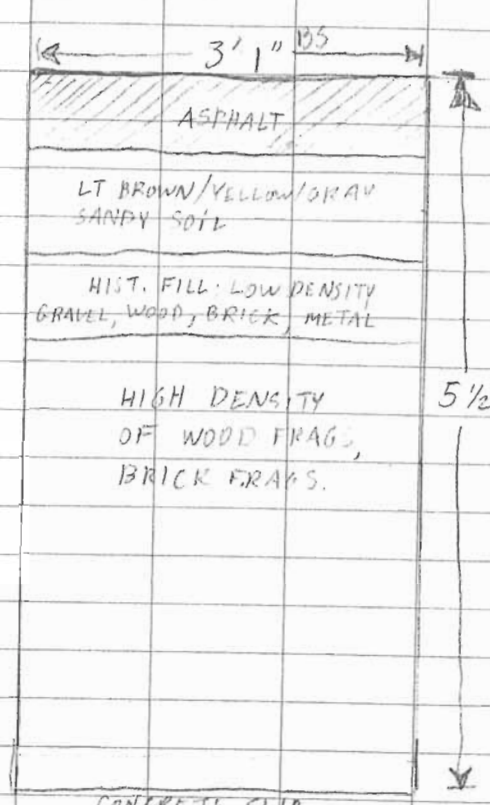
- From 0-3 ft BS, there was a light dense historic debris fill, med. brown/red sandy soil with 20-30% fine-med gravels, small rocks, wood fragments, brick frags and rusty metal.
- At 1 ft 8 in BS, the amount of historic debris increased.
- At 2 ft BS, there was a very high density of wood fragments, which continued down to the concrete slip, which was hit at 5½ ft BS.
- Pit was abandoned at 5½ ft BS

Photos:

32 ~~32~~) SPTP-03 - 0-3 ft BS
33,34 ~~33,34~~) SPTP-03 - 3 ft 3 in. BS
35-37 ~~35-37~~) SPTP-03 - 5½ ft BS
38 ~~38~~) Spoil piles from 2-5½ ft BS
39,40 ~~39,40~~) SPTP-03 - 5½ ft BS, concrete slip exposed
41 ~~41~~) SPTP-03 - close-up of concrete slip

Treadwell + Rollo - Pier 70

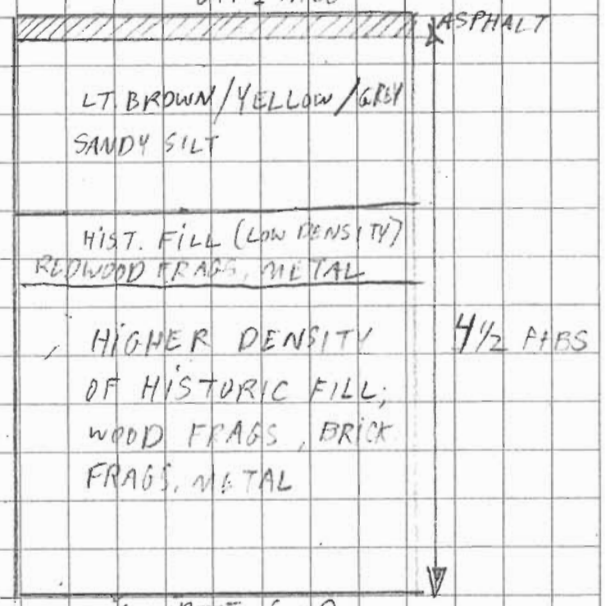
TRI 3/28/09



PROFILE OF SPTP-03
WEST SIDEWALL

Treadwell + Rollo - Pier 70

TRI 3/28/09



PROFILE OF SPTP-02
WEST SIDEWALL

(#3)

Treadwell & Rollo: Pier 70

William Self Associates
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Daily Log
Construction Monitoring

Monitor: Leigh Martin	Date: 8/28/09	Day: Friday
General Location: P5SB-01 - NW edge of Parcel 5 ~ 160' NE of Iron Hill & adj. to Bldg 117		
Onsite Construction Supervisor: Jeremy Gerow	Arrival Time: 7:30 am	
Equipment Operator(s) (if known): Perfecto Rodriguez	Departure Time: 4:00 pm	
Native American Monitor(s) Present: None		
Agency/Project Personnel Present During Workday: Treadwell & Rollo: Jeremy, Dustyne, Rob		

List Construction Activities Monitored:	Location:
8" hollow core drill	P5SB-01
Hand auger to 5 feet	"
Core sampling to 7 feet	"

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

None observed & collected

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Auger flights were power washed before use to avoid cross contamination. Asphalt covered parking lot surface. 0-3 feet: lt. brown fine sandy soil w/ shale rock and small gravel mixed. →

Was there a need for work stoppage or redirection? If so, explain:

Additional Comments:

Photo 13 - overview of drill site.
Hit bedrock @ 7 feet.
Very hot weather.

Signature: Leigh Martin Date: 8/28/09

Continuation Sheets Used? Yes [ ] No [X] Page 1 of 1

(over)

3-5' fine lt. brown sandy soil w/ few small gravel mixed

5-7' fine lt brown soil w/ small gravel and bits of red brick

7' bedrock, no ground water

No CRs observed

(#4)

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Daily Log
Construction Monitoring

Monitor: Leigh Martini	**Date:** 8/28/09	**Day:** Friday
General Location: P3SB-02 - Parcel 3 (Rearea of Affordable Storage Yard) Entrance off Illinois Street.		
Onsite Construction Supervisor: Jeremy Gekov	**Arrival Time:** 7:30 am	
Equipment Operator(s) (if known): Perfecto Rodriguez	**Departure Time:** 4:00 pm	
Native American Monitor(s) Present: None		
Agency/Project Personnel Present During Workday: Treadwell & Rollo: Jeremy, Dustyne, Rob		

List Construction Activities Monitored:	Location:
8" hollow core drill	P3SB-02
Hand auger to 5 feet	"
Core sampling soil (2")	"

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

None observed or collected with the exception of one fragment of green bottle glass at level 10-10.5'.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Asphalt surface. 0-3' fine, lt. brown soil w/ small gravel. 3-5' same as above w/ some dampness of soil noted @ 3 foot level. 5-7' soil med brown w/ fine gravel mixed. 7-10' med brown soil, somewhat →

Was there a need for work stoppage or redirection? If so, explain:

Additional Comments:

Photo 14: Overview of P3SB-02 drill site facing east. Majority of testing time spent on water sampling and extraction of soil core samples.

Signature: Leigh Martini **Date:** 8/28/09

Continuation Sheets Used? Yes [ ] No [X] **Page 1 of 1**

(over)

damp

10 - 10.5'	med brown soil w/ some larger gravel, sand and fill. One fragment of green bottle glass.
10.5 - 15'	Soil dark brown & friable Hit water at 14 feet
15 - 18.5'	Soil dryer than above and darker
18.5 - 20.5'	same as above
21 - 28'	Water, grey bay mud

(#5)

WSA
William Self Associates
61d Avenida de Orinda, Orinda CA 94563 (925)253-9070 fax: (925)254-3553

Daily Log
Construction Monitoring

Monitor: Leigh Martin	Date: 8/31/09	Day: Monday
General Location: PSSB-01, Parcel 8 (Auto Return Park) City of SF impound yard		
Onsite Construction Supervisor: Jeremy Bekov	Arrival Time: 7:30 am	
Equipment Operator(s) (if known): Miguel & Perfecto Rodriguez	Departure Time:	
Native American Monitor(s) Present: None		

Agency/Project Personnel Present During Workday:
Treadwell + Rollo
Haley & Aldrich

List Construction Activities Monitored:	Location:
Hand auger to 5 feet 8" bore drill to Hollow core testing for water & soil analysis	Parcel 8 - Auto Return Park
	"

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

None observed or collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)
Morning fog. Drove own vehicle, brought 2 screens from company truck + 1st aid kit. Drill rig late. Did not begin drilling until 9:00. Rhonda left - only 2 test areas today.

Was there a need for work stoppage or redirection? If so, explain:

Additional Comments:
Autos had to be moved - they covered test area.
Photo #15

Signature: Leigh Martin Date: 8/31/09

Continuation Sheets Used? Yes [ ] No [X] Page 1 of 1

(over)

Miguel & Refugio Rodriguez · Haley & Aldrich

Surf. Asphalt

0-2	grey ashy dry, some slag	clay
2-3	lt. br. fill w/ small gravel	
3-5	Br. slightly moist no rock a gravel	

5-8.5 Clay mud-dark brown — all clean w/ 2'Rs

8.5-15 - Dry clay dark brown

15-~~18~~ 18.5 - lt. grey-brown, dry friable w/ some gravel / shale

18.5-27 shale - wet bay mud @ 27

28.5 end

#6

WSA
William Self Associates
61d Avenida de Orinda, Orinda CA 94563 (925)253-9070 fax: (925)254-3553

Daily Log
Construction Monitoring

Monitor: Leigh Martin	Date: 8/31/09	Day: Monday
General Location: CPSB-03 Central Plaza Park		
Onsite Construction Supervisor: Jeremy Gebow	Arrival Time: 7:30 am	
Equipment Operator(s) (if known): Perfecto Rodriguez + Miguel	Departure Time:	
Native American Monitor(s) Present: None		
Agency/Project Personnel Present During Workday: Treadwell and Rollo: Jeremy and Dustyn		

List Construction Activities Monitored:	Location:
Hand auger to 5 feet	CPSB-03
8" rolling core drill	"
Sample core drill (2")	"

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

Slag and red brick fragments observed, not collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Asphalt covered parking lot - surface 0-2'
Top two feet concrete, 2'-5' fill w/ lt. grey ash and dark soil w/ bits of red brick, slag pieces. →

Was there a need for work stoppage or redirection? If so, explain:

Additional Comments:

On Car Return Park lot.
Photo # 16 - overview of CPSB-03 drill site location.

Signature: Leigh Martin Date: 8/31/09

Continuation Sheets Used? Yes [ ] No [X] Page 1 of 1

(over)

5-10' same as above

10-13' gravel w/ slag and bits of red brick

13-15' dark brown soil - few gravel

15-20' mud layer @ ~ 13.5 - 14'

→ lt brown sandy soil w/ gold fine soil - dry
no gravel

20-25' same as above

End

#7

WSA
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Daily Log
Construction Monitoring

Monitor: Leigh Martin	Date: 8/31/09	Day: Monday
General Location: SPSB-04 Slipway Park		
Onsite Construction Supervisor: Jeremy Gekow	Arrival Time: 7:30 am	
Equipment Operator(s) (if known): P. Rodridgues M. Baylon	Departure Time: 4:~~00~~15 pm	
Native American Monitor(s) Present: Non		

Agency/Project Personnel Present During Workday:
Treadwell and Rollo : Jeremy & Dustyne

List Construction Activities Monitored:	Location:
8" hollow core drill	SPSB-04
Hand auger to 5 feet	"
Sample core drill (2")	"

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

A few bits of red brick only at approximately 10-11'.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Asplalt covered parking lot = surface. 0-5' hand auger lt.-med brown friable soil and small gravel (60%) 5-10 - same as above. 10-15 clay & mud; hit →

Was there a need for work stoppage or redirection? If so, explain:

Additional Comments:
Photo # 17 overview of SPSB-04 facing SE.
Drill site w/in 50' of Bayshore.

Signature: Leigh Martin Date: 8/31/09

Continuation Sheets Used? Yes [ ] No [X] Page 1 of 1

(over)

water at 12 feet. A few bits of red brick mixed w/ mud at 10-11 feet.

15-17 Bay mud and water

17-20 "

20-25 "

28.5 ~~End~~ End @ 28.5 mud

dark grey w/ pockets of dark brown soil.

TREADWELL + ROLLO / PIER 70

[redacted]

WSA
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Daily Log
Construction Monitoring

Monitor: DREW BAILEY	**Date:** 8/31/09	**Day:** MONDAY
General Location: PIER 70, SAN FRANCISCO		
Onsite Construction Supervisor: DUSTIN (TREADWELL)	**Arrival Time:** 7:30 AM	
Equipment Operator(s) (if known): JACK	**Departure Time:** 4:00 PM	
Native American Monitor(s) Present: NA		
Agency/Project Personnel Present During Workday: TREADWELL + ROLLO, HALEY + ALDRICH		

List Construction Activities Monitored:	Location:
POTHOLING	PARCEL 8, SLIPWAY PARK

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS 0 ***FILL OUT BAG LOG***

LARGE AMOUNT OF STRUCTURAL WOOD, AS WELL AS METAL FRAGMENTS PRESENT FROM SPTP-04 (CONCRETE PAD ENCOUNTERED AT ~ 82 IN. SPTP-06 CONTAINED WOOD, METAL, AND BRICK FRAGMENTS, LIKELY DEPOSITED POST-1960 WHEN BUILDINGS AT THE SITE WERE DEMOLISHED AND USED FOR FILL. CONCRETE SLAB ENCOUNTERED @ ~84 IN.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

MONITORED EXCAVATION OF SPTP-04 FROM 9:15 – 11:35. MONITORED EXCAVATION OF SPTP-06 FROM 1:30 – 2:15.

Was there a need for work stoppage or redirection? If so, explain: NO.

Additional Comments: NONE

Signature: [signature] **Date:** 8/31/09

Continuation Sheets Used? Yes [ ] No [X] **Page** 1 **of** 1

TREADWELL + ROLLO / PIER 70

[redacted]

William Self Associates
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Daily Log
Construction Monitoring

Monitor: DREW BAILEY	**Date:** 9/2/09	**Day:** WEDNESDAY
General Location: PIER 70 SAN FRANCISCO, CA		
Onsite Construction Supervisor: JEREMY	**Arrival Time:** 7:30 AM	
Equipment Operator(s) (if known):	**Departure Time:** 4:00 PM	
Native American Monitor(s) Present: NA		
Agency/Project Personnel Present During Workday: BAE SAFETY REPRESENTATIVE, TREADWELL + ROLLO		

List Construction Activities Monitored:	Location:
DIRECT PUSH AUGER	NORTH OF BUILDING 105, W/IN WEST END OF BLDG 104, PARCEL 1, CRANE COVE PARK, AND PARCEL 3

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____ *FILL OUT BAG LOG*

WOOD, BRICK, METAL AND SLAG FRAGMENTS WERE COMMON. NONE WERE SIGNIFICANT OR DIAGNOSTIC. COBBLES OBSERVED IN P458-01 IN 20TH ST.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

DIRECT PUSH AUGERING THROUGHOUT PARCEL 2, CRANE COVE PARK.

Was there a need for work stoppage or redirection? If so, explain:

NO. NO DIAGNOSTIC MATERIALS ENCOUNTERED

Additional Comments: NONE

Signature: [signature] **Date:** 8/2/09

Continuation Sheets Used? Yes [ ] No [X] **Page 1 of 1**

William Self Associates
61d Avenida de Orinda, Orinda CA 94563 (925)253-9070 fax: (925)254-3553

Daily Log
Construction Monitoring

Monitor: DREW BAILEY	**Date:** 9/3/09	**Day:** THURSDAY
General Location: PIER 70, SAN FRANCISCO		
Onsite Construction Supervisor: JEREMY	**Arrival Time:** 7:30 AM	
Equipment Operator(s) (if known):	**Departure Time:**	
Native American Monitor(s) Present: NA		
Agency/Project Personnel Present During Workday: TREADWELL + ROLLO		

List Construction Activities Monitored:	Location:
DIRECT PUSH BORING	PARCEL 4, PARCEL 6

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS Ø ***FILL OUT BAG LOG***

No

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

DIRECT-PUSH BORING (1.5 INCH DIAM., 10 FOOT DEPTH) CONDUCTED

Was there a need for work stoppage or redirection? If so, explain:

No

Additional Comments: NONE

Signature: [signature] **Date:** 9/3/09

Continuation Sheets Used? Yes [ ] No [X] **Page** 1 **of** 1

WSA
William Self Associates
61d Avenida de Orinda, Orinda CA 94563 (925)253-9070 fax: (925)254-3553

Daily Log
Construction Monitoring

Monitor: Angela Cook	**Date:** 9/8/09	**Day:** Tuesday
General Location:		
Onsite Construction Supervisor: Treadwell & Rollo - Rob Mahoney	**Arrival Time:** 7:30 am	
Equipment Operator(s) (if known): Vincent, Mike & Justin	**Departure Time:**	
Native American Monitor(s) Present: none		
Agency/Project Personnel Present During Workday: Perfecto & Miguel; Hiro Drilling Company		

List Construction Activities Monitored:	Location:
Hand post hole to ~5' below floor of building (approx. 10' below ground surface)	PSSB-02 (Bldg 2) ①
	P6SB-01 (Central Plaza Park) ③
Hand auger to 2', dirt push to 6.5	P4SB-09 (Bldg 117) ②
Hand auger to 5', dirt push to 6.5	P4SB-10 (Bldg 117) ③
5+' of concrete, abandoned	P1SB-01 (in Parcel 1) ④

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS —

only fill, nothing collected

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

PSSB-02 hit a concrete slab at ~4-5', layer of loose orange sand (fill) between floor slab & lower concrete slab, bedrock hit at 6' below building floor surface. ~1' brown sand between lower slab & bedrock, no cultural material observed, decomposed bedrock at ~3-3.5'

Was there a need for work stoppage or redirection? If so, explain:

no

Additional Comments:

—

Signature: A Cook	**Date:** 9/8/09

Continuation Sheets Used? Yes [ ] No [ ] **Page _____ of _____**

PGSB-09 - hand augered to ≈2', grey-black rocky fill, floor of building is asphalted, dense pack to 4.5' ~~[illegible]~~ same fill to 4.5', ~~[illegible]~~ hit bedrock at 4.5' below surface, no cultural material

* PGSB-09 & 10 moved from the original mapped locations (info to map)

PGSB-10 - asphalt surface, brown sandy fill (3" thick) underlying asphalt ~~[illegible]~~ thick layer decomposed bedrock underlying fill ≈6" below surface, the bedrock at this boring is crushed serpentine used as fill when they cut down into the hill, the serpentine fill continues to 6.5', bedrock refusal at 6.5', no cultural material

- at 12:30 I switched with David as he was monitoring outside of CAE property & the drill crew I was with was moving into CAE property David has watched the CAE safety video & I haven't. ~~[illegible]~~ David was monitoring PISB-01 when we switched

- PISB-01 - at ≈5' below surface ~~[illegible]~~ struggling to get through a 5'+ thick layer of concrete, bore abandoned at 5.5' thick ac concrete continued & got barely moved it ≈6' west (close to road), hit hard concrete slab below asphalt, bore location #2 abandoned at 6' below surface

- PGSB-01 - asphalt, thin layer of orangey base rock underlain by sandy ~~[illegible]~~ black soil w/ <5% rock, chemically small to ≈5', underlain by yellow brown sandy soil w/ ≈10% rock.
at 6.5' is layer of corroded metal, slag, charcoal
Lit water at 10' below surface
fill continues at 11.5' below surface, abs. charcoal, ~~[illegible]~~ angular to sub-angular pebbles

16.5' below surface still appears to be fill black, coarse gritty pebbles/inclusions
~~[illegible]~~
- bay mud at ≈18-20' below surface, appears to be fill immediately overlying bay mud, black gritty, small pebbles/inclusions
no ~~[illegible]~~ cultural material observed
* samples 1.5' at 5' intervals, no chance to view the areas not brought up the samples

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Daily Log
Construction Monitoring

Monitor: David Buckley	**Date:** 9/8/09	**Day:** Tuesday
General Location: 20th St, Illinois St & 18th St - Pier 70, San Francisco		
Onsite Construction Supervisor: —	**Arrival Time:** 7:30 AM	
Equipment Operator(s) (if known): Miguel (Pipefitter) NEW Drilling Co & Justin & Mike of Vironex.	**Departure Time:** 4:30 PM	
Native American Monitor(s) Present: —		

Agency/Project Personnel Present During Workday:
Jeremy - Treadwell & Rollo
Rob Millard - Treadwell & Rollo

List Construction Activities Monitored:	Location:
Geo-Tech/Environmental boring (Hollow-Stem Auger Method)	Illinois St, b/w 18th St. & n/o Crane Cove Park.
Geo-Tech/Environmental boring (Direct Push Method)	off of 20th St. - Pier 70

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS —
No artifacts or cultural soils observed or collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)
Arrived @ 7:30 and met Argyle Cook of WSA and Rob Millard & Jeremy of T&R and Vironex & NEW Drilling Co. crews. I went w/ Jeremy & NEW crew & Argyle went with Rob of T&R and Vironex crew. First bor hole was PISB-06 w/in Crane Cove Park. Then moved to PISB-01 just off of Illinois St. by Minnesota St. After lunch switched w/ Argyle & moved to Direct Push Drill to bore hole SPSB-03 and then to PISB-04 where they hit concrete & had to stop. (See map for locations & field notes for more info)

Was there a need for work stoppage or redirection? If so, explain:
No need for work stoppage or redirecting, except for bore hole which was in an inaccessible area w/in PG&E property.

Additional Comments:
Will continue both methods of drilling tomorrow.

Signature: David Buckley	**Date:** 9/8/09

Continuation Sheets Used? Yes [✓] No [ ] **Page 1 of 3**

Treadwell & Rollo - Pier 70, SF 9/8/09

Arrived @ bldg 105 @ 7:30 & met Angela of URS and Rob Milano + Jeremy of Treadwell & Rollo. First hole of the day is P2SB-06, located in (port) property, area off of Illinois St. before 18th St. (See map). Today am working with Jeremy of T&R and HEW Drilling Company - Geotechnical & Environmental Services. They are using hollow-stem auger drilling process. Hand auger first 5' to clear for utilities. Drill to ≈30'

P2SB-06

0-5'

Dark brown loamy silt w/ gravel & rocks. Debris includes wood & small brick fragments.

5-6½'

... brick frags ... to ... serpentine ... very broken/gravelly sandy

8½-10'

Mottled dark gray to black and grayish green, wet, gravelly, poorly sorted sandy silt w/ broken angular serpentine rock fragments.

13½-15'

very wet, rocky & gravelly, greenish dark gray silty sand w/ clay.

18½-20'

Transition @ ≈19½' to a dark grayish green, wet, gravelly clay w/ sand and w/ brown organics

Feather sample taken @ ...

23½-25'

Mottled grayish green & tan/brown, wet, gravelly/rocky clayey sand.

Drilling stopped @ 25' because drilling hit bedrock.

- Moved to borehole P1SB-01 @ 11:30 AM. It is located off of Illinois St. on opposite side of street from Old Illinois St. before Mariposa. ≈48 ft. east of Illinois St. just before a metal gate @ 671 Illinois St. (See map)

P1SB-01

0-5'

Began augering through 4" asphalt & concrete, followed by 4" base rock, then more concrete still down to 1'-1½'.

Switched places w/ Angela after lunch @ 12 pm b/c the other crew was to be working w/in BAE property & Angela has not done safety training yet.

- Joined Rob Milano of T&R and ... of ... Environmental Field Services drill crew w/in BAE property. Hole that was to be drilled was not in accessible area today. Moved out of BAE property to bore hole 5F-SB03 by ... @ Pier 70. They are using direct push drilling method and going down to 10'. Hand auger first 5'.

SP-SB03

0-1'

2-3" of asphalt/concrete, followed by 6-8" of gravel & base rock.

1-5'

greenish brownish gray, fairly dry, rocky & gravelly sandy silt w/ clay (fill) to clayey silt, becomes mottled w/ orange & black @ ~4'.

5-10'

@ 9' transitions to slightly more moist/wet w/ smaller gravels & rocks. Still fill. Brown sandy gravelly silty clay.

PESB-04 - Moved to different area (See map)

0-4'

Concrete - Drilling stopped for the day

9/9/09

Treadwell & Rollo - Pier 70, SF.

Met @ 20th St. @ bldg. 105 w/ Rob & Jeremy of T & R and Eric Stoller of URS @ 7:30 AM.

Eric went w/ Rob Milone of T&R and Vironex Environ. Field services to bore locations outside of the BAE property. They will be using direct push method of drilling. I went w/ Jeremy and HEW Drilling Co. w/in BAE property after they groundwater sampled @ different loc. outside prop @ end of 20th St. They will use hollow-stem auger drilling process. Bore hole location is P09 SB-04, located next to bld 105. Started @ 10:30 on borehole,

WSA
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Daily Log
Construction Monitoring

Monitor: David Bunkley & Eric Stadler	Date: 9/9/09	Day: Wednesday
General Location: 20th St. - Pier 70 - Bldg. 105 - W/in BAE Property in San Francisco		
Onsite Construction Supervisor: —	Arrival Time: 7:30 AM	
Equipment Operator(s) (if known): Miguel & "Rafaelo" of HEW Drilling Company	Departure Time: 2:30 PM	
Native American Monitor(s) Present: —		

Agency/Project Personnel Present During Workday:
Jeremy - Treadwell & Rollo

List Construction Activities Monitored:	Location:
Geo-Tech/Environmental boring (Hollow-Stem Auger Method)	W/in BAE Property next to Bldg. 105.

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS —
No artifacts or cultural soils observed or collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)
Arrived @ 7:30 and met Eric Stadler of WSA and Jeremy of T&R + Rob Malone of T&R, along with Mike & Justin of Kleinfelder and Miguel & "Rafaelo" of HEW Drilling Co. Environmental of T&R and E stayed with Jeremy & T&R + HEW Drilling Crew. They took groundwater samples from different locations & then proceeded w/ the BAE property to drill boring B-SB-04. They drilled to 30 ft. and took groundwater samples. This was only done for the day. (See field notes more info.).

Was there a need for work stoppage or redirection? If so, explain:
No need for work stoppage or redirection.

Additional Comments:
This is the last day of boring for the Hollow-Stem Auger drill. The direct Push method of drilling will continue tomorrow.

Signature: [signature] Date: 9/9/09

Continuation Sheets Used? Yes [1] No [ ] Page 1 of 5

SP-SB03

0-1'

2-3" of asphalt/concrete, followed by 6-8" of gravel + [illegible] rock.

1-5'

greenish brownish gray, fairly dry, rocky, gravelly sandy silt w/ clay (fill) to clayey silt, becomes mottled w/ orange + black @ ~4'.

5-10'

@ 9' transitions to slightly more moist [illegible] w/ smaller gravel + rocks. Still fill. Brown sandy gravelly silty clay.

PCSB-04 - moved to different area (see map)

0-4'

concrete - Drilling stopped for the day

7/1/09

Treadwell & Rollo - Pier 70, SF.

Met @ 20th St. @ bldg. 105 w/ Rob & Jeremy of T&R and Eric Stalker of TSA @ 7:30 AM.

Eric went w/ Rob Milam of T&R and Vironex-Envirn. Field services to bore locations outside of the BAE property. They will be using direct push method of drilling. I went w/ Jeremy and HEW Drilling Co. w/in BAE property after they conducted [illegible] @ [illegible] of 20th St. They will use hollow-stem auger drilling process. Bore hole location is P9SB-04, located next to Bld 105. Started @ [illegible] on borehole.

P9SB-04 To 30'.

0-1'

6" asphalt/gravel followed by brownish gray, dry gravelly, rocky sandy silt, loosely compacted.

1-5'

dark grayish brown to black, loose, slightly moist, gravelly & rocky sandy silt w/ small scale [illegible] frags. [illegible] once @ 4½'.

8½-10'

Soil grades w/ weathered pieces of serpentine. Soil becomes grayish black. Water encountered @ ~9'.

10-11½'

very wet, rocky (up to 1½" diam.), gravelly silt. lt. greenish gray w/ oily odor.

15-16½'

Oil present, strong odor. S.A.P. @ 16', wet, dark grayish green weathered rock (serpentinite) w/ oil where present, grades [illegible] gravelly silty sand, clay (green to lt. green).

Lunch @ 11:30. Water samples taken [illegible]. Drilling resumed @ 1:30 pm.

20-21½'

dark green, wet, weathered serpentine rock crumbles, w/ mottled lt. green silty clay, w/ [illegible] and strong oily odor, gravelly [illegible]

25 - 26 ½

S.A.P. w/same clay and more small gravel & rock. Wet, oily odor.

30 - 31½'

Dark greenish gray, wet, med. stiff clay (clay mud), with brown organics.

9/10/09

Treadwell & Rollo: Proj 70

Arrived @ 7:30 & met Rob Milne of T&R & Pioneer Driller. Proceeded to borehole location P7SB-02 located w/in car impound / auto return lot off of Illinois St. (see map) using direct push method. Hand auger to 5'.

P7SB-02

0-5'

2" asphalt, followed by 6" gravel/base rock. Then soil is dry mottled grayish green & tan, gravelly / rocky sandy silt. [fill]

5-10'

Transition @ 6½' to weathered light green rock (possibly serpentine), crumbly, silty, dry, powdery, w/ clay.

Moved to bore location SPSB-05 to the east but still w/in 'auto return' lot / property.

WSA
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Daily Log
Construction Monitoring

Monitor: Eric Strother	Date: September 9, 2009	Day: Wednesday
General Location: P6SB-08; P9SB-01 (in machine shop); P6SB-06 (near PG&E Power Plant); P6SB-07 (near PG&E Power Plant)		
Onsite Construction Supervisor: Roberto ???, Treadwell & Rollo	Arrival Time:	8:00 AM
Equipment Operator(s) (if known): Mike, Vironex Environmental	Departure Time:	4:30 PM
Native American Monitor(s) Present: None		
Agency/Project Personnel Present During Workday: WSA, Treadwell & Rollo, PG&E (at P6SB-06 and P6SB-07)		

List Construction Activities Monitored:	Location:
Combined hand augering and direct push boring to ~5 feet	P6SB-08
Combined hand augering and direct push boring to ~11 feet	P9SB-01
Combined hand augering and direct push boring to ~5 feet	P6SB-06
Combined hand augering and direct push boring to ~8.5 feet	P6SB-07

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

No artifcats or culturally modified soils were observed

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

I spent day monitoring drilling activities at various locations in the project area. I did not observe any cultural resources during the process.

Was there a need for work stoppage or redirection? If so, explain:

No

Additional Comments:

Signature: _____ Date: Sptember 11, 2009

Continuation Sheets Used? Yes [ ] No [Y]

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Daily Log
Construction Monitoring

Monitor: David Buckley	**Date:** 9/10/09	**Day:** Thursday
General Location: 22nd St. - Pier 70 w/in Auto Return Property, San Francisco		
Onsite Construction Supervisor: —	**Arrival Time:** 7:30 am	
Equipment Operator(s) (if known): Justin - Vironex Environmental Services	**Departure Time:** 4:00 pm	
Native American Monitor(s) Present: —		
Agency/Project Personnel Present During Workday: R.C Milano - Treadwell & Rollo		

List Construction Activities Monitored:	Location:
Geo Tech/Environmental boring (Direct Push Method)	w/in Auto Return Property off of 22nd St.

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS —
No artifacts or cultural soils observed or collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)
Arrived @ 7:30 and met Rob Milano of T&R and Justin of Vironex and proceeded to boring data P758-02, located within the Auto Return property, located off of 22nd St. Then moved to boring hole SP50-05, and then to P558-05. After several attempts to bore through hard concrete, moved to alternative location of P558-05. After lunch moved to boring hole P758-01, followed by P558-04 and finally P558-03, all w/in Auto Return property. (See field notes for more info).

Was there a need for work stoppage or redirection? If so, explain:
No need for work stoppage or redirection.

Additional Comments:
They will continue with direct push boring tomorrow w/in Auto Return Lot.

Signature: [signature] **Date:** 9/10/09

Continuation Sheets Used? Yes [X] No [ ] **Page** 1 **of** 3

25-26½

S.A.P. w/same clay and more small gravel & rock. Wet, sl. odor.

30-31½'

Dark greenish gray, wet, med. stiff clay (bay mud), with brown organics.

9/10/09

Treadwell & Rollo: Proj 70

Arrived @ 7:30 & met Rob Milano of T&R & Vironex driller. Proceeded to borehole location P7SB-02 located w/in car impound/auto return lot off of Illinois St. (See map) Using direct push method. Hand auger to 5'.

P7SB-02

0-5'

2" asphalt, followed by 6" gravel/base rock. Then soil is dry mottled grayish green & tan, gravelly/rocky sandy silt. [fill]

5-10'

Transition @ 6½' to weathered light green rock (possibly serpentine), crumbly, silty, dry, powdery, w/ clay.

Moved to bore location SPSB-05 to the east but still w/in 'auto return' lot/property.

SPSB-05

0-2'

2-3" asphalt, followed by light brown/tan gravelly fill w/ brick frags, dry, loose.

2-5'

Red-brown to black gravelly silty clay, loose fill w/ brick frags, mottled, slightly moist. Mottled w/ orange/tan

5-10'

More dark brown gravelly clayey silt w/ brick frags. Transition @ ~8½' to a dark greenish gray, wet, gravelly/rocky silty clay w/ slight odor.

Moved inside warehouse bldg w/in auto return lot to borehole P5SB-05.

P5SB-05

0-5'

2" asphalt, followed by gravelly poorly sorted dark brown & tan silty gravel. Hit concrete slab @ 2'. Moved hole over 2'.

- 3 other locations attempted w/in board area, each time encountering concrete @ various depths as shallow ~3" below surface.

- Moving to alternative location → P5-SB05 location w/in same warehouse.

PS-SB05

0-2'

2-3" asphalt, light greenish brown/gray, dry, rocky, gravelly loamy silt, loose.

2-5'

Refusal @ 4½'. Transition @ 2½' to weathered/fractured, fairly dry, powdery, light green rock (serp) w/some clay. Gley 1 6/1 10Y Greenish Gray.

Moved to borehole P7SB-01 after lunch @ 12:30.

P7SB-01

asphalt 2-3", followed by some concrete or gravelly silt. @ 2', possibly bedrock.

2-5'

light green gray / 6/1 10Y Greenish Gray weathered/fractured, fairly dry, powdery rock (serp) w/ mottled clay of some slightly darker color.

5-10'

S.A.P. - weathered green rock, powdery. More homogeneous.

Move to PSSB-04 which seems [illegible] property

PSSB-04

0-2'

2" asphalt then light gray gravelly/rocky silty sand. @ 1' transition to med. brown gravelly silty sand

2-5'

Mix of med brown gravelly sand - loose, dry & greenish gray gravelly silt (serpentine fill). Refusal @ 4½'. Bedrock. light grayish green to white weathered bedrock starting @ 3½'.

PSSB-03

0-2'

2" asphalt, followed by 6-8" silty gray, dry, rocky gravel. Then hard rock @ ~1-1½' down. Moved hole twice w/ [illegible] to get through. Grayish-brown, dry, gravelly/rocky silt @ 2'.

2-5'

light greenish gray hard, weathered, rock (serp). w/ some silty clay. Dry, powdery. Begins @ 3'.

5-10'

S.A.P. - refusal @ 7.8'.

9/11/08

Trumbull & Mills - Site 70

Arrived @ 7:30 & met Russ Milam of T&R & Joel of Vaniat. Drive to first bore location P6SB-05, located behind Auto Return property. First hole started @ 8:15 am.

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Daily Log
Construction Monitoring

Monitor: David Buckley	Date: 9/11/09	Day: Friday
General Location: 22nd St - Pier 70 w/in Auto Return Property, San Francisco		
Onsite Construction Supervisor: —	Arrival Time: 7:30 AM	
Equipment Operator(s) (if known): Joel - Vironex Environmental Services	Departure Time: 4:00 PM	
Native American Monitor(s) Present: —		
Agency/Project Personnel Present During Workday: Rob Milano - Treadwell & Rollo		

List Construction Activities Monitored:	Location:
Geo Tech/Environmental Boring (Direct Push Method)	- w/in Auto Return Property off of 22nd St.
	- w/in Building 14

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS —
No artifacts or cultural soils observed or collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)
Arrived @ 7:30 and met Rob Milano of T&R and Joel of Vironex and proceeded to first bore hole PASB-05, located within the Auto Return Property, located off of 22nd St. then moved to bore hole OPSB-02, followed by OPSB-01 and finally to PASB-11, located w/in Building 14 outside of Auto Return Property. (See field notes for more details)

Was there a need for work stoppage or redirection? If so, explain:
No need for work stoppage or re-direction

Additional Comments:
This is the last day of Geo-Tech Boring.

Signature: [signature] Date: 9/11/09

Continuation Sheets Used? Yes [ ] No [ ] Page 1 of 4

2-5'

Mix of med. brown gravelly sand-loose, dry & greenish gray gravelly silt (serpentine fill). Refusal @ 4½'. Bedrock: light grayish green to white weathered bedrock starting @ 3½'.

PSSB-03

0-2'

2" asphalt, followed by 6-8" silty gray, dry, rocky gravel. Then hard rock @ ~1-1½' down. Moved hole twice w/ ... to get through. Grayish-brown, dry, gravelly/rocky silt @ 2'.

2-5'

Light greenish gray hard, weathered, rock (serp). w/ some silty clay. Dry, powdery. Begins @ 3'.

5-10'

S.A.P. - Refusal @ 7½'.

9/11/09

Treadwell & Rollo - Pier 70

Arrived @ 930 & met Rob Milam of T&R & Todd of Vironex. Drive to first bore location PGSB-05, located w/in Auto Return property. First hole started @ 9:15 am.

PCSB-05

0-2'

2-3" asphalt, followed by ≈3-4" base rock, then moist med brown to gray gravelly/rocky, dry, loose silt; fill. Transition to light green, pale, dry, loose gravelly/rocky silt w/ trace clay, powdery @ 1½' weathered bedrock possibly.

2-5'

Refusal @ ≈ 4' - encountered bedrock - weathered, fractured, powdery w/ clayey silt - pale light green in color.

CPSB-02

0-2'

2-3" asphalt, then light gray gravelly/rocky silt, followed by med brown silty sand, dry, w/ some drink debris @ 1'. Fill continues to 2' then soil is med reddish brown gravelly, rocky, sandy, silt mottled w/ darker gray & some brick frags.

2-5'

@ 3-3½' transition to dark brownish gray, dry, cutting, silty gravel.

5-10'

Transition to weathered sandstone/shale, mostly fractured. tan/brown color, slightly moist. Trans. @ ≈ 7½'.

CPSB-01

0-2'

2-3" asphalt followed by light gray, dry, rocky, gravelly, silt.

2-5'

Transition @ 4' to dark gray to black, poorly sorted, slightly moist silty gravel w/ rocks.

5-10'

moist to slightly wet dark gray to black, poorly sorted silty gravel w/ tar odor @ 9½'.

10-15'

Transition @ 13½' to more wet dark gray to black clayey silty gravel w/ fairly strong tar odor. Soil is oily/tarry. Mixed gravels, poorly sorted.

- Groundwater sample to be taken - encountered @ 10½'

moved to P4SB-11 w/in building 14.

P4SB-11 - 2 attempts refusal, 3rd one is ok

0-2'

2-3" asphalt, then dry, light olive gray gravelly silt.

2-5'

grades w/ more weathered/fractured rock, powdery silt w/ clay

5-10'

Encountered Brownish tan, semi-weathered, fractured sandstone/shale bedrock. Refusal @ 7'

This is the last bore hole. They are finished drilling as of now.

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Daily Log
Construction Monitoring

Monitor: Angela Cook	Date: 9/28/09	Day: Monday
General Location: Pier 70		
Onsite Construction Supervisor:	Arrival Time: 7:15	
Equipment Operator(s) (if known): Perfecto & Aaron - Hew Drilling	Departure Time: 3:15	
Native American Monitor(s) Present: —		

~~Agency/Project Personnel Present During~~ Workday:
Jeremy - Treadwell + Rollo

List Construction Activities Monitored:	Location:
monitoring well installation to 15-18' b.s. for groundwater monitoring	Slipway (NE corner) to 15' b.s.; w/in Slipways at N part of [illegible] area, in impound lot next to Bldg 14

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS ________

—

Narrative Report on Day's Activities, including problems and concerns (cont. on back)
watched 8 minute safety training when we first arrived

Was there a need for work stoppage or redirection? If so, explain:
no

Additional Comments:
depths provided are very approximate

Signature: A Cook	Date: 9/28/09

Continuation Sheets Used? Yes [ ] No [ ] Page 1 of ________

1st monitoring well: (approximate depths) - east of the Noonan Bldg. (next to Bldg [illegible])

0-≈5" asphalt
≈5"-≈2' gravelly, dirt fill
≈2' hit rock material, hard to get through
- bws was in location of where they wanted the well originally, bws got moved so [illegible] well & moved to original proposed location to the east ≈10'

1st monitoring well location (approximate depths) - moved ≈10' to east
0-5" asphalt
5"-5' yellowy-brown sandy fill
- drilled to 5' b.s. then [illegible] to 15', no real opportunity to see below ≈5' b.s.

- 2nd monitoring well location [illegible] of BAE property (approx depths)
- drilled to 20' b.s.
0-4" gravel
4"-4' yellowy-brown sand w/ gravel (fill)
4'-7' chocolatey brown dirt, softer than fill above
not much opportunity to see below 5, [illegible] to the surface [illegible]
bay mud in bottom of bore, black sludge [illegible], no shell observed

3rd monitoring well location (east of Bldg 14), in impound lot (approximate depths)
- 0-6" asphalt
~~6"-8" base rock~~
6"-1.5' rocky pebbly fill, light grey
1.5-4' reddish brown rocky pebbly fill
~~[illegible]~~
4'-4.5' greenish yellow rocky fill
4.5-4.7' black gritty layer - slag, looks like burnt material
4.7-5' - sandy fill - 1 clear glass frag, thick, non-diagnostic
at 5' - hit rock or concrete
5-15' - very dark grey gritty dirt, increase in rock content at ≈9-10'

510 449 9593 - Jenny [illegible]

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Daily Log
Construction Monitoring

Monitor: Tom Young	**Date:** 09/29/09	**Day:** Tuesday
General Location: Pier 70, San Francisco		
Onsite Construction Supervisor: Jeremy	**Arrival Time:**	7:00 AM
Equipment Operator(s) (if known): Jack	**Departure Time:**	2:00 PM
Native American Monitor(s) Present: n/a		
Agency/Project Personnel Present During Workday: ERRG, Treadwell and Rollo		

List Construction Activities Monitored:	Location:
Monitoring well drilling (MW2, MW3, MW8)	Crane Cove Park (MW2), Auto Return Lot (MW8), Self Storage (MW3)

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS 0

Historic fill debris was found in MW2 , which was mainly wood fragments with some deteriorated metal fragments. No intact features were encountered. No artifacts were collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Arrived at Bldg 105 at 7 am to watch the training video; met Jeremy at 7:30 am at Crane Cove Park. One monitoring well (MW2) was drilled and set in the southern portion of the park. It was drilled to a depth of 18ftbs, using a 8 in. auger bit. At about 8ftbs, dark brown/black soil was hit, which contained bits of metal slag and rotten wood splinters. After the well was set, we moved to the Auto Return Lot, and MW8 was drilled. This well was set at 25ftbs; the first two feet were mechanically augered, then from 2-4 feet, the well was hand augered to check for underground utilities. After it was determined there were no utilities, the drillers switched back to mechanical augering. This well contained sterile fill soil, with 60-80% rock inclusions ranging in size from small to medium gravels. No historic material was observed. The last well of the day, MW3, was located in the Self Storage Lot. It was drilled to a depth of 18ftbs. The top 5 feet contained 90% gravels and small to medium rocks, and was a light orange/brown silty fill soil w/traces of clay. From 5-18ftbs, the soil was a silty clay mix with 40% small-medium gravels. It was wetter and light brown in color. The well was set at 18ftbs.

Was there a need for work stoppage or redirection? If so, explain:

No

Additional Comments:

Signature: Tom N Young **Date:** 09/29/09

Continuation Sheets Used? Yes [ ] No [x] **Page** 1 **of** 1

WSA
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Daily Log
Construction Monitoring

Monitor: Tom Young	Date: 12/7/09	Day: MONDAY
General Location:		
Onsite Construction Supervisor:	Arrival Time: 10:15 am	
Equipment Operator(s) (if known):	Departure Time: 2:30 pm	
Native American Monitor(s) Present:		
Agency/Project Personnel Present During Workday: Treadwell & Rollo, Vironex Environmental Field Services		

List Construction Activities Monitored:	Location:
Bore Hole P65S-11	Parcel 6 (30M S. of Bldg 60 10M E of the fenceline that runs alongside E edge of Bldg 60)
Bore Hole P25B07, P25B08, P25B09	Crane Cove Park / Parcel 2

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Arrived on site @ 10:15 am, at which time the bore-rig operator was just beginning to drill P65S-11. They had already drilled SP55-06 to a depth of 1½ ft., where they hit concrete. The same thing happened w/ P65S-11. After lunch, we moved over to Crane Cove Park to drill P25B07, which was 15 ft deep. P25B07 was followed by P25B08 + P25B09. These were all excavated to 15 ft. These bores were actually located in Parcel 2, at the N edge of the parcel. The soils were brown sand w/some clay, high percentage of rocks.

Was there a need for work stoppage or redirection? If so, explain:

NO.

Additional Comments:

Signature: Tom Young Date: 12.7.09

Continuation Sheets Used? Yes [ ] No [ ] Page 1 of 1

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Daily Log
Construction Monitoring

Monitor: Tom Young	Date: 12-8-09	Day: Tuesday
General Location:		
Onsite Construction Supervisor: Rob Miland	Arrival Time: 8:45 am	
Equipment Operator(s) (if known):	Departure Time:	
Native American Monitor(s) Present:		
Agency/Project Personnel Present During Workday: Treadwell & Rollo, Vironex Environmental Field Services		

List Construction Activities Monitored:	Location:
Bore Hole SPSS-08, SPSS-07	Slipway Park / Auto Return Lot
Bore Hole PBSB-02	Parcel 8 / Auto Return Lot
Bore Hole P5S5-07 P5S5-08	Parcel 5 / Auto Return Lot
Bore Hole CPSB-04	Central Plaza Park / Auto Return Lot

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

No

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

The 1st bore was done at the southeast portion of the Auto Return Lot. This bore was 2' deep. The 1st foot was asphalt, the 2nd foot was a dry brown silty sand w/20% gravels; the gravels were 1½" diam. The next bore was SPSS-08, and was located near the NE portion of the auto return lot. This bore was drilled to a depth of 1½ ft. The top 6 in. was asphalt, and the remaining foot was brown silty sand w/20% gravels. The next bore hole, PBSB-02, was drilled to a depth of 9 ftbs. This bore was located in the southern portion of the

Was there a need for work stoppage or redirection? If so, explain: No.

Additional Comments: Narrative report cont'd: Auto Return Lot. The next bore hole was P5S5-07, located in the western portion of the Auto Return lot, w. of bldgs 12 + 15. This was a shallow bore, drilled to 1½ ftbs. The soil was a fine silty sand w/ very few gravels. The next bore, CPSB-04 was a 10 ft. deep bore hole. At about 3 ftbs, brick rubble and some glass pcs. were hit. At about 4½ ftbs, the operator hit something that was preventing the auger from advancing; this may have been a concrete footing. The bore-hole was abandoned at this location, and was moved over about 3 feet to the south. The same thing happened (brick @ 3 ftbs, concrete @ 4½ ftbs)

Signature: Date:

Continuation Sheets Used? Yes [ ] No [ ] Page _____ of _____

WSA
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Daily Log
Construction Monitoring

Monitor: Tom Young	**Date:** 12.9.09	**Day:** Wednesday
General Location:		
Onsite Construction Supervisor: Rob Milano	**Arrival Time:** 7:30 am	
Equipment Operator(s) (if known): MIKE	**Departure Time:** 4 pm	
Native American Monitor(s) Present: N/A		
Agency/Project Personnel Present During Workday: Treadwell & Rollo, Vironex Environmental Field Services		

List Construction Activities Monitored:	Location:
Bore Hole P9SB-10 P9SB-09B	Parcel 9 / BAE Systems Shipyard
Bore Hole P2SB-10	Parcel 2 / BAE Systems Shipyard

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

No

Narrative Report on Day's Activities, including problems and concerns (cont. on back) P9SB-10 was drilled to a depth of 20 ftbs. The soils were contaminated, as evidenced by smell and appearance of rainbow oil slick color. A water sample was taken after the bore-hole drilling was completed. The first 9 ft were sandy silt w/gravel, which transitioned to fractured bedrock, and below that, from 12-20 ft was the contaminated soils. P9SB-09B was drilled to 15 ftbs, after which water samples were taken. Trace amounts of oil was floating on the surface of the water. Small pieces of brick were found. P2SB-10 was drilled to a depth of 15 ftbs, after which a water sample was taken. The soils in this bore location were a sandy silty soil, brown w/some gravels, down to 10 ft. Below that it became more gravelly and loose. The walls of the bore collapsed below 10 ft, and had to be rebored. cont'd below

Was there a need for work stoppage or redirection? If so, explain: NO

Additional Comments: cont'd Narrative Report:

Signature: Tom Young **Date:** 12.9.09

Continuation Sheets Used? Yes [ ] No [ ] **Page** 1 **of** 1

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Daily Log
Construction Monitoring

Monitor: Jeff Schaeffer	Date: 12/10/2009	Day: Thursday
General Location: Pier 70, San Francisco, CA		
Onsite Construction Supervisor: Rob Milano	Arrival Time: 8:00	
Equipment Operator(s) (if known): N/A	Departure Time: 3:30	
Native American Monitor(s) Present: N/A		
Agency/Project Personnel Present During Workday: William Self Associates (WSA), Treadwell + Rollo, Vironex		

List Construction Activities Monitored:	Location:
Core Sampling	P95B-07, P95B-08, P95B-09A

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

There were no artifacts or cultural soils observed, and no artifacts or samples were collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Started the day at 8:00 a in the parking lot next to structure 6, at P95B-07. P95B-07 was cored to 20 feet and Rob took both, soil and water samples. Next we moved to P95B-08, which is in the same parking lot. Start drilling at P95B-08 but had to stop at 3 feet due to obstruction. After moving a couple of feet we were able to core to 20 feet, Rob took soil samples but no water. The last core was at P95B-09A to 15 with both water and soil samples.

Was there a need for work stoppage or redirection? If so, explain:

There was no need for work stoppage or redirection.

Additional Comments: contamination in this area is heavy so 4 more coring samples may be needed and add to the list of coring locations.

Signature: Jeff T. Schaeffer	Date: 12/10/2009

Continuation Sheets Used? Yes [ ] No [ ] Page _____ of _____

P9SB-07: Cored to 20 feet, water reached at 10 feet. The soils consisted of asphalt and sand for the first foot, followed by 13 feet of a brown/tan sandy silt fill with small pebbles. After a depth of 14 feet the soil was a dark grey silty clay. Rob took water and soil samples for analysis.

P9SB-08: The first coring attempt went to 3 feet and was rejected. After moving over a couple of feet the coring sample went to a depth of 20 feet. The soils consisted of a light sand and gravel fill to 5 feet, and dark brown/red sandy gravel clay. At 12 feet a viscus oily clay was reached and continued to 20 feet. Water was reached at 12 feet. Rob took soil samples, but no water samples.

P9SB-09: This sample was located in the carport of building 38 and was cored to 15 feet. The soils consisted of brown/tan sandy silt fill with small pebbles down to 12 feet. After 12 feet a viscus oily clay continued to 20 feet. Rob took soil samples and water samples.

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Daily Log
Construction Monitoring

Monitor: Jeff Schaffer	**Date:** 12/14/2009	**Day:** Monday
General Location: Pier 70, San Francisco, CA		
Onsite Construction Supervisor: Rob Milano	**Arrival Time:** 8:00	
Equipment Operator(s) (if known): N/A	**Departure Time:** 3:30	
Native American Monitor(s) Present: N/A		
Agency/Project Personnel Present During Workday: ~~Various environmental consultants~~ William Self Associates (WSA), Treadwell + Rollo, Vironex		

List Construction Activities Monitored:	Location:
Core sampling	CPSB-04, P555-08, CC55-06, CCSB-04, CC55-07
	CCSB-05, P4SB-15, P4SB-14

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

There were no artifacts or cultural soils observed, and no artifacts or samples were collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Started the day at 8:00 [redacted] in the impound lot next to building 60. CPSB-14 + P555-08 were cored and sample taken before moving to CC55-06. The next four coring sites were located in the crane cove park area next to building 50 + 110. CC55-06 + CC5504 were drilled before lunch, then after lunch we cored CC55-07 + CCSB-05. The last two samples of the day were located in a parking area next to building 14. After coring P4SB-15 + P4SB-14 we called it a day at 3:30.

Was there a need for work stoppage or redirection? If so, explain:

There was no need for work stoppage or redirection.

Additional Comments:

Signature: Jeff T. Schaffer **Date:** 12/14/2009

Continuation Sheets Used? Yes [ ] No [ ] **Page** _____ **of** _____

CPSB-04: This was the third and final attempt at coring CPSB-04. The first attempt hit utility lines, and the second a concrete vault. The third attempt reached a depth of 15 feet with small brick fragments at around 8 feet. Rob took both soil and water samples. The soil consisted of sand and pebble fill, a light tan sand, and a wet sandy clay mixture with small cobbles (brown + tan).

PSSS-08: This coring was located inside of structure 60. PSSS-08 was cored to a depth of 5 feet. The soil consisted of a sand and pebble fill (tan), and the last six inches were a sand clay mixture.

CCSB-04: Cored to 15 feet with soil consisting of sandy gravel fill (Brown), wet sandy gravel fill (dark brown), and the last 5 feet consisted of sandy clay (bay mud). Only soil samples were taken at this site which is located in a parking area next to structure 49.

CCSB-05: Cored to 15 feet with soil consisting sandy gravel fill (Brown) followed by Bay mud at 8 feet. Small shell fragments in the last foot. Rob took both water and soil samples. Due to this sites close proximity to the ocean, water was reached at around 5 feet.

CCSS-06: This site was located in close proximity to structures 50 + 110. CCSS-06 was cored to 5 feet with only soil samples taken. The soil consisted of a sandy gravel fill.

CCSS-07: This site is located across the backyard from CCSS-06. It was cored to a depth of 2 feet and Rob collected soil samples. The soil consisted of a sandy gravel fill.

PSSB-15: This site was located in a parking area between structures 14, 113, 114, 115, & 116. It was cored to 5 feet and Rob took soil samples. The soils consisted of a dark grey sandy clay fill.

PSSB-14: This site is located in close proximity to PSSB-15. It was cored to 5 feet and Rob took soil samples. The soil consisted of a dark grey sandy clay fill. At around 2½ feet small brick fragments were found.

WSA
William Self Associates
61d Avenida de Orinda, Orinda CA 94563 (925)253-9070 fax: (925)254-3553

Daily Log
Construction Monitoring

Monitor: Jeff Schaffer	Date: 12/16/2009	Day: Wednesday
General Location: Pier 70, San Francisco, CA		
Onsite Construction Supervisor: Rob Milano	Arrival Time: 8:00	
Equipment Operator(s) (if known): N/A	Departure Time: 2:00	
Native American Monitor(s) Present: N/A		
Agency/Project Personnel Present During Workday: ~~Vironex, additional consultants~~ William Self Associates (WSA), Treadwell + Rollo, Vironex		

List Construction Activities Monitored:	Location:
core sampling	P45B-13, P45B-16, P45B-12,

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

There were no artifacts or cultural soils observed, and no artifacts or samples were collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Today we took samples at P45B-13, P45B-16, and P45B-12. P45B-13 was cored to 5 feet and stopped once bedrock was reached. P45B-16 was cored to 10 feet, and P45B-12 was cored to 13 feet and could not continue to 15 feet due to bedrock.

Was there a need for work stoppage or redirection? If so, explain:

There was no need for work stoppage or redirection.

Additional Comments: Drilling stopped early because of equipment malfunction.

Signature: Jeff T. Schaffer Date: 12/16/2009

Continuation Sheets Used? Yes [ ] No [ ] Page _____ of _____

P45B-13: This sample was located in a parking area between structures 14, 113, 114, 115, and #116. It was cored to 5 feet, and soil samples were collected by Rob. The soils consisted of a dark grey sandy clay and bedrock. Bedrock was hit at around 4 1/2 feet.

P45B-16: This sample was located around the same area as P9SB-13. It was cored to 10 feet, and at around ~~around~~ 2 feet wood fragments were found but were most likely from a tree that once grew there. The first 6 feet was a gravel fill that was dark grey in color. The last 4 feet ~~was~~ consisted of a sandy silt that was grey in ~~the~~ color and had small amounts of moisture. Rob collected soil samples, but no water samples.

P45B-12: This sample was located in the same area as the previous two cores. It was cored to 13 feet and was stopped by ~~the~~ bedrock. Water was reached at 10 feet. Approximatly 10 feet of a brown sandy silt with pebbles. Followed by ~~a~~ 2 feet of silty clay (boy mud) that was brown in color. The last foot was bedrock and stopped further drilling. Rob collect both water and soil samples.

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Daily Log
Construction Monitoring

Monitor: Jeff Schaffer	Date: 12/17/2009	Day: thursday
General Location: Pier 70, San Francisco, CA		
Onsite Construction Supervisor: Rob Milano	Arrival Time: 8:00	
Equipment Operator(s) (if known): N/A	Departure Time:	
Native American Monitor(s) Present: N/A		
Agency/Project Personnel Present During Workday: William Self Associates (WSA), Treadwell + Rollo, Vironex		

List Construction Activities Monitored:	Location:
core sampling	PSSB-11, PSSB-12, PSSB-13

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

There were no artifacts or cultural soils observed, and no artifacts or samples were collected.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

started the day

Was there a need for work stoppage or redirection? If so, explain:

There was no need for work stoppage or redirection.

Additional Comments: The project may continue with more core sampling depending on what is found after the samples are tested. Rob Milano said he would call WSA if drilling continued.

Signature: Jeff T. Schaffer Date: 12/17/2009

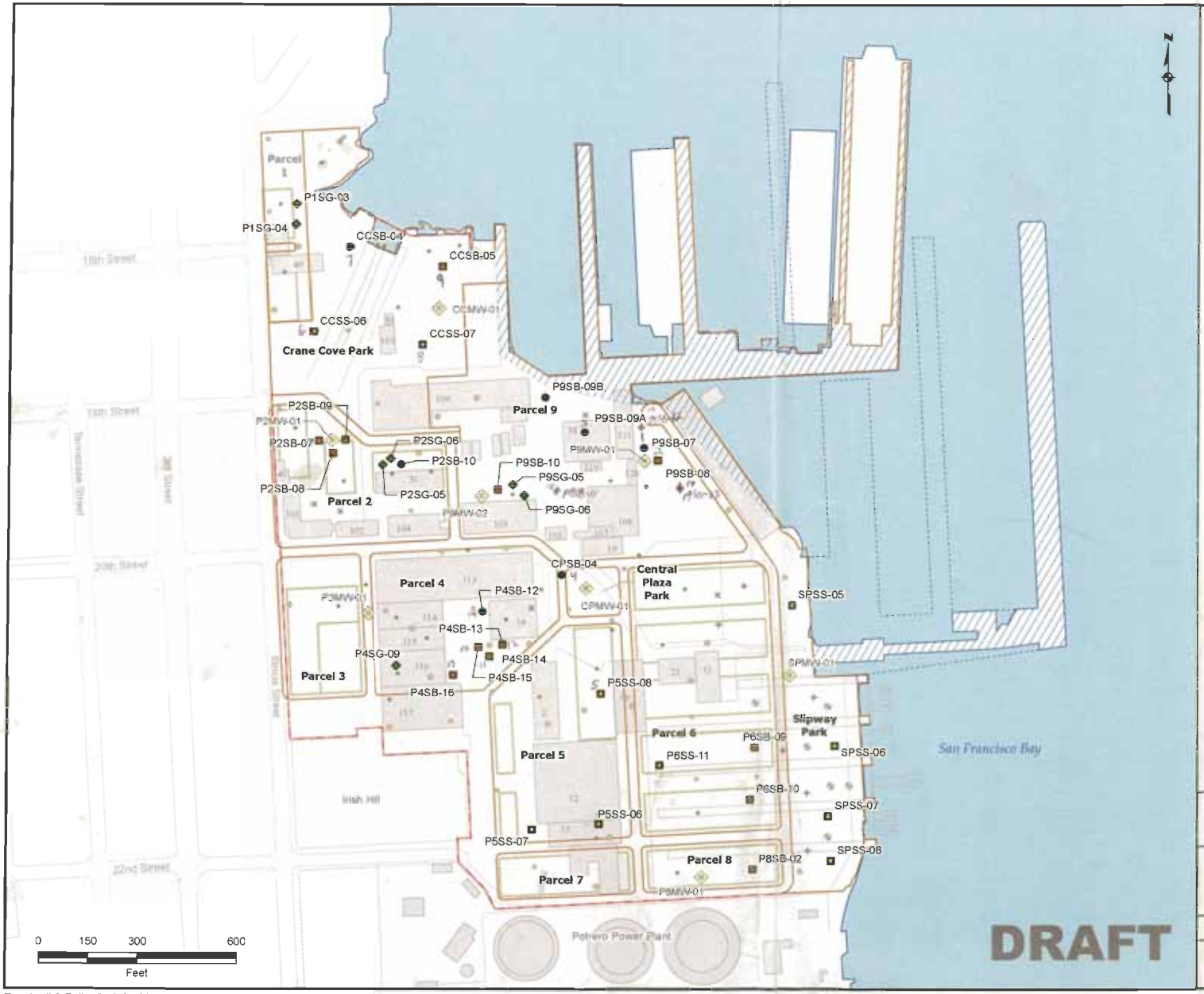
Continuation Sheets Used? Yes [ ] No [ ] Page _____ of _____

P9SB-11: This site was added into [redacted] testing to determine the extent of contamination in the area. P9SB-11 is located between structures 105 + 108 and was drilled to 15 feet. The soil consisted a sandy silt that was dark grey to black. After 5 feet the soil changed to a grey sandy clay with gravel.

P9SB-12: This site was added into testing to determine the extent of contamination in the area around P9SB-07. P9SB-12 was cored to 20 feet, and Rob took both water and soil samples. The soil consisted of a dark brown sandy clay with gravel and cobbles for the first 5 feet. From 5 to 8 feet the soil was a redish/dark brown silty sand. The soil between 8 and 20 feet consisted of a wet sand gravel that was dark grey and oily.

P9SB-13: This site was added into testing to determine the extent of contamination in the area around P9SB-08. P9SB-13 was cored to a depth of 20 feet and both water and soil samples were taken. The soil consisted of a sandy fill with pebbles and large cobbles for the first 8 feet. the last 12 feet consisted of a sandy gravel that was grey and oily.

SPSS-05: this site is located adjacent to structure 6 near the docks. SPSS-05 was cored to a depth of 5 feet, and only soil sample were taken by Rob. The soil consisted of a dark brown sand and gravel fill.



Legend

Proposed Phase 2 Sample Location
- Soil
- Shallow Soil Boring
- Soil Gas
- Grab Groundwater

Phase 1 Sample Location
- Soil - Source Area Location (SB)
- Soil - Unbiased (SB)
- Soil Gas (SG)
- Soil Gas Probe (SGP)
- Soil and Groundwater - Hollow Stem (SB)
- Soil and/or Groundwater - Direct Push (SB)
- Test Pit (TP)
- Monitoring Well Location

Surface Feature
- Fence
- Other
- Road Edge
- Building
- Proposed Building
- Pier 70 Site Area
- Master Plan Parcel Areas (eg. Parcel 1 = P1, Crane Cove Park = CC, etc...)
- Pile-Supported Structure Over Water

Notes:

1. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, http://archive.casil.ucdavis.edu/casil/.
2. Current and recent historical shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, http://gispub02.sfgov.org/ website/sfshare/catalog/sfshoreext.zip.
3. Approximate 1869 Shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
4. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

PROPOSED PHASE 2 SAMPLING LOCATIONS

Date 11/30/2009	Project 4963.01	Figure 2

Treadwell&Rollo

Treadwell & Rollo, C:\GIS\4963 - Pier 70\arcmap_doc\2009\4963-01-033.mxd

WSA
William Self Associates
61d Avenida de Orinda, Orinda CA 94563 (925)253-9070 fax: (925)254-3553

Daily Log
Construction Monitoring

Monitor: Jeff T. Schaeffer	Date: 02/16/2010	Day: Tuesday
General Location: Pier 70, San Francisco Bldg 105		
Onsite Construction Supervisor:	Arrival Time: 7:30	
Equipment Operator(s) (if known):	Departure Time: 2:30	
Native American Monitor(s) Present:		
Agency/Project Personnel Present During Workday: Treadwell + Rollo		

List Construction Activities Monitored:	Location:
20 ft core	parking lot near Bldg 6
15 ft core	next to Bldg 105
15 ft core	next to Bldg 105

Were Artifacts or Cultural Soils Observed? Were artifacts or samples collected? TOTAL # BAGS _____

No artifacts or cultural soils were observed.

Narrative Report on Day's Activities, including problems and concerns (cont. on back)

Started the day at 7:30 near Bldg 6. Core samples were taken to a depth of 20 ft. small traces of brick at 4½ feet. 5-8 ft consisted of a fine cobble + sand fill. 8-15 ft dark sand fill sand with cobbles. 15-20 consisted of a sandy dark grey clay.

(see back of page)

Was there a need for work stoppage or redirection? If so, explain:

There was no need to stop or redirect work.

Additional Comments: Drilling will take place in areas drilling has already occured to recover no usable samples.

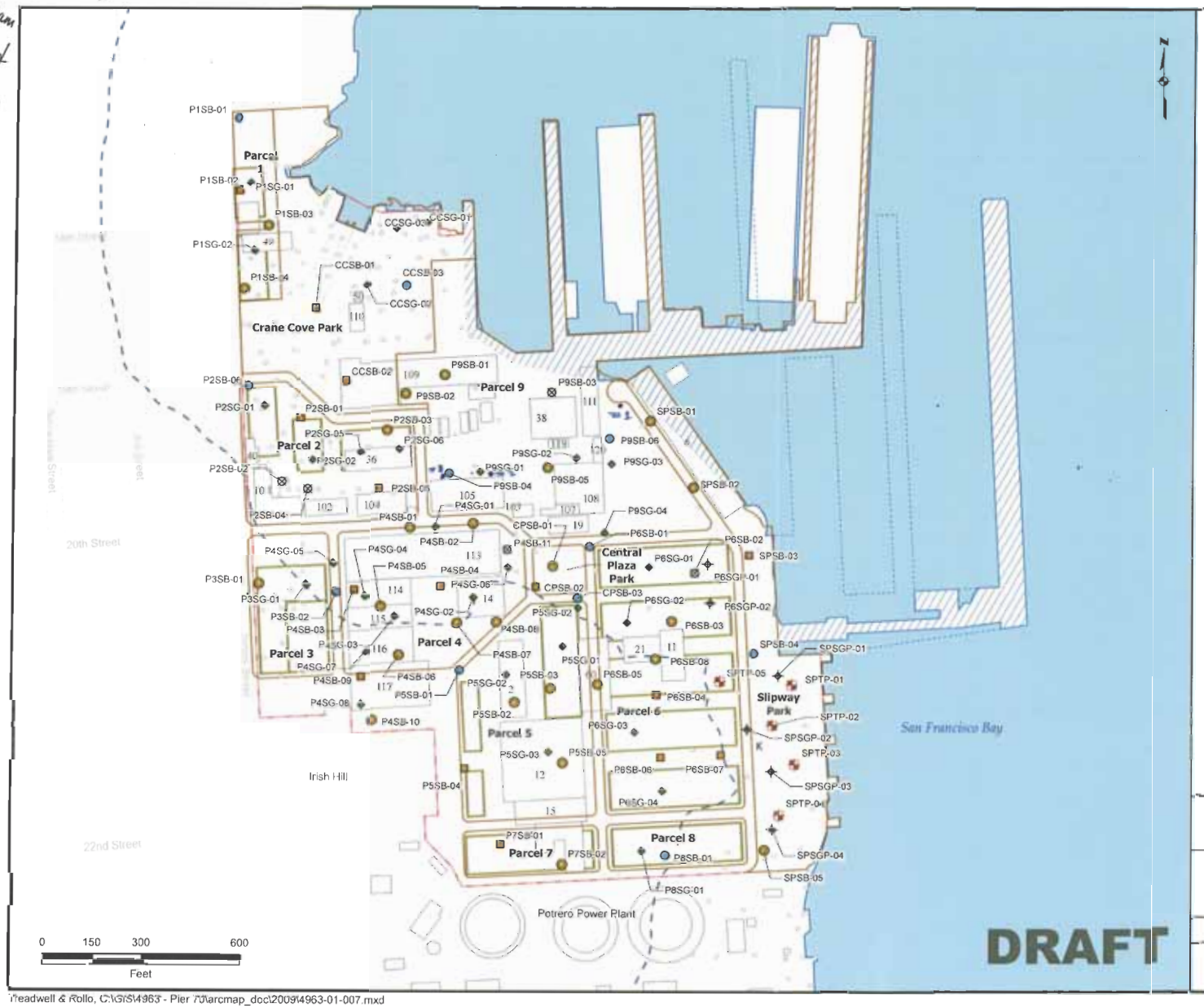
Signature: Jeff T. Schaeffer Date: 02/16/2010

Continuation Sheets Used? Yes [ ] No [ ] Page 1 of 1

Started drilling at 10 am near Bldg 105. Core samples were taken to a depth of 15 ft. 0-10 ft. consisted of a tan sandy fill with cobbles. 10-15 consisted of a dark brown/grey sandy fill. At around 12 ft a dark oily viscous liquid was collected.

Started drilling at 12:45 near Bldg 105. Core samples were taken to a depth of 15 ft. 0-9 ft consisted of a ~~dark~~ tan sandy fill with cobbles. 9-14 consisted of a dark brown/grey sandy fill. & the last foot consisted of a grey sandy clay. At around 12 ft a dark oily viscous liquid was collected

Bldg 105, Dustyne Sutherland
7:30am
Tues &
Wed.



Legend

Proposed Sample Location
- Soil - Source Area Location (SB)
- Soil - Unbiased (SB)
- Soil Gas (SG)
- Soil Gas Probe (SGP)
- Soil and Groundwater - Hollow Stem (SB)
- Soil and/or Groundwater - Direct Push (SB)
- Test Pit (TP)
- Historical Sample Location
- Approximate 1869 Shoreline

Surface Feature
- Fence
- Other
- Road Edge
- Building
- Proposed Building
- Pier 70 Site Area
- Master Plan Parcel Areas (eg. Parcel 1 = P1, Crane Cove Park = CC, etc...)
- Pile-Supported Structure Over Water

Notes:

1. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, http://archive.casil.ucdavis.edu/casil/.
2. Current and recent historical shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, http://gispub02.sfgov.org/ website/sfshare/catalog/sfshoreext.zip.
3. Approximate 1869 Shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
4. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 21 July 2009.
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

PROPOSED PHASE I SAMPLING LOCATIONS

Date 8/5/2009	Project 4963.01	Figure 15

Treadwell&Rollo

Treadwell & Rollo, C:\GIS\4963 - Pier 70\arcmap_doc\2009\4963-01-007.mxd

Treadwell&Rollo
A LANGAN COMPANY

APPENDIX G

Groundwater and Tide Level Graphs CCMW01 and SPMW-01

Figure G-1 CCMW-01 Groundwater and Tide Level Graph

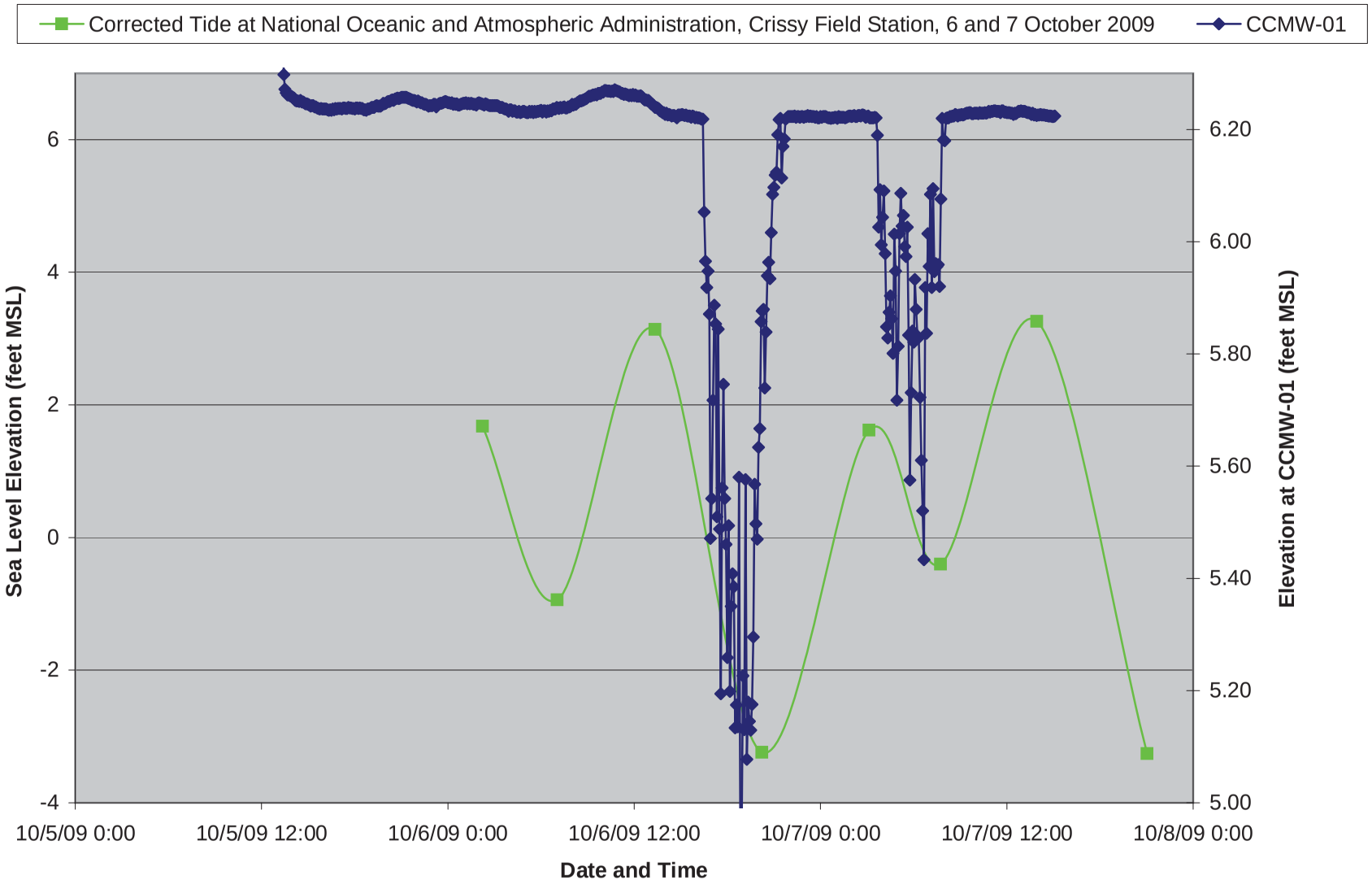


Figure G-2 SPMW-01 Groundwater and Tide Level Graph