San Diego Bay Environmental Restoration Fund – South

450 Montbrook Lane
Knoxville, TN 37919
Phone: (865) 691-5052

VIA Email and U.S. Mail

April 14, 2014

David Gibson
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, California 92108

Re: March 2014, Monthly Water Column Monitoring Report Submittal
San Diego Shipyard Sediment Site – South Shipyard
Place ID 794466, Order No. R9-2013-0093

To Mr. Gibson:

The March 2014 Monthly Water Column Monitoring Report is being submitted to the San Diego Regional Water Quality Control Board by the San Diego Bay Environmental Restoration Fund – South (Attached).

Should there be any questions regarding this Monthly Report, please do not hesitate to contact me at 619-546-8377 ext. 103 or at mpalmer@demaximis.com.

Sincerely,

Michael A. Palmer
Project Coordinator

Attachment: San Diego Shipyard Sediment Site – South Shipyard (Place ID 794466, Order No. R9-2013-0093) Monthly Water Column Monitoring Report: March 2014

cc: Mike Chee, NASSCO (Via Email)
David Templeton, Anchor QEA (Via Email)
Chad Carpenter, R. E. Staite Engineering (Via Email)

CERTIFICATION STATEMENT

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

R. Thomas Dorsey		4/9/14
Print Name Tom Dorsey	Signature	Date

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

TECHNICAL MEMORANDUM

To:	David Gibson, San Diego Regional Water Quality Control Board	**Date:**	April 8, 2014
From:	Chris Osuch, Adam Gale, and Elizabeth Appy, Anchor QEA	**Project:**	131003-01.02
Cc:	Michael Chee, National Steel and Shipbuilding Company Michael Palmer, de maximis, inc. David Templeton and Michael Whelan, Anchor QEA Robert Smith, U.S. Army Corps of Engineers		
Re:	San Diego Shipyard Sediment Site – South Shipyard (Place ID 794466, Order No. R9-2013-0093) Monthly Water Column Monitoring Report: March 2014		

INTRODUCTION

The San Diego Bay Environmental Restoration Fund – South (South Trust) is remediating contaminated sediments at the South Shipyard portion of the San Diego Shipyard Sediment Site (Site). Remediation is required to comply with Cleanup and Abatement Order (CAO) No. R9-2012-0024 issued by the San Diego Regional Water Quality Control Board (Water Board 2012a). Water column monitoring must be conducted during dredging and sand placement operations in order to comply with Waste Discharge Requirements and Section 401 Water Quality Certification (WDR/WQC; Water Board 2013). Anchor QEA was contracted by the South Trust to conduct this water column monitoring.

This technical memorandum summarizes results of water column monitoring during March 2014. During this month, sand placement was performed within Sediment Management Unit (SMU)-1, -2, and -3 (Figure 1). Monitoring during sand placement was conducted on March 6, 11, 17, and 24. All in-water work, including sand placement operations, was completed on March 29. No additional water column monitoring will occur, and this technical memorandum is the final monthly water column monitoring report for the Site. Monitoring was performed in accordance with the WDR/WQC Section VIII(A) (Water Board 2013) and Appendix C of the Remedial Action Plan (RAP; Anchor QEA 2012). Water quality monitoring included dissolved oxygen (DO), pH, turbidity, and visual observations.

In addition to the manual water quality monitoring conducted by Anchor QEA, an automatic monitoring system was set up and monitored by Tierra Data, Inc. (TDI) in accordance with the Mitigation Monitoring and Reporting Program (MMRP; Water Board 2012b). Automatic monitoring buoys were installed by TDI on September 26, prior to commencing dredging. Buoys were located at the reference station and two early warning stations. The reference station was located 1,000 feet from the remedial footprint in the direction of the ocean. Early warning stations were located 250 feet from the construction area;[1] however, it was necessary to slightly adjust this distance to allow for vessel traffic, including barge and tugboat access. Automatic monitoring was used to alert the contractor if early warning triggers were achieved during dredging or sand placement to allow for additional best management practices (BMPs) to be implemented to prevent an exceedance at the compliance boundary. Automatic monitoring data are not presented in this technical memorandum but are available at http://www.wqdata.com/webdblink/buoys.php.

MATERIAL PLACEMENT VOLUMES AND LOCATIONS

In March, 7,380 cubic yards (cy) of cover material was placed at the Site, consisting of 1,210 cy at SMU-1, 1,540 cy at SMU-2 (North) and -2 (Underpier), and 4,630 cy at SMU-3 (Figure 1). Daily production rates ranged from 30 to 930 cy. All material was obtained from the Vulcan Materials Company's Chula Vista Plant. A summary of daily material placement volumes and locations of where material was placed is presented in Table 1.

WATER QUALITY MONITORING RESULTS

This section describes water quality monitoring results, including sampling locations, water column measurements, and visual observations.

Sampling Locations

Monitoring was performed at the reference station, two early warning stations, and four compliance stations. The reference station is located 1,000 feet from the remedial footprint in the direction of the ocean and beyond the influence of construction activities (Figure 2). Early warning and compliance stations are located 250 and 500 feet from the construction area, respectively. The general layout of early warning and compliance monitoring locations

[1] The construction area is defined as the area occupied by the dredging barge, sediment scow, sand and rock placement equipment, demolition work equipment, silt curtains, and other work.

for SMU-1, -2, and -3 are shown on Figures 3, 4, and 5, respectively; however, actual locations were positioned in the field relative to the construction area. Latitude and longitude coordinates for each monitoring location are presented in Table 2.

Water Column Measurements

DO, pH, and turbidity were measured 10 feet below the surface at each station using a Hydrolab MS5 or Horiba U52 multi-probe sonde. Instruments were calibrated prior to sampling according to the manufacturer's recommendations. Instrument calibration worksheets for each sampling event are provided in Attachment A. Water quality sample forms are provided in Attachment B. A summary of monitoring results during sand placement is presented in Table 2.

DO, pH, and turbidity results at each compliance station were compared to receiving water limitation compliance criteria. DO and turbidity concentrations at the compliance stations were similar to the reference station and met compliance criteria. On March 17, pH concentrations at all stations, including reference stations, were elevated slightly above compliance criteria. Calibration logs were checked and the meter appeared to be working properly. Concentrations were consistent with the reference station; therefore, elevated concentrations were not attributed to sand placement operations.

Visual Observations

Visual observations are summarized in Table 2. No odors or visual evidence of discoloration, turbidity, or surface pollution was observed at any station. The silt curtain was in place during all sand placement operations, and no damage, dislocation, or gaps were observed.

Visual monitoring of turbidity inside and outside the silt curtain was performed in concert with water quality parameter monitoring. Attachment C provides site photographs of the silt curtain that visualize typical conditions during construction, showing an attenuating turbidity plume inside the silt curtains. These visual observations are consistent with the results presented in this technical memorandum.

SUMMARY OF NON-COMPLIANCE

Based on the results of water quality monitoring, no incidents of non-compliance were noted during March 2014. Potential pH exceedances were attributed to extraneous factors and not sand placement operations.

PERSONS CONTRIBUTING TO THIS REPORT

Names, affiliations, and qualifications of the persons contributing to this technical memorandum are summarized in Table 3.

REFERENCES

Anchor QEA, 2012. *Remedial Action Plan*. San Diego Shipyard Sediment Site. Revised October 2012.

Water Board (San Diego Regional Water Quality Control Board), 2012a. Cleanup and Abatement Order R9-2012-0024 for the Shipyard Sediment Site. Issued March 14, 2012.

Water Board, 2012b. Mitigation Monitoring and Reporting Program for the Shipyard Sediment Remediation Project Environmental Impact Report (SCH#2009111098). Issued on March 14, 2012.

Water Board, 2013. Waste Discharge Requirements for San Diego Shipyard Sediment Remediation Project, San Diego Bay, San Diego, California. Order No. R9-2013-0093. Issued on July 10, 2013.

TABLES

Table 1
Material Placement Volumes and Locations for March 2014

Date	Estimated Material Placement Volume (cy)	Material Placement Location
3/3/2014	90	SMU-2 (Underpier)
3/3/2014	400	SMU-3
3/4/2014	190	SMU-2 (Underpier)
3/4/2014	720	SMU-3
3/5/2014	30	SMU-2 (Underpier)
3/6/2014	600	SMU-3
3/7/2014	930	SMU-3
3/8/2014	730	SMU-3
3/10/2014	340	SMU-3
3/11/2014	90	SMU-3
3/13/2014	300	SMU-2 (North)
3/14/2014	300	SMU-2 (North)
3/15/2014	190	SMU-2 (North)
3/17/2014	140	SMU-2 (North)
3/18/2014	90	SMU-2 (Underpier)
3/18/2014	250	SMU-3
3/19/2014	20	SMU-2 (Underpier)
3/19/2014	10	SMU-2 (North)
3/19/2014	60	SMU-3
3/20/2014	780	SMU-1
3/21/2014	340	SMU-3
3/22/2014	170	SMU-3
3/24/2014	200	SMU-1
3/24/2014	140	SMU-2 (North)
3/25/2014	40	SMU-2 (North)
3/29/2014	230	SMU-1
Total	**7,380**	-

Notes:
cy = cubic yard
SMU = Sediment Management Unit
1 Placed material was obtained from the Vulcan Materials Company's Chula Vista Plant.

Table 2
Water Quality Monitoring Results During Material Placement - March 1 through 31, 2014

Date	Time	Station Type	Station ID	Latitude[1]	Longitude[1]	Water Quality Measurements			Visual Observations		
						DO (mg/L)	pH	Turbidity (NTU)	Odor	Surface Pollution	Discoloration or Turbidity
3/6/2014	12:31:01	Reference	P-BG-140306	32.69135	-117.15027	7.4	8.0	1.3	No	No	No
3/6/2014	12:53:15	Early Warning	P-EWN-140306	32.68740	-117.14025	7.3	8.0	0.3	No	No	No
3/6/2014	12:59:07	Compliance	P-CNN-140306	32.68892	-117.14085	7.1	8.0	0.8	No	No	No
3/6/2014	13:03:59	Early Warning	P-EWS-140306	32.68658	-117.13970	7.4	8.0	0.7	No	No	No
3/6/2014	13:07:59	Compliance	P-CNS-140306	32.68627	-117.13790	7.2	8.0	0.2	No	No	No
3/6/2014	13:12:53	Compliance	P-CON-140306	32.68680	-117.14106	7.5	8.0	0.2	No	No	No
3/6/2014	13:17:15	Compliance	P-COS-140306	32.68552	-117.13964	7.5	8.0	0.4	No	No	No
3/11/2014	14:19:57	Reference	P-BG-140311	32.69145	-117.15023	6.9	8.4	0.4	No	No	No
3/11/2014	14:49:48	Early Warning	P-EWN-140311	32.68759	-117.13986	6.5	8.4	0.0[4]	No	No	No
3/11/2014	14:52:30	Early Warning	P-EWS-140311	32.68710	-117.13972	7.6	8.4	0.0[4]	No	No	No
3/11/2014	14:57:53	Compliance	P-CNN-140311	32.68892	-117.14060	6.7	8.4	0.0[4]	No	No	No
3/11/2014	15:07:12	Compliance	P-CON-140311	32.68782	-117.14122	7.8	8.4	0.0[4]	No	No	No
3/11/2014	15:13:07	Compliance	P-COS-140311	32.68628	-117.13980	6.8	8.4	0.0[4]	No	No	No
3/11/2014	15:16:08	Compliance	P-CNS-140311	32.68626	-117.13808	6.6	8.4	0.0[4]	No	No	No
3/17/2014	12:32:00	Reference	P-BG-140317	32.69163	-117.15029	8.5	9.1[2]	1.5	No	No	No
3/17/2014	12:56:10	Early Warning	P-EWN-140317	32.68924	-117.14058	7.9	9.1[2]	1.1	No	No	No
3/17/2014	13:03:16	Compliance	P-CNN-140317	32.68938	-117.14191	8.1	9.1[2]	1.5	No	No	No
3/17/2014	13:08:09	Compliance	P-CON-140317	32.68829	-117.14146	8.0	9.1[2]	1.7	No	No	No
3/17/2014	13:13:43	Early Warning	P-EWS-140317	32.68859	-117.13919	9.4	9.2[2]	2.5[3]	No	No	No
3/17/2014	13:17:17	Compliance	P-CNS-140317	32.68790	-117.13855	8.3	9.1[2]	0.0[4]	No	No	No
3/17/2014	13:22:39	Compliance	P-COS-140317	32.68775	-117.13960	8.1	9.1[2]	1.6	No	No	No
3/24/2014	13:41:00	Reference	P-BG-140324	32.69118	-117.15033	7.6	8.0	0.0[4]	No	No	No
3/24/2014	14:04:00	Early Warning	P-EWS-140324	32.68923	-117.14207	7.6	8.0	0.0[4]	No	No	No
3/24/2014	14:08:00	Compliance	P-CNS-140324	32.68960	-117.14147	8.6	8.0	0.0[4]	No	No	No
3/24/2014	14:12:00	Compliance	P-COS-140324	32.68852	-117.14153	8.3	8.0	0.0[4]	No	No	No
3/24/2014	14:17:00	Early Warning	P-EWN-140324	32.68900	-117.14277	7.6	8.0	0.0[4]	No	No	No

Table 2
Water Quality Monitoring Results During Material Placement - March 1 through 31, 2014

Date	Time	Station Type	Station ID	Latitude[1]	Longitude[1]	Water Quality Measurements			Visual Observations		
						DO (mg/L)	pH	Turbidity (NTU)	Odor	Surface Pollution	Discoloration or Turbidity
3/24/2014	14:22:00	Compliance	P-CNN-140324	32.68845	-117.14368	8.0	8.0	0.0[4]	No	No	No
3/24/2014	14:25:00	Compliance	P-CON-140324	32.68777	-117.14282	7.9	8.0	0.0[4]	No	No	No

Notes:

Receiving water limitation compliance criteria: DO shall not be depressed more than 10 percent from the reference (BG); pH shall not be changed more than 0.2 unit from reference (BG); pH shall not be depressed below 7.0 nor raised above 9.0; turbidity must not exceed 20 percent of reference (BG; if natural turbidity from 0 to 50 NTU).

DO = dissolved oxygen

mg/L = milligrams per liter

NTU = Nephelometric Turbidity Units

1 Latitude and longitude coordinates in decimal degrees, North American Datum 1983 (NAD83)

2 Early warning, compliance, and reference stations all exceeded receiving water limitation compliance criteria for pH. Concentrations were consistent with the reference station and therefore not attributed to sand placement operations.

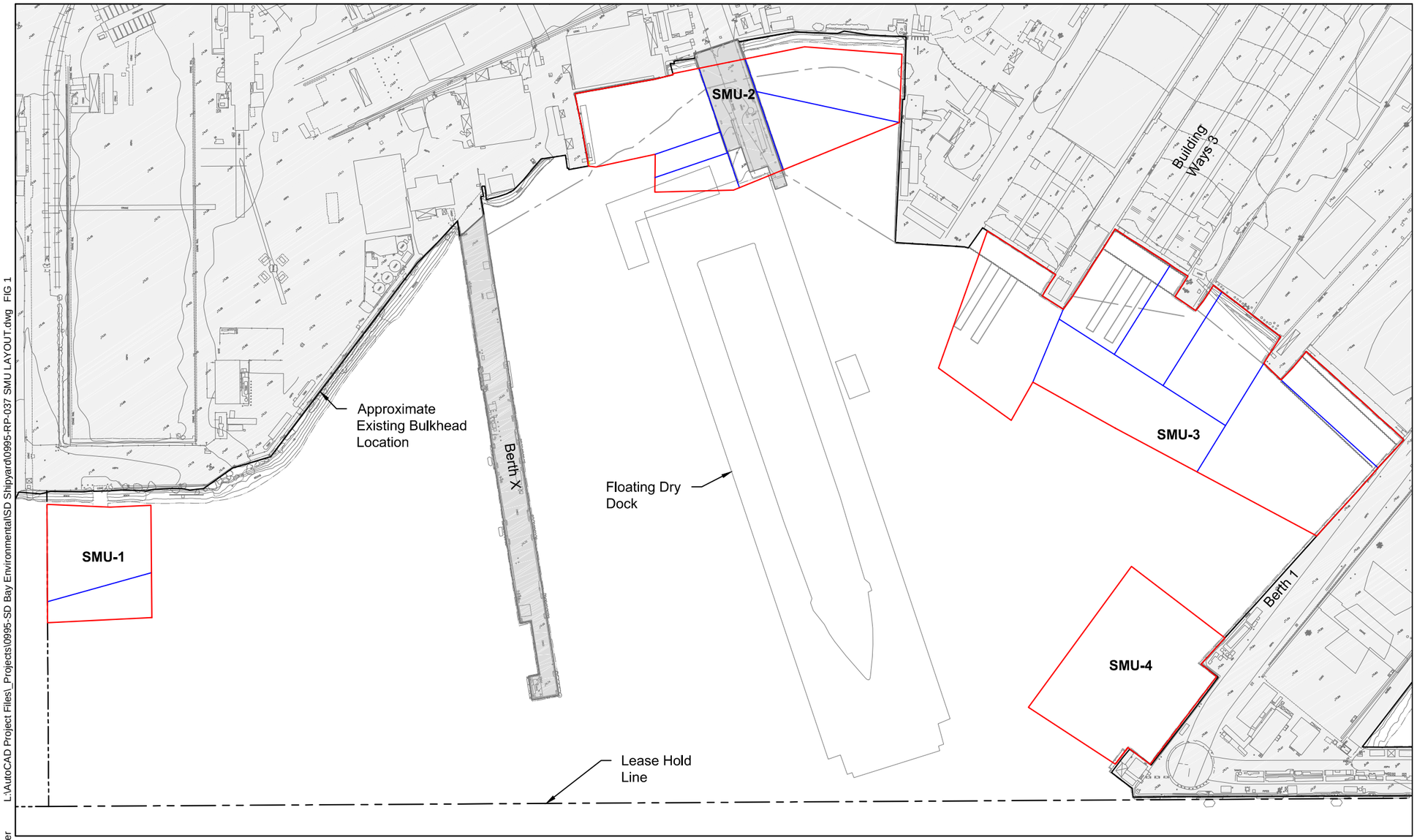
3 Early warning station results exceeded receiving water limitation compliance criteria for turbidity. These results were used as an early indicator of a potential water quality issue. The compliance stations met criteria; therefore, compliance criteria were not exceeded.

4 The resolution for turbidity values using the Horiba U52 multi-probe sonde is 0.1 NTU.

Table 3
Persons Contributing to this Report

Name	Title	Affiliation	Qualifications
Chris Osuch	Senior Scientist	Anchor QEA	University of California, Santa Barbara, B.A., Environmental Studies, 1998 Environmental scientist with more than 14 years of professional experience Experienced with collecting and measuring water quality parameters
Adam Gale	Senior Planner	Anchor QEA	University of Washington, Certificate Program in Geographic Information Systems, 2007; California Polytechnic State University, San Luis Obispo, B.S., Ecology and Systematic Biology, 2004 Planner with more than 8 years of professional experience Experienced with implementing water quality monitoring programs for remediation projects
Elizabeth Appy	Managing Scientist	Anchor QEA	Colby College, B.A., Biology, 1994; Oregon State University, M.S., Marine Resource Management, 2000 Managing scientist with more than 15 years of professional experience Experienced with implementing water quality monitoring programs for remediation projects
Brittany Geisler	Environmental Scientist	Anchor QEA	University of California, Irvine, B.A., Social Ecology, 2006 Environmental scientist with more than 5 years of professional experience Experienced with collecting and measuring water quality parameters

FIGURES



LEGEND:

Remediation Boundary

Sub-SMU Boundary

SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.

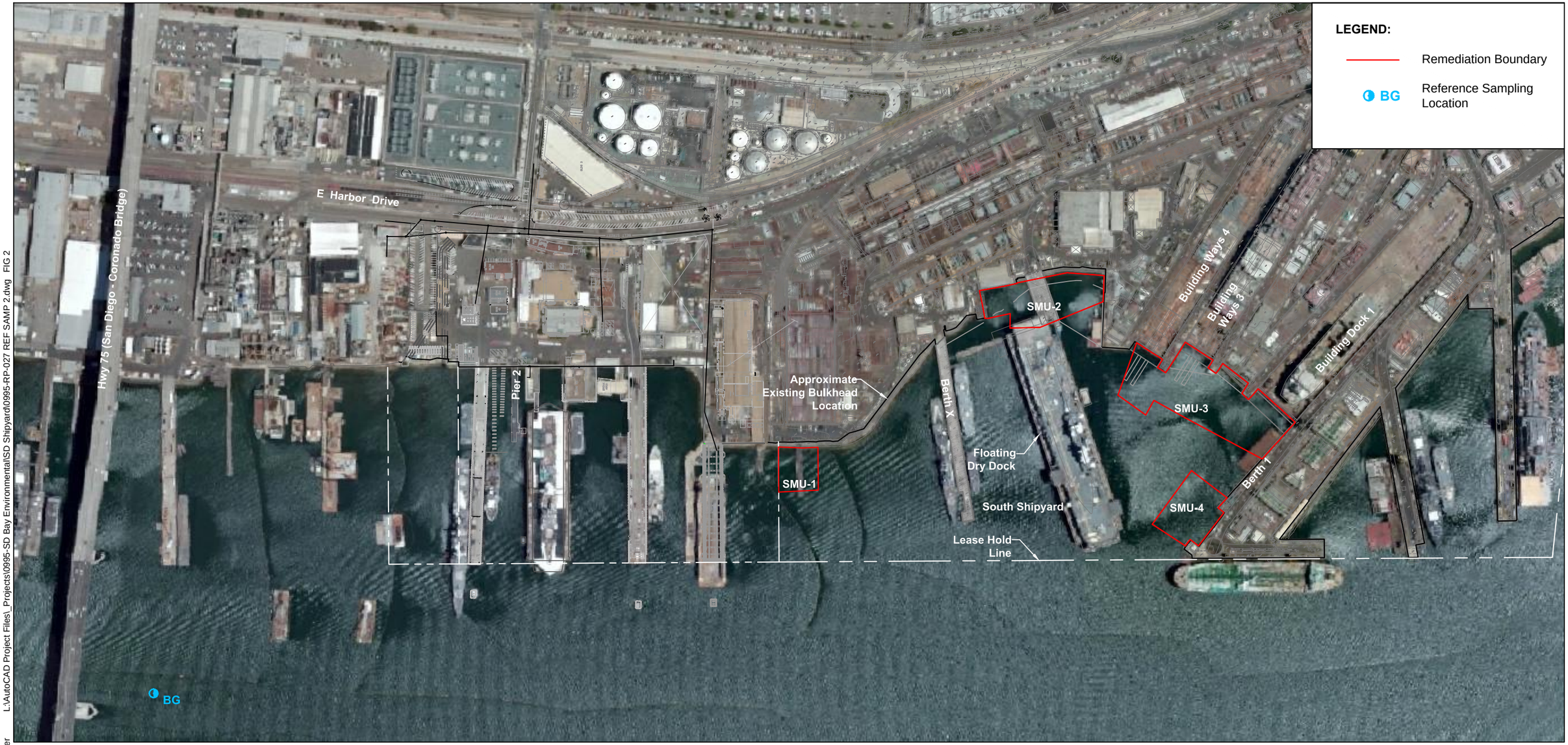
0 150
Scale in Feet

L:\AutoCAD Project Files_Projects\0995-SD Bay Environmental\SD Shipyard\0995-RP-037 SMU LAYOUT.dwg FIG 1

Nov 07, 2013 10:43am mpratschner

ANCHOR QEA

Figure 1
Sediment Management Unit Locations
San Diego Shipyard Sediment Site - South Shipyard



SOURCE: Aerial from ESRI base maps. Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.

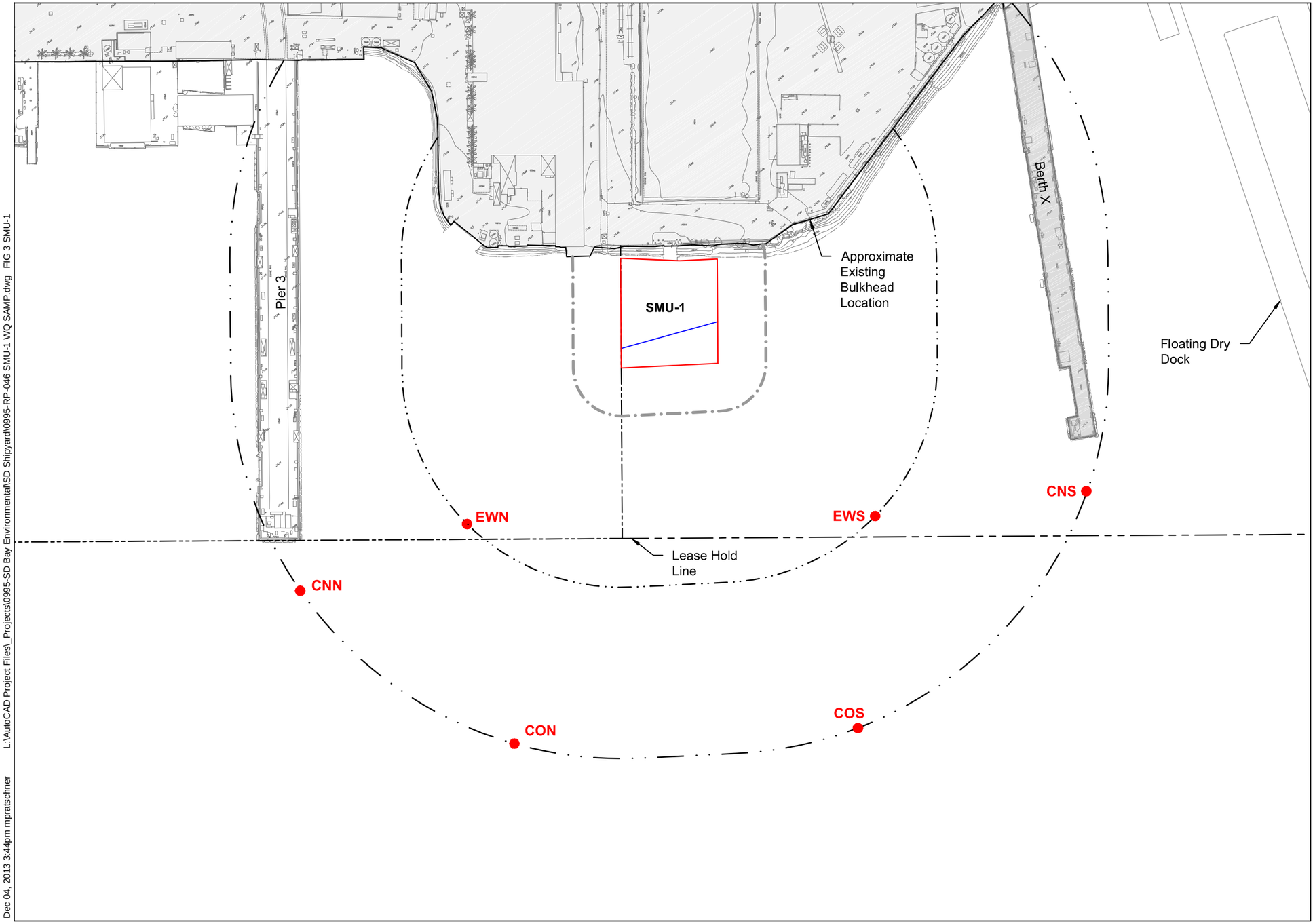
NOTES:
Reference Sampling Location BG
Latitude: 32° 41.4970'
Longitude: 117° 09.0185'

0 350
Scale in Feet

L:\AutoCAD Project Files_Projects\0995-SD Bay Environmental\SD Shipyard\0995-RP-027 REF SAMP 2.dwg FIG 2
Nov 07, 2013 10:04am mpratschner

ANCHOR QEA

Figure 2
Water Quality Reference Sampling Location
San Diego Shipyard Sediment Site - South Shipyard



LEGEND:

- Remediation Boundary
- Sub-SMU Boundary
- 250 ft from Construction Area
- 500 ft from Construction Area
- XXX ● Sampling Location
- Silt Curtain
- EWN Early Warning North
- EWS Early Warning South
- CNN Compliance Nearshore North
- CNS Compliance Nearshore South
- CON Compliance Offshore North
- COS Compliance Offshore North

SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.

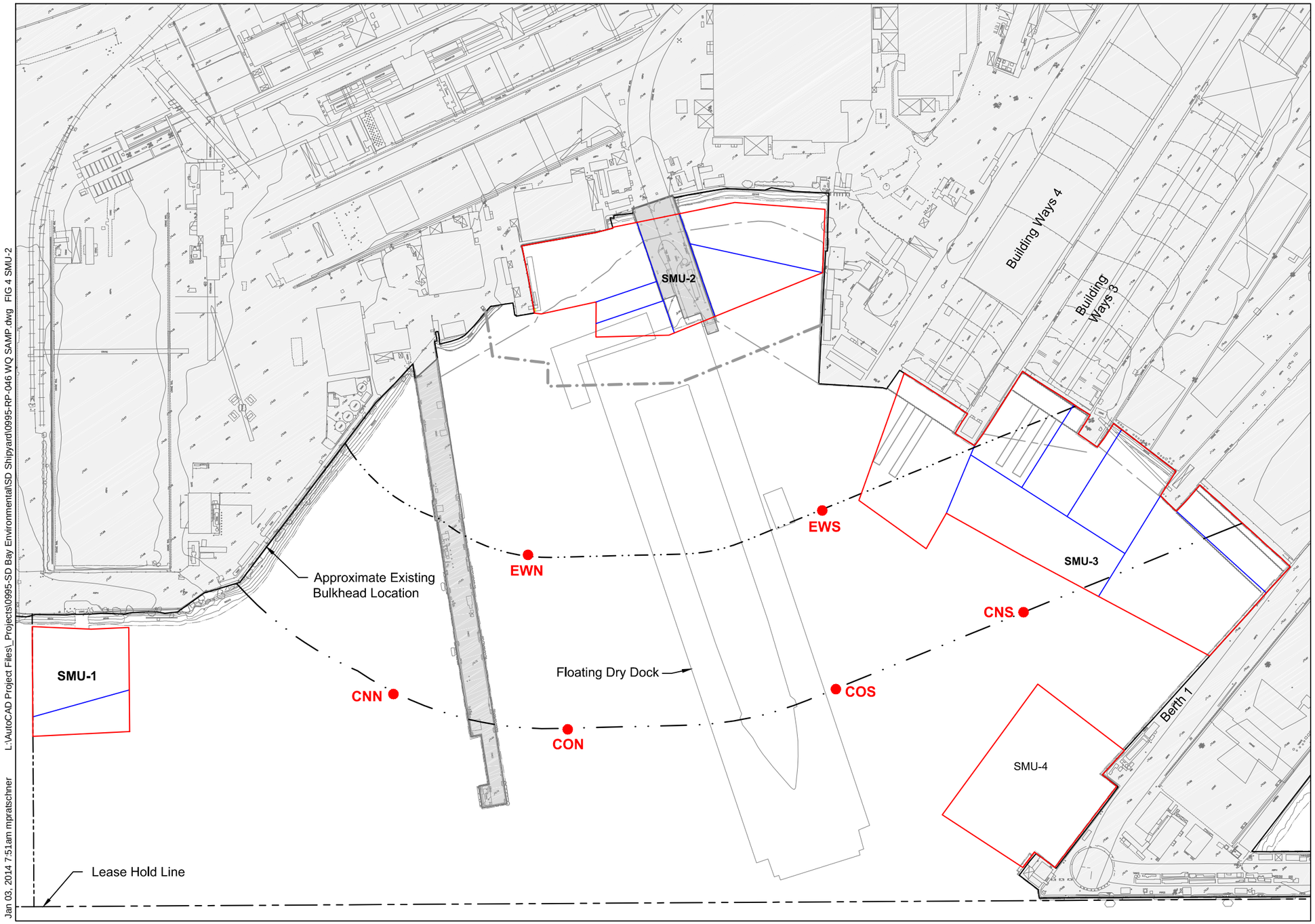
NOTE:
Actual sampling locations determined in the field based on the location of the construction area.

0 150
Scale in Feet

Dec 04, 2013 3:44pm mpratschner L:\AutoCAD Project Files_Projects\0995-SD Bay Environmental\SD Shipyard\0995-RP-046 SMU-1 WQ SAMP.dwg FIG 3 SMU-1

ANCHOR QEA

Figure 3
General Layout of Water Quality Sampling Locations for SMU-1
San Diego Shipyard Sediment Site - South Shipyard



LEGEND:

- Remediation Boundary
- Sub-SMU Boundary
- 250 ft from Construction Area
- 500 ft from Construction Area
- XXX ● Sampling Location
- Silt Curtain
- EWN Early Warning North
- EWS Early Warning South
- CNN Compliance Nearshore North
- CNS Compliance Nearshore South
- CON Compliance Offshore North
- COS Compliance Offshore North

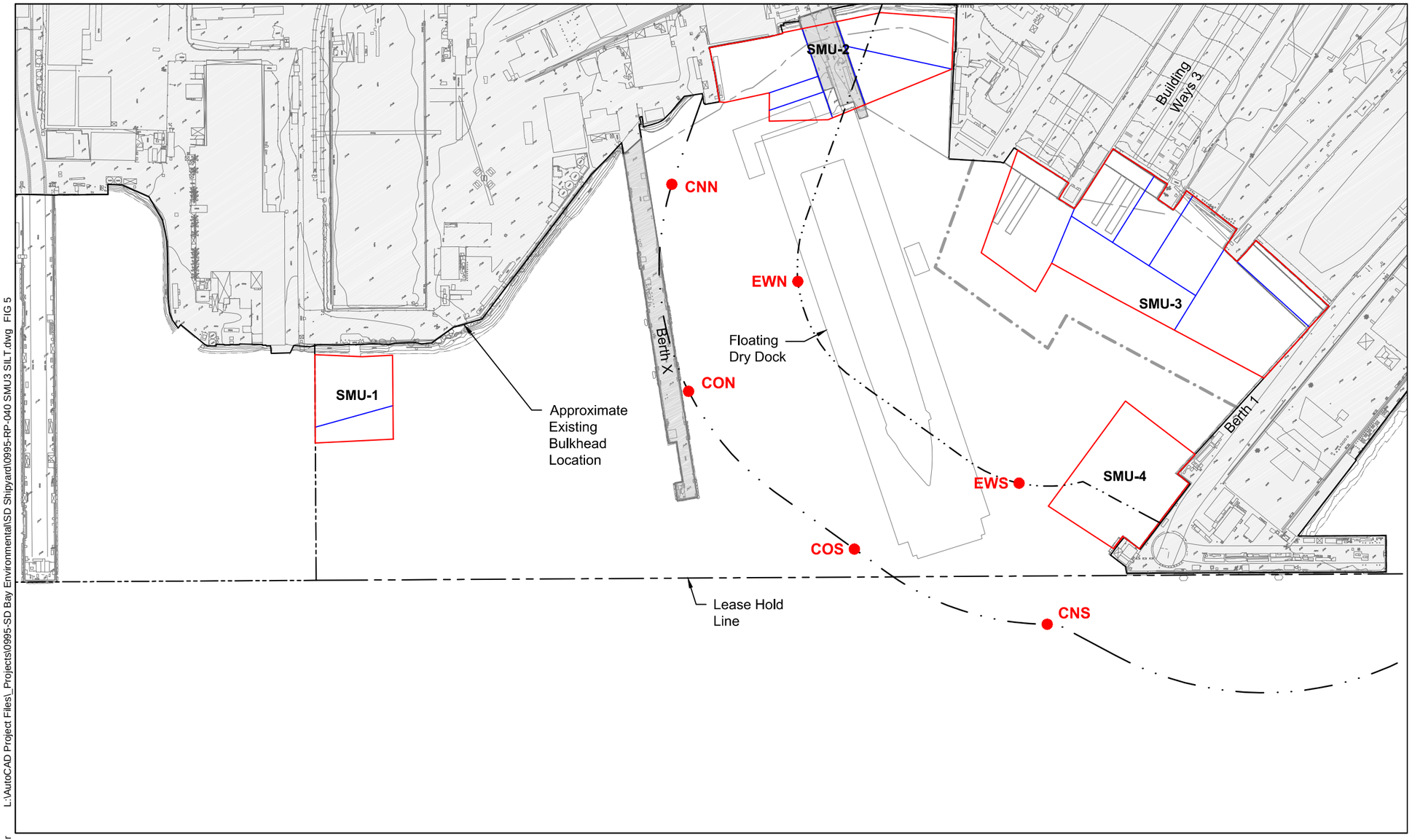
SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.

NOTE:
Actual sampling locations determined in the field based on the location of the construction area.

0 150
Scale in Feet

ANCHOR QEA

Figure 4
General Layout of Water Quality Sampling Locations for SMU-2
San Diego Shipyard Sediment Site - South Shipyard



LEGEND:

	Remediation Boundary
	Sub-SMU Boundary
	250 ft from Construction Area
	500 ft from Construction Area
XXX	Sampling Location
	Silt Curtain
EWN	Early Warning North
EWS	Early Warning South
CNN	Compliance Nearshore North
CNS	Compliance Nearshore South
CON	Compliance Offshore North
COS	Compliance Offshore North

NOTE:
Actual locations were positioned in the field relative to the construction area.

SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.

0 200
Scale in Feet

L:\AutoCAD Project Files_Projects\0995-SD Bay Environmental\SD Shipyard\0995-RP-040 SMU3 SILT.dwg FIG 5
Apr 03, 2014 9:47am mpratschner

ANCHOR QEA

Figure 5
General Layout of Water Quality Sampling Locations for SMU-3
San Diego Shipyard Sediment Site - South Shipyard

ATTACHMENT A
CALIBRATION LOGS

HYDROLAB CALIBRATION WORKSHEET

PROJECT(S): SD Shipyard PROJECT #: 131003-01

REMINDER: ALLOW TWO MINUTES WARMUP BEFORE CALIBRATION OR USE.

			DO				pH					REDOX		
Calib by:	Date	Time (24 Hr)	Temp. (°C)	BP (mm Hg)	Initial DO (mg/L)	Final DO (mg/L)	Initial pH 7.0	Final pH 7.0	Temp. (°C)	Initial pH: 10	Final pH: 10	Initial (mV)	Final (mV)	Temp. (°C)
BG	3.5.14	0745	23.5	762	8.7	8.5	7.1	7.0	23.2	10.2	10.0			

			CONDUCTIVITY					TURBIDITY				
Calib by:	Date	Time (24 Hr)	Initial 0 µs/cm	Final 0 µs/cm	Temp. (°C)	Initial 1412 µs/cm	Final 1412 µs/cm	Initial 0 NTU	Final 0 NTU	Temp. (°C)	Initial 40 NTU	Final 40 NTU
BG	3.5.14	0745	0.0	0.0	21.1	1435	1412	0.2	0.0	23.1	43.4	40.0

Dissolved Oxygen Method (circle one):
Air (Saturated Water) Winkler Titration

Source of Barometric Pressure Surveyor

Turbidity (40 NTU)
Lot# A3316 Exp. Date: 12/15
Turbidity Std (<0.1 NTU)
Lot# A2347 Exp. Date: 12/14

Conductivity Stds: Calibration: 1412 µs/cm
Lot # A3354 Exp. Date: 12/14
Verification: _____ µs/cm
Lot # _____ Exp. Date: _____

pH Buffers:
pH 7.0 Lot # A3046 Exp. Date: 2/15
pH 10 Lot# A3042 Exp. Date: 2/14
pH 4 Lot# A3042 Exp. Date: 2/17 4.3 @ 23.0 4.0 @ 23.0

Redox Standard:
428 mV ± @ 25 °C (Zobell's)
Lot# _____ Exp. Date: _____

NOTES: pH 10 is on order but have not received.

L:\Sampling\Templates\Field Forms\Water\Hydro Calibration Log.xls

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

1340 Reynolds Avenue, Suite 108
Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 17229
Description Horiba U-52
Calibrated 3/10/2014 3:10:55PM

Manufacturer Horiba
Model Number U-52
Serial Number/ Lot Number H10W0S7
Location California
Department

State Certified
Status Pass
Temp °C 22
Humidity % 20

Calibration Specifications

Group # 1
Group Name PH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.01 / 7.01	PH	7.01	PH	7.01	7.01	0.00%	Pass
4.01 / 4.01	PH	4.01	PH	4.01	4.01	0.00%	Pass

Group # 2
Group Name Turbidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	NTU	0.00	NTU	0.00	0.00	0.00%	Pass
800.00 / 800.00	NTU	800.00	NTU	800.00	800.00	0.00%	Pass

Group # 3
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.718 / 0.718	ms/cm	0.718	ms/cm	0.718	0.718	0.00%	Pass
5.000 / 5.000	ms/cm	5.000	ms/cm	5.000	5.000	0.00%	Pass
80.000 / 80.000	ms/cm	80.000	ms/cm	80.000	80.000	0.00%	Pass

Group # 4
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.00 / 240.00	mv	240.00	mv	240.00	240.00	0.00%	Pass

Group # 5
Group Name Disolved Oxygen Zero
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

1340 Reynolds Avenue, Suite 108
Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 17229
Description Horiba U-52
Calibrated 3/10/2014 3:10:55PM

Group # 5 | **Range Acc %** 0.0000
Group Name Disolved Oxygen Zero | **Reading Acc %** 3.0000
Stated Accy Pct of Reading | **Plus/Minus** 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	mg/L	0.00	mg/L	0.00	0.00	0.00%	Pass

Group # 6 | **Range Acc %** 0.0000
Group Name Temperature DO Span | **Reading Acc %** 0.0000
Stated Accy Plus / Minus | **Plus/Minus** 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
20.00 / 20.00	degrees C	8.84	mg/L	8.84	8.84	0.00%	Pass

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
CA 240MV 2855	CA ORP 240 mV	Hanna		Lot# 2855		11/20/2015
CA 7 PH 8879	CA PH 7	Aurical		Lot# 10675		11/8/2014
CA 800NTU	CA TURB 800	Horiba		201046-4		1/3/2015
CA COND 5000 (LOT# 9964)	CA COND 5000	Aurical		9964		2/21/2015
CA COND 718 (LOT# 9963)	CA COND 718	Aurical		10175		2/21/2015
CA COND 80,000 (LOT#9974)	CA COND 80,000	Aurical		10174		2/21/2015
CA PH 4 (LOT# 1206598)	CA PH 4 (LOT# 1206598)	Aurical		2AL474		12/4/2014
CA ZERO SOLUTION	Zero Oxygen Solution	Oakton	265503-A01	RU1		6/1/2014

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Scott Bohle

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

1340 Reynolds Avenue, Suite 108
Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 17229
Description Horiba U-52
Calibrated 3/10/2014 3:10:55PM

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Notify Pine Environmental Services, LLC. of any defect within 24 hours of receipt of equipment
Please call 866-960-7463 for Technical Assistance

INSTRUMENT PACKING LIST

Pine Environmental Services, Inc.

NJ Headquarters 800-301-9663

GA 800-842-1088	VA 866-801-PINE
OH 877-326-PINE	FL 877-259-PINE
ME 888-779-PINE	PA 866-750-PINE
MA 800-519-PINE	TN 877-355-7907
NY 877-903-PINE	CA 888-620-PINE
NC 866-646-PINE	**Canada**
TX 866-981-PINE	ON 866-688-0388
CO 866-960-PINE	BC 877-678-8383

Description	Horiba U-52 and display
Instrument ID	21188 + 17229
Date Calibrated	3/17/14

Standard Items	**Prepared**	**QC check**	**Received by customer**	**Returned to Pine**
Horiba U-52 w/ 30m' cable and display w/ case	✓	✓		
Manual	✓	✓		
Quick reference card	✓	✓		
(4) C Alkaline batteries	✓	✓		
Probe Guard	✓	✓		
Calibration cup (clear)	✓	✓		
Sample cup (Black)	✓	✓		
Flow cell	✓	✓		
• -Cell body	✓	✓		
• -Center window	✓	✓		
• -Base and black bottom	✓	✓		
• -O-ring cover	✓	✓		
• -Threaded ring	✓	✓		
• -(2) black O-rings	✓	✓		
• -(1) red O-ring	✓	✓		
• -2 of each white barb sizes (1/4, 3/8, and 1/2)	✓	✓		
D.O. probe reconditioning kit	✓	✓		
330 internal pH reference solution (1)	✓	✓		
250 ml Autocal solution	✓	✓		
NIST traceable calibration sheet	✓	✓		
Optional Items				
U-50 Data Collection Software				
USB Cable				

Prepared by: [illegible]

QC checked by: CB

Date: 3/17/14

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INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

1340 Reynolds Avenue, Suite 108
Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 21188
Description Horiba U-52
Calibrated 3/17/2014 12:12:21PM

Manufacturer Horiba
Model Number U-5000
Serial Number/ Lot Number H1U0W0S7
Location California
Department

State Certified
Status Pass
Temp °C 23
Humidity % 45

Calibration Specifications

Group # 1
Group Name PH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.01 / 7.01	PH	7.01	PH	7.00	7.00	-0.14%	Pass
4.01 / 4.01	PH	4.01	PH	4.00	4.00	-0.25%	Pass

Group # 2
Group Name Turbidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	NTU	0.00	NTU	0.00	0.00	0.00%	Pass
800.00 / 800.00	NTU	800.00	NTU	800.00	800.00	0.00%	Pass

Group # 3
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.718 / 0.718	ms/cm	0.718	ms/cm	0.718	0.718	0.00%	Pass
5.000 / 5.000	ms/cm	5.000	ms/cm	5.000	5.000	0.00%	Pass
80.000 / 80.000	ms/cm	80.000	ms/cm	80.000	80.000	0.00%	Pass

Group # 4
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.00 / 240.00	mv	240.00	mv	240.00	240.00	0.00%	Pass

Group # 5
Group Name Disolved Oxygen Zero
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

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Pine Environmental Services, Inc.

Instrument ID 21188
Description Horiba U-52
Calibrated 3/17/2014 12:12:21PM

Group # 5
Group Name Disolved Oxygen Zero
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	mg/L	0.00	mg/L	0.00	0.00	0.00%	Pass

Group # 6
Group Name Temperature DO Span
Stated Accy Plus / Minus
Range Acc % 0.0000
Reading Acc % 0.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
20.00 / 20.00	degrees C	8.84	mg/L	8.84	8.84	0.00%	Pass

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
CA 240MV 2855	CA ORP 240 mV	Hanna		Lot# 2855		11/20/2015
CA 7 PH 8879	CA PH 7	Aurical		Lot# 10675		11/8/2014
CA 800NTU	CA TURB 800	Horiba		201046-4		1/3/2015
CA COND 5000 (LOT# 9964)	CA COND 5000	Aurical		9964		2/21/2015
CA COND 718 (LOT# 9963)	CA COND 718	Aurical		10175		2/21/2015
CA COND 80,000 (LOT#9974)	CA COND 80,000	Aurical		10174		2/21/2015
CA PH 4 (LOT# 1206598)	CA PH 4 (LOT# 1206598)	Aurical		2AL474		12/4/2014
CA ZERO SOLUTION	Zero Oxygen Solution	Oakton	265503-A01	RU1		6/1/2014

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Juan Marquez

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

1340 Reynolds Avenue, Suite 108
Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 21188
Description Horiba U-52
Calibrated 3/17/2014 12:12:21PM

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MA 800-519-PINE	**TN** 877-355-7907
NY 877-903-PINE	**CA** 888-620-PINE
NC 866-646-PINE	**Canada**
TX 866-981-PINE	**ON** 866-688-0388
CO 866-960-PINE	**BC** 877-678-8383

Description	Horiba U-52 and display
Instrument ID	17229/21188
Date Calibrated	3/18/14

Standard Items	**Prepared**	**QC check**	**Received by customer**	**Returned to Pine**
Horiba U-52 w/ 30 m' cable and display w/ case	✓	✓		
Manual	✓	✓		
Quick reference card	—	N/A		
(4) C Alkaline batteries	✓	✓		
Probe Guard	✓	✓		
Calibration cup (clear)	✓	✓		
Sample cup (Black)	✓	✓		
Flow cell	✓	✓		
• -Cell body	✓	✓		
• -Center window	✓	✓		
• -Base and black bottom	✓	✓		
• -O-ring cover	✓	✓		
• -Threaded ring	✓	✓		
• -(2) black O-rings	✓	✓		
• -(1) red O-ring	✓	✓		
• -2 of each white barb sizes (1/4, 3/8, and 1/2)	✓	✓		
D.O. probe reconditioning kit	✓	✓		
330 internal pH reference solution (1)	✓	✓		
250 ml Autocal solution	✓	✓		
NIST traceable calibration sheet	✓	✓		
Optional Items				
U-50 Data Collection Software	/	/		
USB Cable	/	/		

Prepared by: HP

QC checked by: [illegible]

Date: 3/18/14

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INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

1340 Reynolds Avenue, Suite 108
Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 21188
Description Horiba U-52
Calibrated 3/18/2014 6:25:44PM

Manufacturer Horiba
Model Number U-5000
Serial Number/ Lot Number H1U0W0S7
Location California
Department

State Certified
Status Pass
Temp °C 23
Humidity % 45

Calibration Specifications

Group # 1
Group Name PH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.01 / 7.01	PH	7.01	PH	7.00	7.00	-0.14%	Pass
4.01 / 4.01	PH	4.01	PH	4.00	4.00	-0.25%	Pass

Group # 2
Group Name Turbidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	NTU	0.00	NTU	0.00	0.00	0.00%	Pass
800.00 / 800.00	NTU	800.00	NTU	800.00	800.00	0.00%	Pass

Group # 3
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.718 / 0.718	ms/cm	0.718	ms/cm	0.718	0.718	0.00%	Pass
5.000 / 5.000	ms/cm	5.000	ms/cm	5.000	5.000	0.00%	Pass
80.000 / 80.000	ms/cm	80.000	ms/cm	80.000	80.000	0.00%	Pass

Group # 4
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.00 / 240.00	mv	240.00	mv	240.00	240.00	0.00%	Pass

Group # 5
Group Name Disolved Oxygen Zero
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

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Pine Environmental Services, Inc.

Instrument ID 21188
Description Horiba U-52
Calibrated 3/18/2014 6:25:44PM

Group # 5
Group Name Disolved Oxygen Zero
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	mg/L	0.00	mg/L	0.00	0.00	0.00%	Pass

Group # 6
Group Name Temperature DO Span
Stated Accy Plus / Minus
Range Acc % 0.0000
Reading Acc % 0.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
20.00 / 20.00	degrees C	8.84	mg/L	8.84	8.84	0.00%	Pass

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
CA 240MV 2855	CA ORP 240 mV	Hanna		Lot# 2855		11/20/2015
CA 7 PH 8879	CA PH 7	Aurical		Lot# 10675		11/8/2014
CA 800NTU	CA TURB 800	Horiba		201046-4		1/3/2015
CA COND 5000 (LOT# 9964)	CA COND 5000	Aurical		9964		2/21/2015
CA COND 718 (LOT# 9963)	CA COND 718	Aurical		10175		2/21/2015
CA COND 80,000 (LOT#9974)	CA COND 80,000	Aurical		10174		2/21/2015
CA PH 4 (LOT# 1206598)	CA PH 4 (LOT# 1206598)	Aurical		2AL474		12/4/2014
CA ZERO SOLUTION	Zero Oxygen Solution	Oakton	265503-A01	RU1		6/1/2014

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Jaime Pombo

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

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Irvine, CA 92614
Toll-free: 888-620-7463

Pine Environmental Services, Inc.

Instrument ID 21188
Description Horiba U-52
Calibrated 3/18/2014 6:25:44PM

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ATTACHMENT B
WATER QUALITY SAMPLE FORMS

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. Geisler, K. King	**Date:** 3.6.14	**Tide:** Flood / Ebb / Slack
Station ID: P-BG-140306		**Water Depth (ft):** 38.5

Coordinates

Latitude/Northing: 32°41'28.8720"	Longitude/Easting: 117°09'00.9660"

Weather and Wind Conditions: Sunny, light wind

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:31:01	10	7.4	8.0	1.3

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. King

Comments:

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.6.14	**Tide:** Flood / Ebb / Slack
Station ID: P-EWN-140306		**Water Depth (ft):** 41.1

Coordinates

Latitude/Northing: 32°41'14.6280"	Longitude/Easting: 117°08'24.9000"

Weather and Wind Conditions: SUNNY, STRONG WIND

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:53:15	10	7.3	8.0	0.3

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.5.14	**Tide:** (Flood) / Ebb / Slack
Station ID: P-CNN-140306		**Water Depth (ft):** 35.5

Coordinates

Latitude/Northing: 32°41'20.1120"	Longitude/Easting: 117°08'27.0480"

Weather and Wind Conditions: SUNNY, STRONG WIND

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:59:07	10	7.1	8.0	0.8

Odor: (none) slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / (N)	Photograph(s) Taken: (Y) / N
Discoloration or Turbidity: Y / (N)	**Recorded by:** K. KING

Comments:

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.5.14	**Tide:** Flood / Ebb / Slack
Station ID: ~~P-B~~ BG P-EWS-140305		**Water Depth (ft):** 39.0

Coordinates

Latitude/Northing: 32° 41' 11.6760"	Longitude/Easting: 117° 08' 22.9080"

Weather and Wind Conditions: SUNNY, STRONG WIND

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:03:59	10	7.4	8.0	0.7

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.6.14	**Tide:** Flood / Ebb / Slack
Station ID: P-CNS-140306		**Water Depth (ft):** 40.7

Coordinates

Latitude/Northing: 32° 41' 10.5546"	Longitude/Easting: 117° 08' 16.4460"

Weather and Wind Conditions: SUNNY, STRONG WIND

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:07:59	10	7.2	8.0	0.2

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

ANCHOR QEA

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Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.6.14	**Tide:** Flood / Ebb / Slack
Station ID: P-CON-140306		**Water Depth (ft):** 34.4

Coordinates

Latitude/Northing: 32°41'12.4920"	Longitude/Easting: 117°08'27.5040"

Weather and Wind Conditions: SUNNY / STRONG WIND

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:12:53	10	7.5	8.0	0.2

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.5.14	**Tide:** Flood / Ebb / Slack
Station ID: P-COS-140306		**Water Depth (ft):** 38.0

Coordinates

Latitude/Northing: 32°41'07.8660	Longitude/Easting: 117°08'22.7160

Weather and Wind Conditions: SUNNY / STRONG WIND

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:17:15	10	7.5	8.0	0.4

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.11.14	**Tide:** Flood / Ebb / Slack
Station ID: P-BG-140311		**Water Depth (ft):** 36.0

Coordinates

Latitude/Northing: 32° 41' 29.226"	Longitude/Easting: 117° 09' 00.816"

Weather and Wind Conditions: Partly Cloudy, moderate wind

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
14:19:57	10	67.9	8.4	8.4

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Gl

Comments:

ANCHOR QEA

27201 Puerta Real, Suite 350
Mission Viejo, California 92691
Phone 949.347.2780
www.anchorqea.com

Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.11.14	**Tide:** Flood / Ebb / Slack
Station ID: P-EWN-140311		**Water Depth (ft):** 55.4

Coordinates

Latitude/Northing: 32° 41' 15.330"	Longitude/Easting: 117° 08' 23.478"

Weather and Wind Conditions: Partly Cloudy, light wind

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
14:49:48	10	6.5	8.4	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Geisler

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.11.14	**Tide:** Flood / Ebb / Slack
Station ID: P-EWS-140311		**Water Depth (ft):** 35.6

Coordinates

Latitude/Northing: 32° 41' 13.560"	Longitude/Easting: 117° 08' 22.998"

Weather and Wind Conditions: Partly Cloudy, light wind

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
14:52:30	10	~~8.4~~ 7.6	8.4	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Gl

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.11.14	**Tide:** Flood / Ebb / Slack
Station ID: P - CNN - 140311		**Water Depth (ft):** 35.1

Coordinates

Latitude/Northing: 32°41'20.094"	Longitude/Easting: 117°08'26.148"

Weather and Wind Conditions: Partly Cloudy, light wind

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
14:57:53	10	6.7	8.4	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. G.

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.11.14	**Tide:** (Flood) / Ebb / Slack
Station ID: P-CON-140311		**Water Depth (ft):** 33.3

Coordinates

Latitude/Northing: 32° 41' 16.134"	Longitude/Easting: 117° 08" 28.398"

Weather and Wind Conditions: Partly Cloudy, light wind

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
15:07:12	10	7.8	8.4	0.0

Odor: (none) slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / (N)	Photograph(s) Taken: (Y) / N 1
Discoloration or Turbidity: Y / (N)	**Recorded by:** B. Gel

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.11.14	**Tide:** Flood / Ebb / Slack
Station ID: P-COS-140311		**Water Depth (ft):** 35.6

Coordinates

Latitude/Northing: 32° 41' 10.620"	Longitude/Easting: 117° 08' 23.268"

Weather and Wind Conditions: Partly cloudy, light wind

Predominant Current Direction: SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
15:13:07	10	6.8	8.4	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Gel

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.11.14	**Tide:** Flood / Ebb / Slack
Station ID: P-CNS-140311		**Water Depth (ft):** 37.7

Coordinates

Latitude/Northing: 32° 41' 10.542"	Longitude/Easting: 117° 08' 17.094"

Weather and Wind Conditions: Partly Cloudy, light wind

Predominant Current Direction: ~~NW~~ SE

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
15:16:08	10	6.6	8.4	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Gei

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B Geisler, K. King	**Date:** 3.17.14	**Tide:** Flood / Ebb / Slack
Station ID: P-BG-140317		**Water Depth (ft):** 35.5

Coordinates

Latitude/Northing: 32°41'29.8620'	Longitude/Easting: 117°09'01.0380'

Weather and Wind Conditions: Sunny, WIND SG (STRONG)

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:32:00	10	8.5	9.1	~~2.1~~ EIO 1.5

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N KIO
Discoloration or Turbidity: Y / N	**Recorded by:** K. King

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3-17-14	**Tide:** Flood / Ebb / Slack
Station ID: P-EWN-140317		**Water Depth (ft):** 33.6

Coordinates

Latitude/Northing: 32°41'21.2760"	Longitude/Easting: 117°08'26.0940"

Weather and Wind Conditions: SUNNY, WIND SE (STRONG)

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
12:56:10	10	7.9	9.1	1.1

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y N 1
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.17.14	**Tide:** Flood / Ebb / Slack
Station ID: P-CNN-140317		**Water Depth (ft):** 25.3

Coordinates

Latitude/Northing: 32°41' 21.7500"	Longitude/Easting: 117°08' 30.8580"

Weather and Wind Conditions: SUNNY, WIND SE (STRONG)

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:03:16	10	8.1	9.1	1.5

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.17.14	**Tide:** Flood / Ebb / Slack
Station ID: P-CON-140317		**Water Depth (ft):** 33.0

Coordinates

Latitude/Northing: 32°41'17.8500"	Longitude/Easting: 117°08'29.2620"

Weather and Wind Conditions: SUNNY, STRONG WIND (SE)

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:08:09	10	8.0	9.1	1.7

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GOTSLER, K. KING	**Date:** 3.17.14	**Tide:** Flood / Ebb / Slack
Station ID: P-EWS-140317		**Water Depth (ft):** 29.6

Coordinates

Latitude/Northing: 32°41' 18.9240"	Longitude/Easting: 117°08' 21.0920"

Weather and Wind Conditions: SUNNY, WIND SG (STRONG)

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:13:43	10	9.4	9.2	2.5

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. King

Comments:

Very strong wind and current at station; Sand placement was in a location that seemed unlikely to affect turbidity. Silt curtain was in place and no visual observations of turbidity. BG

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.17.14	**Tide:** Flood / Ebb / Slack
Station ID: P-CNS-140317		**Water Depth (ft):** 25.4

Coordinates

Latitude/Northing: 32°41'16.4220	Longitude/Easting: 117°08'18.7860"

Weather and Wind Conditions: SUNNY, STRONG WIND SE

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:17:17	10	8.3	9.1	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: B. GEISLER, K. KING	**Date:** 3.17.14	**Tide:** Flood / Ebb / Slack
Station ID: P-COS-140317		**Water Depth (ft):** 34.0

Coordinates

Latitude/Northing: 32°41' 15.8880"	Longitude/Easting: 117°08' 22.5726"

Weather and Wind Conditions: SUNNY, STRONG WIND SE

Predominant Current Direction: NW

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:22:39	10	8.1	9.1	1.6

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** K. KING

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.24.14	**Tide:** Flood / Ebb / Slack
Station ID: P-BG-140324		**Water Depth (ft):** 33.2

Coordinates

Latitude/Northing: 32° 41.471	Longitude/Easting: 117° 09.020

Weather and Wind Conditions: Partly cloudy, moderate wind from N

Predominant Current Direction: S

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
13:41	10	7.6	8.0	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Gei

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.24.14	**Tide:** Flood / Ebb / Slack
Station ID: P-EWS-140324		**Water Depth (ft):** 23.8

Coordinates

Latitude/Northing: 32°41.354	Longitude/Easting: 117°08.524

Weather and Wind Conditions: Partly Cloudy, moderate wind from N

Predominant Current Direction: S

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
1404	10	7.6	8.0	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B Geisler

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.24.14	**Tide:** Flood / Ebb / Slack
Station ID: P - CNS - 140324		**Water Depth (ft):** 23.3

Coordinates

Latitude/Northing: 32° 41.376	Longitude/Easting: 117° 08.488

Weather and Wind Conditions: Partly Cloudy, moderate wind from N

Predominant Current Direction: S

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
1408	10	8.6	8.0	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Gei

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.24.14	**Tide:** Flood / Ebb / Slack
Station ID: P-COS-140324		**Water Depth (ft):** 33.8

Coordinates

Latitude/Northing: 32° 41.311	Longitude/Easting: 117° 08.492

Weather and Wind Conditions: Partly Cloudy · moderate wind from N.

Predominant Current Direction: S

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
1412	10	8.3	8.0	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Geisler

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.24.14	**Tide:** Flood / Ebb / Slack
Station ID: P-EWN-140324		**Water Depth (ft):** 31.2

Coordinates

Latitude/Northing: 32° 41.340	Longitude/Easting: 117° 08.566

Weather and Wind Conditions: Partly Cloudy, moderate wind from N

Predominant Current Direction: S

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
1417	10	7.6	8.0	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B Gel

Comments: Not actually north of placement due to vessel access. issues.

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3. 24. 14	**Tide:** Flood / Ebb / Slack
Station ID: P-CNN-140324		**Water Depth (ft):** 34.3
Coordinates		
Latitude/Northing: 32° 41.307	Longitude/Easting: 117° 08.621	
Weather and Wind Conditions: Partly Cloudy, moderate wind from N.		
Predominant Current Direction: S		

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
1422	10	8.0	8.0	0.0

Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. Gl

Comments:

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Water Quality Sample Form

Project Name: San Diego Shipyard Sediment Site	**Project Number:** 131003-01.02	
Field Personnel: D. Fellers, B. Geisler	**Date:** 3.24.14	**Tide:** Flood / Ebb / Slack
Station ID: P-CON-140324		**Water Depth (ft):** 32.9

Coordinates

Latitude/Northing: 32° 41.246	Longitude/Easting: 117° 08.569

Weather and Wind Conditions: Partly cloudy, moderate wind from N

Predominant Current Direction: S

Field Parameters

Sample Time (hh:mm:ss)	Sample Depth (ft)	DO (mg/L)	pH	Turbidity (NTU)
1425	10	7.9	8.0	0.0

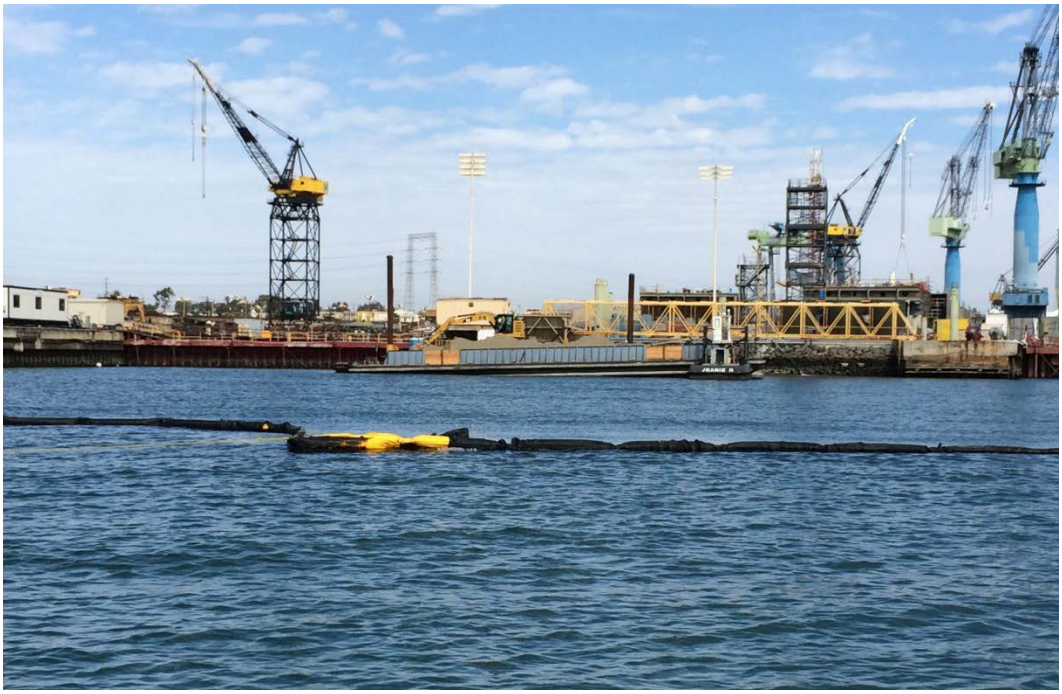
Odor: none slight moderate strong H_2S petroleum septic

Presence of Surface Pollution: Y / N	Photograph(s) Taken: Y / N
Discoloration or Turbidity: Y / N	**Recorded by:** B. G

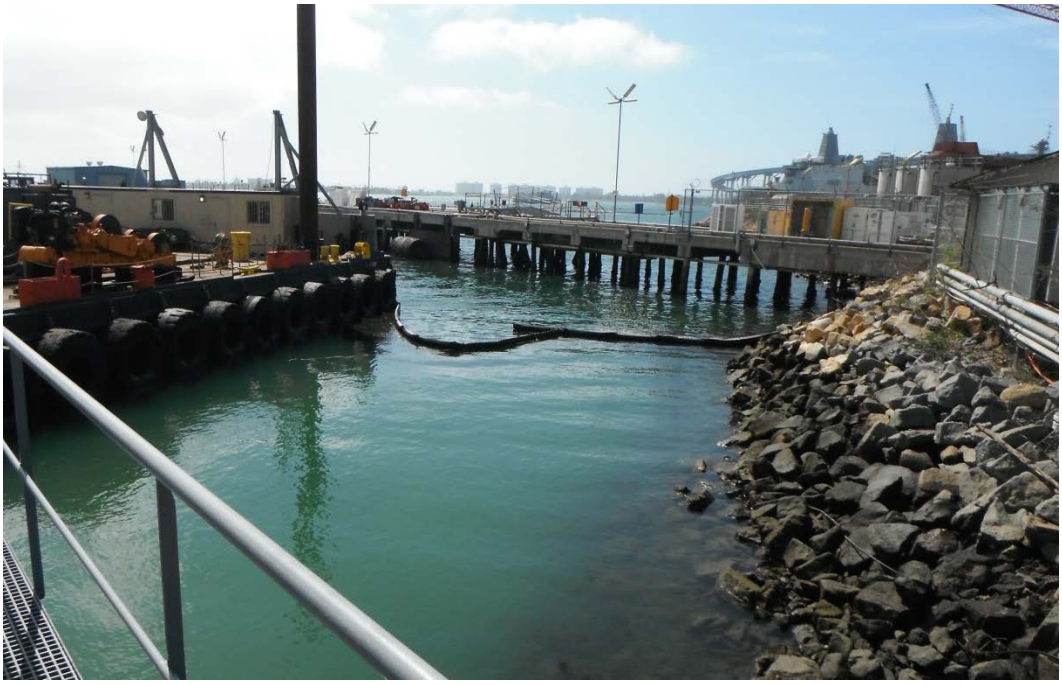
Comments:

ATTACHMENT C
PHOTOGRAPHS

View northeast of silt curtain at SMU-3, March 6, 2014



View northeast of silt curtain at SMU-3, March 11, 2014



View west of silt curtain at SMU-2, March 17, 2014

View southwest of silt curtain at SMU-1, March 24, 2014