Interim Action Report

Dakota Creek Industries
Ecology Agreed Order No. DE-07TCPHQ-5080
Anacortes, Washington

for
Port of Anacortes

October 6, 2010

GeoEngineers
Earth Science + Technology

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GeoEngineers

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File No. 5147-006-06

October 6, 2010

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INTRODUCTION

This report documents the interim action completed at the Dakota Creek Industries (DCI) shipyard facility (Site) located at 115 Q Avenue in Anacortes, Washington (Figure 1). The interim action was conducted in compliance with the Washington State Department of Ecology (Ecology) Agreed Order Number DE-07TCPHQ-5080 (Agreed Order) for the site dated December 2007. Interim action activities were completed in general accordance with the Ecology-approved "Dakota Creek Industries Remedial Investigation/Feasibility Study and Interim Action Work Plan" dated January 2, 2008 (Work Plan) and the Ecology-approved "Interim Action Work Plan Addendum, Dakota Creek Industries Shipyard" (Work Plan Addendum) dated June 17, 2008 (GeoEngineers). Site features and general layout are shown on Figure 2.

The interim action removed contaminated marine sediments exceeding the Washington Sediment Quality Standards (SQS) from the marine area of the Site. Interim action activities were completed between August and October 2008 as a component of Site redevelopment activities. The planned interim action consisted of removing contaminated sediment identified in portions of the marine area basin during historical investigations and during the 2008 Remedial Investigation. The results of Remedial Investigation sediment sampling are shown on Figure 3.

Contaminated soil was identified on the upland portion of the site during historic site investigations and the 2008 Remedial Investigation (Figure 4) but was not originally planned as part of the interim action. However, a portion of the impacted soil located on the east side of the site was removed during utility installation as part of upland Site redevelopment activities. The results of this soil removal are documented in this report.

The interim action activities, including marine area basin habitat restoration, were completed in December 2008.

BACKGROUND

The Site has been used for shipbuilding, bulk fuel storage, shipping, and other maritime-related industrial purposes since approximately 1879. A ferry dock, which was located near existing Pier 1, was also used at the site in the early 1900s. The Port and Dakota Creek Industries are redeveloping the upland and marine areas of the site to increase the capacity and efficiency of operations, improve stormwater facilities, and implement public access improvements.

The marine area of the Site includes the sediments located within the off channel basin and extends from the shoreline to the outer harbor line. The piers and docks previously located in the marine area basin were demolished in July 2008 prior to the interim action dredging to facilitate access to the marine area sediments. The two marine railways that were located within the marine area basin between the "L" Dock and the "East" Dock, and between the "East" Dock and Pier 2 were removed in the early 1990's and in 2008, respectively.

Contaminated soil, groundwater and sediment were identified at the site during previous investigations. Areas of impacted soil at the site were removed as part of previous remedial actions, including an interim cleanup action performed in 2002 under Ecology's Voluntary Cleanup Program

(VCP). Approximately 3,900 cubic yards of metals and petroleum hydrocarbon contaminated soil was excavated from the east and central portions of the site during the 2002 VCP excavation activities and disposed of at a permitted off-site landfill. The limits of the 2002 remedial excavations are shown on Figure 4. Confirmation soil samples were collected from the sidewalls of each of the completed investigations verifying that the remaining soil contained contaminants of concern at concentrations less than Ecology's Model Toxics Cleanup Act (MTCA) cleanup levels. The results of the independent cleanup action were summarized by Landau in the 2002 report "Completion Report, Independent Cleanup Action Dakota Creek Industries Shipyard Facility" (Landau 2002). An opinion letter was not issued by Ecology at the time of this voluntary cleanup action.

Detailed information describing the Site including its history, current uses, existing property features and a summary of environmental investigations completed at the site between 1985 and 2007 is presented in the Work Plan. The soil, groundwater and sediment remedial investigation (RI) was completed at the site in March 2008. The Port completed an additional upland soil investigation in October 2008 to evaluate the extent of arsenic impacted soil identified on the east side of the site during previous investigations. The results of the RI are summarized in the "Investigation Data Report, Dakota Creek Industries Shipyard Facility" (Data Report) by GeoEngineers dated December 2008.

NATURE AND EXTENT OF CONTAMINATION

General

Sediment and soil contamination was identified in parts of the marine area basin during previous investigations completed at the site conducted between 1985 and 2007 and during the 2008 RI sampling and analysis activities. Historical Site use including bulk material and fuel oil storage facilities, shipyard activities on the upland and marine area and historic discharges from the former Scott Paper Mill and City of Anacortes municipal sewer outfalls are all potential sources to the contamination detected at the Site.

Sediment

Investigations completed at the site identified that marine area basin sediments are contaminated with several contaminants of concern (COCs) at concentrations exceeding the respective Sediment Management Standards (SMS). The COCs exceeding SMS include metals (arsenic, lead, copper, mercury and zinc), polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs). Figure 3 presents the location of sediment samples collected from within the marine area basin with COCs detected above respective SMS screening levels. The impacted sediment was shown to extend to approximately 1.0 foot below the sediment surface at the eastern edge of the basin (sample location G-2), approximately 4 feet below the sediment surface in the southwest corner of the marine area basin (sample locations G-5 and G-6) and to the native till contact in the southeast corner of the marine area basin (G-3 and G-4). SMS exceedances identified in the sediment samples collected from the site are presented in Table 1 and on Figure 3.

The marine area basin sediments were characterized for the purposes of dredged material disposal in addition to the RI sediment characterization. The marine area basin was divided into two dredge material management units (DMMUs) for the Dredge Material Management Program (DMMP) characterization study as shown on Figure 3. DMMU-1 encompasses the near surface sediments in the outer (north) half of the marine area basin and DMMU-2 encompasses the near surface sediments located in the nearshore (south) half of the marine area basin. The near surface sediments consist of sandy silt extending vertically from the sediment surface approximately 0.5 feet to 5 feet down to the native glacial till contact.

The DMMP issued an open water disposal Suitability Determination (SD) on April 12, 2001 (updated March 23, 2007). The SD identifies the proposed dredge material within DMMU-1, and the native till material underlying both DMMU-1 and DMMU-2 as suitable for disposal at the Rosario Strait dispersive open water disposal site. The dredge material within DMMU-2 was determined to be unsuitable for open water disposal due to exceedances of PAH compounds.

Upland Soil

Upland investigations (including the RI) completed at the site identified exceedances of preliminary cleanup levels (CULs) for metals (arsenic, copper and zinc), and dioxins/furans in site soil and/or groundwater in various areas at the site. The upland component of the interim action was limited to the area of arsenic impacted soil on the east side of the site as shown on Figure 4. Arsenic concentrations in soil samples collected from this area exceeded human health criteria and the contaminated soil in this area was identified as likely to require remedial action.

Soil arsenic concentration data collected during the October 2008 RI were used to evaluate the limits of the interim action excavations. Arsenic was selected as the indicator chemical for planning the interim action excavations due to the availability of arsenic data at the time. Based on the analytical results of the October 2008 investigation, the native glacial till unit is clean and was used as the lower limit boundary of the soil removal activities completed during the interim action.

Investigation sample locations and preliminary CUL exceedances in this portion of the site are shown on Figure 4. Preliminary CUL exceedances are discussed in detail in the Data Report (December 2008).

INTERIM ACTION SCOPE

The primary purpose of the proposed interim action at the DCI shipyard facility was to remove contaminated sediments exceeding SMS cleanup levels. The interim action was completed as described in the Work Plan (GeoEngineers 2008a) and Work Plan Addendum (GeoEngineers 2008b) and consisted of the removal of contaminated sediment identified in the marine are of the basin (see Figure 3). The primary component of the proposed interim action, contaminated sediment dredging, was designed to achieve an immediate elimination of contaminated sediment from the marine area basin and eliminate the potential environmental impacts posed from leaving the contaminated sediment in-place.

Soil remediation in the upland portion of the site was not part of the original interim action scope described in the Work Plan or Work Plan Addendum. However, during completion of the interim action construction, the scope of the interim action was adjusted to include removal of arsenic contaminated soil in the eastern portion of the site, as approved by Ecology in a September 5, 2008 email from Panjini Balaraju (Ecology 2008). The purpose of the additional interim action scope was to remove arsenic contaminated soil from utility trenches being constructed as part of the Site redevelopment infrastructure improvements. The trench excavations for new utility installations at the site were modified such that the trenches were over-excavated to the clean native till surface in order to completely remove the overlying contaminated soil. Additionally, the excavated trenches were widened to facilitate the feasibility of future excavations, if required. The added soil-removal component of the interim action achieved an immediate reduction in the volume of metals contaminated upland soil on the site and decreased the potential environmental impacts posed from leaving the contaminated soil in-place.

INTERIM ACTION DREDGING AND EXCAVATION ACTIVITIES

General

Interim action construction at the site was completed between July and November 2008. The interim actions at the site were conducted in general accordance with the MTCA Cleanup regulation and applicable state and federal laws described in WAC 173-340-430.

The Port's general contractor for interim action construction was Pacific Pile and Marine of Seattle, Washington. Pacific Pile and Marine completed the contaminated sediment dredging and soil excavation for the interim action. The Port's environmental consultant was GeoEngineers, Inc. of Seattle, Washington. GeoEngineers assisted Pacific Pile and Marine with segregating clean and contaminated soil/sediment during construction, collected confirmatory sediment samples from the limits of the remedial dredge and excavation areas and documented the remedial activities.

The extent of contaminated sediment and soil removed during the interim action was evaluated during removal activities using field observations and chemical analyses of samples collected from the dredged surface and excavation sidewalls. A GeoEngineers field representative was onsite during dredging and excavation activities to field screen dredged and excavated materials for evidence of contamination and to assist the contractor in identifying the limits of removal activities. Confirmation sediment samples were collected from the post-dredge surface to confirm the completeness of the dredging action. The native till layer underlying the Site was used as the lower "clean" limit to the upland excavations. The native layer had been shown to not contain chemical contamination in the environmental investigation studies of the Site. Field observations were used to identify the native till within the dredge prism and in the utility trench excavations to confirm that the contaminated sediment and soil had been removed.

The sections below present the specific activities performed during the interim action.

Contaminated Sediment Dredging

Interim action dredging at the site was completed between July and September 2008 to remove sediment containing metals, PAHs, SVOCs and/or PCBs contamination at concentrations exceeding SMS CSL criteria. The areas and limits of the environmental dredging are shown on Figure 5. The L Dock, East Dock and marine railway remnant located in the site marine area basin were demolished and removed as a component of Project Pier 1 prior to the interim action. The environmental dredging was completed in general accordance with the scope described in the Work Plan Addendum (GeoEngineers 2008b).

Sediment remediation activities completed as part of the interim action included the following:

- Mobilizing dredging equipment (barge-mounted long-reach excavator with hydraulic bucket, haul trucks, and sediment transport barges to the site.
- Construction of a sediment containment and handling facility at the Port's Pier 2 property.
- Implementing environmental protection best management practices (BMPs) for dredging as required by the project permits. The BMPs addressed sediment loss, drainage, and erosion control; spill prevention and pollution control; and all other controls needed to protect environmental quality at both the dredging location and the Pier 2 sediment containment and handling facility. The BMPs are described in the US Army Corps of Engineers Permit, the Interim Action Work Plan and the Pollution Prevention Plan section of the project Construction Quality Control Plan. Typical BMPs that were utilized include: using a clamshell-type bucket and ensuring complete closure of the dredge bucket before raising it from the sediment surface; using silt and debris control booms at all times dredging was occurring; performing monitoring of water column turbidity; minimizing barge grounding and propeller wash to avoid disturbing the sediment surface; and control of decant and water at the Pier 2 facility.
- Implementing site access and vessel control measures to comply with U.S. Coast Guard and other federal, state, and local vessel moorage, Site security, and navigation requirements.
- Dredging of contaminated sediment from the site. Dredging was completed as outlined in the Work Plan Addendum. During dredging of contaminated sediment requiring upland disposal, the dredged material was initially placed on transport barges and the full barges were delivered to the Port's adjacent Pier 2 facility where the material was offloaded and placed in stockpiles. Dredged material loaded to haul trucks was delivered directly to Pier 2. The dredged material was temporarily stored in stockpiles on Pier 2 to allow dewatering and sample collection in preparation for transport to an off-site disposal facility. The completed dredge areas and final post-dredge surface elevations are shown on Figure 5.
- Sediment dewatering and processing in preparation for offsite transport. Sediments delivered to Pier 2 were dewatered and processed for shipment to an Ecology-approved landfill. Sediment processing included screening of aggregate materials greater than 2 inches from the sediment matrix. The screened material were washed of fine particulates and returned to the Site for use as backfill material. Sediment handling also included amendment with diatomataceous earth to facilitate control of free water for shipment.
- Transport of contaminated dredged material to an Ecology-approved landfill. Contaminated dredged material was loaded into trucks and delivered to Waste Management's Subtitle D landfill facility in Wenatchee, Washington for disposal.
- Collection of confirmation sediment samples from the post-dredge sediment surface in five of the six (SMA-1 through SMA-5) Sediment Management Areas (SMAs) in the nearshore portion of the marine area basin (Figure 5).
- Backfill Sediment Management Area SMA-1 with habitat mix backfill material to restore the sediment surface to grade (Figure 5).

Approximately 26,000 cubic yards (estimated 38,000 tons) of contaminated sediment was dredged from the marine area basin to complete the interim action. The extent of dredging and the bathymetry of the post interim action dredged surface are shown on Figure 5. The final dredged surface was surveyed by Pacific Pile & Marine.

The basin was divided into six SMAs as shown on Figures 3 and 5. Each SMA required specific consideration during dredging activities. Dredging was sequenced so that the more-contaminated sediments located in the inner basin SMAs were dredged before the less contaminated outer-basin SMAs. The purpose of the sequencing was to allow any residuals that may be generated by the inner basin dredging to be removed during outer-basin dredging. Dredging of contaminated sediment was completed across the entire basin prior to dredging the areas of clean sediment for the basin redevelopment project.

Dredging extended south of the SMA boundaries in the area between the former location of the joiner shop and monitoring well MW-3 to facilitate removal of the bulkhead structure and the tieback system. Petroleum sheen and odor was observed along the alignment of bulkhead structure . The impacted soil and sediment was observed to contain a heavy oil material extending vertically from near top elevation of the bulkhead to the underlying native contact. The observed contaminated soil and sediment was completely removed to the underlying native contact and disposed along with the other contaminated dredged material. As part of the excavation activities, the components of monitoring well MW-3, and the soil located in the vicinity of the well within the screened interval were completely removed during the additional removal activities. The area of upland soil removal performed during dredging is shown on Figure 5.

On completion of the interim action dredging, the confirmation sampling results were review by the Dredged Material Management Program to confirm that no contamination was present at the dredged surface. On receipt of confirmation of the contaminated sediment dredging completeness, further dredging of the basin was allowed. The dredged native material was disposed at the Rosario Straight open water disposal site in accordance with the project permits. The open water dredging and disposal is not part of the interim action at the Site.

Basin sediments with concentrations of contaminants exceeding the CSLs were removed from the basin during the interim action dredging. The intent of the Ecology-approved plan was to have the interim action be as complete as possible; however, the interim action may not constitute the final cleanup action for the entire site. The interim action was completed in a manner that does not foreclose reasonable alternatives for a future site cleanup action (if necessary), which is consistent with WAC 173-340-430. The final cleanup action for the Site will be determined on completion of the Remedial Investigation, Feasibility Study and Cleanup Action Plan.

Sediment Dredging Performance Monitoring

Confirmation samples were collected from the five nearshore SMAs (SMA-1 through SMA-5). No confirmation sample was collected from SMA-6 as the sediment in this SMA does not have any SMS exceedances of COCs. SMA-6 was included in the contaminated sediment dredging due to the detections of dioxins/furans in samples collected at this location that prevented open-water disposal. There are no SMS criteria for dioxins/furans.

The sediment confirmation samples were collected from the post-dredge surface. Field observation of the dredged material and dredged surfaces, where exposed during low tides and in the dredge cuttings was conducted to confirm that dredging to the native till contact was achieved prior to collecting the confirmation sediment samples. Confirmation sediment samples were submitted to Columbia Analytical Services laboratory of Kelso, Washington for analysis of SMS COCs including SVOCs, PAHs, PCBs, metals and total organic carbon. Table 2 presents the results of analysis of confirmation samples and the sample locations are presented on Figure 5. None of the confirmation samples had detection of COCs above the respective SMS criteria.

Dredged Material Dewatering, Handling and Disposal

A dredged material handling area was constructed on the east side of the DCI facility using concrete blocks and silt fencing to confine the dredged sediment within the paved stockpile area. The dewatering effluent was collected in tanks and solids were allowed to settle out of the water prior to discharge. The clarified decant water was discharged back into the basin at the point of dredging and within the area monitored for water quality criteria as allowed by the project permits.

Aggregate greater than 2-inches were screened from the sediment matrix using a mechanical sorter. The screened aggregate was washed of fine particulates and returned to the Site for use as backfill material. Sediment screening and washing was completed within the Pier 2 material handling facility to control loss of contaminants. Wash water was treated with the decant water described above.

The screened and de-watered, contaminated sediment was trucked to the Waste Management Subtitle D landfill facility in Wenatchee, Washington for disposal.

Soil Excavation

Upland soil removal was completed on the east side of the Site between October and November 2008 as part of the interim action. Soil within utility corridors being constructed as part of the upland redevelopment was excavated to the extent practicable to remove soil containing elevated arsenic detections. The utility trenches were over-excavated to the underlying native soil layer, beyond the depth necessary for utility installation in order to remove contamination from within the utility corridor. The extent of contaminated soil removal performed during utility trench excavation is presented on Figure 6.

Upland soil remediation activities completed as part of the interim action included the following:

- Implemented environmental protection measures for soil excavation, transport and disposal that addressed drainage, erosion control, spill prevention, pollution control, and other controls needed to protect environmental quality. Specific environmental protection measures included use of silt fencing, silt dikes, catch basin silt barriers, and containment and coverage of lined stockpiles.
- Implemented site access and traffic control measures including fencing and vehicle control flaggers were implemented to maintain safe working conditions and protect the public during the interim action.
- Demolished asphalt and concrete pavement as needed to access existing utilities requiring removal and the proposed utility corridors.
- Removed contaminated soil from within utility trench excavations on the east portion of the site. The extent of the completed trench excavations are shown on Figure 6. Excavation of the utility

trenches was completed to the native till soil underlying the contaminated upper soil to confirm that all of the contaminated soil was removed during excavation activities.

- Transported contaminated soil for offsite disposal at Waste Management's Subtitle D landfill in Wenatchee, Washington.
- Backfilled the utilities excavations to the planned utility grade with imported, clean fill soil. The remainder of the utility trenches were backfilled to site grade with select fill after the subsurface utilities were installed.
- Covered upland site surfaces with a combination of clean granular fill, crushed rock, or structures.

The utility trenches in this area were over-excavated down to the fill/native contact, at depths ranging from approximately 3 feet to 9.5 feet bgs. Approximately 572 cubic yards of arsenic contaminated soil were removed from this portion of the site. The impacted soil was placed directly into dump trucks and brought to the Pier 2 materials handling facility. Contaminated soil was transported from Pier 2 by truck and disposal at the Waste Management Subtitle D landfill facility in Wenatchee, Washington. The utility trenches were backfilled to the designed utility grade with clean imported fill in accordance to the redevelopment project requirements prior placing the utilities.

Metals contaminated soil remains on the east side of the site in the areas that were not excavated for utility installation (Figure 6). Based on the depth to native glacial till observed in the test pits completed in October 2008, approximately 728 cy of metals impacted soil remains on the east side of the site.

BACKFILL AND SITE RESTORATION FOLLOWING THE INTERIM ACTION

Backfill

Project Pier 1 involved expanding the upland grade northward after the interim action dredging. To facilitate the filling, a permanent sheet pile wall installed at approximately the northern edge of SMA-3 and SMA-4. The area of SMA-3 and SMA-4 behind the sheet pile wall was backfilled to match the surrounding upland grade with fill designed for the redevelopment. In areas of the marine area basin where the post-dredge surface was at a lower elevation than design grade, habitat backfill material was placed to restore the subtidal slopes to grade or to the slopes designed for the redevelopment dredging. The entire area of SMA-1 was backfilled to original grade with habitat mix backfill material following completion of all contaminated sediment dredging.

Soil excavations completed on the east side of the site were backfilled with clean imported select fill to the planned utility grade. Following installation of the underground utilities, the excavations were then backfilled using select fill to the site surface grade of approximately +13 feet MLLW. A building has also been constructed on the east portion of the site over part of the remedial excavation area.

Utility Demolition, Relocation and Restoration

Utilities (electric power, water, sewer, etc.) located within the upland interim action area that served historical and existing facilities at the site were decommissioned (if operational) prior to the remedial excavations. Previously decommissioned utilities from historic site activities were removed from the utilities excavation/remedial action excavation prior to backfilling, placing new utilities and backfilling the utilities excavations to the upland site grade with select import fill. Utilities that were to resume operation after the completion of the remedial excavation were restored.

LIMITATIONS

This report has been prepared for the exclusive use of the Port of Anacortes.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

REFERENCES

Dredge Material Management Program. March 23, 2008. Memorandum “Recency Extension Suitability Determination for Sediments Proposed to be Maintenance Dredged from Port of Anacortes, Dakota Creek Industries (DCI) Shipyard Facility / Pier 1, Anacortes WA for Open Water Disposal at the Rosario Strait Dispersive Open-Water Disposal Site, As Evaluated Under Section 404 of the Clean Water Act.”

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Landau Associates, December 20, 2002 (Landau 2002) “Completion Report, Independent Cleanup Action, Dakota Creek Industries Shipyard Facility, Anacortes Washington”

Washington State Department of Ecology, December 2007. “Agreed Order for Remedial Investigation/Feasibility Study, Draft Cleanup Action Plan and Interim Action – Port of Anacortes Dakota Creek Site.” No. DE-07TCPHQ-5080.

Washington State Department of Ecology, September 5, 2008 E-mail from Panjini Balaraju.

TABLES

TABLE 1
REMEDIAL INVESTIGATION SEDIMENT SAMPLE RESULTS
DAKOTA CREEK INDUSTRIES - INTERIM ACTION COMPLETION
PORT OF ANACORTES

Sample Identification	Sediment Quality Standards (SQS) WAC 173-204-320)	Sediment Cleanup Screening Level (CSL) WAC 173-204-520	G-1 (s')		Exceedance Ratio	G-1 (1-2')		Exceedance Ratio	G-2 (s')		Exceedance Ratio	G-2 (1.5-2.5')		Exceedance Ratio	G-3 (0-1')		Exceedance Ratio	G-3 (4-5')		Exceedance Ratio	G-4 (2-3')		Exceedance Ratio	G-4 (4-5')		Exceedance Ratio	G-5 (0-1')		Exceedance Ratio	G-5 (4-5')		Exceedance Ratio	G-6 (2-3')		Exceedance Ratio	G-6 (4-5')		Exceedance Ratio	G-7 (s')		Exceedance Ratio
Conventionals																																									
Total Solids (%)	–	–	46.50			47.40			52.90			39.50			83.10			74.50			81.90			82.40			81.80			84.40			73.00			83.90			79.3		
Total Volatile Solids (%)	–	–	14.54			12.25			9.94			28.59			2.32			7.08			2.55			1.52			0.88			3.17			4.19			1.34			1.78		
Ammonia (mg/kg)	–	–	6.17			20.6			14.1			24.2			0.62			1.77			3.61			9.29			0.22			2.61			3.75			2.93			1.62		
Total Sulfides (mg/kg)	–	–	303			485			231			400			333			370			435			1.19	U		69.7			10.9			1,320			12.4			245		
Total Organic Carbon (%)	–	–	1.96			2.78			2.17			8.53			1.03			4.54			1.39			1.01			0.451			1.73			1.60			1.03			0.602		
Metals	mg/kg Dry Weight																																								
Arsenic	57	93	10	U		10	U		9			10	U		30			30			**70**		1.23	6	U		**300**		3.23	6	U		33			6	U		37		
Cadmium	5.1	6.7	0.8			0.8			0.8			0.9			0.6	U		0.8			0.8			0.3			1.2			0.2	U		0.8			0.2	U		0.3		
Chromium	260	270	30			25			31.4			29			47			50			50			17.3			55			25.9			20.6			29.8			30.2		
Copper	390	390	49.3			44.0			36.4			47.6			**648**		1.66	**1,730**		4.44	**1,040**		2.67	52.3			**1,720**		4.41	28.2			**3,870**		9.92	12.0			77.2		
Lead	450	530	15			26			17			34			**609**		1.15	**801**		1.51	**939**		1.77	22			338			12			188			5			25		
Mercury	0.41	0.59	0.1			0.3			**0.51**		1.24	0.4			**4.39**		7.44	**8.8**		14.92	**17.8**		30.2	0.11			**1.43**		2.42	0.22			**4.43**		7.51	0.05	U		0.07		
Silver	6.1	6.1	0.7	U		0.8	U		0.5	U		0.7	U		0.9	U		1	U		0.9	U		0.3	U		0.9	U		0.3	U		0.5			0.3	U		0.4	U	
Zinc	410	960	84			76			59			76			320			**1,150**		1.20	**456**		1.11	37			**974**		1.01	39			307			28			90		
Organotins (porewater tributyltin) ug/L	--	--	0.019	U		NA			0.019	U		NA			1.4			NA			1.3			NA			0.68			NA			0.16			NA			0.026	U	
Polycyclic Aromatic Hydrocarbons	mg/kg Organic Carbon (c)																																								
LPAH (d)	370	780	51.07			9			31.6			8.03			91.7			118.7			172.7			42.4			238.4			23.0			232.6			19.1			11.8		
Naphthalene	99	170	7			0.72	U		1.7			0.6			5.6	U		2.64			10.8			2.5			13.1	U		1.5			5.7			1.9	U		3.3	U	
Acenaphthylene	66	66	4.7			0.72	U		1.8			0.5			5.2	J		2.86			7.2			2.0	U		13.1	U		1.2	U		15.6			1.9	U		3.3	U	
Acenaphthene	16	57	1.4			0.72	U		0.9	J		0.2	U		5.3	J		7.49			**16.5**		1.03	3.1			12.0	J		9.25			9.38			4.5			3.3	U	
Fluorene	23	79	4.8			0.72	U		2.7			0.8			4.5	J		7.93			19.4			4.6			11.5	J		1.2			14.4			1.9	U		3.3	U	
Phenanthrene	100	480	28.6			5.76			20.3			5.63			54.4			77.09			86.33			23.8			**166**		1.66	7.51			68.75			9.7			2.8	J	
Anthracene	220	1,200	4.9			1.5			4.2			0.5			19.4			20.7			32.4			7.5			35.5			2.9			118.8			2.0			2.3	J	
2-Methylnaphthalene	38	64	1.9			0.72	U		0.8	J		0.4			5.6	U		1.7			7.91			2.0	U		13.1	U		1.2	U		3.9			1.9	U		3.3	U	
HPAH (e)	960	5,300	241.3			52.09			108.8			23			**1,240**		1.29	950.88			**1,448.9**		1.51	287.0			**1,355**		1.41	104.2			**1,890.0**		1.97	46.9			51.00		
Fluoranthene	160	1,200	43.9			11.5			26.3			5.98			**214**		1.33	**211.5**		1.32	**417.3**	D	2.61	73.3			**332.6**		2.08	26.6			**687.50**	D	4.30	13.6			8.0		
Pyrene	1,000	1,400	36.7			11.2			23.0			5.04			223.3			215.9			244.6	D		65.3			243.9			30.6			468.8	D		13.6			15		
Benzo(a)anthracene	110	270	18.4			4.7			9.22			1.88			94.2			81.50			107.9			22.8			**122**		1.11	9.25			**162.5**		1.48	3.7			4.0		
Chrysene	110	460	28.6			7.6			10.6			2.58			**117**		1.06	83.70			**151.1**		1.37	29.7			**160**		1.45	10.4			**193.8**		1.76	3.9			5.5		
Total Benzofluoranthenes (f)	230	450	46.4			9.4			17.1			3.40			**282**		1.22	193.8			**259.0**		1.13	45.5			**243.9**		1.06	13.3			206.3			5.6			9.5		
Benzo(a)pyrene	99	210	29.1			4.3			10.1			1.88			**136**		1.37	85.90			**115.1**		1.16	24.8			**115**		1.16	8.09			93.75			3.6			3.7		
Indeno(l,2,3-c,d)pyrene	34	88	18.4			1.7			5.99			1.0			**70.9**		2.08	33.04			**61.9**		1.82	9.90			**59.9**		1.76	2.8			**34.4**		1.01	1.9	U		2.8	J	
Dibenz(a,h)anthracene	12	33	5.1			1.3			1.4			1.2			**33.0**		1.00	**16.96**		1.41	**28.8**		2.40	6.4			**20.2**		1.68	1.0			9.38			0.66			1.0	U	
Benzo(g,h,i)perylene	31	78	14.8			1.5			5.07			1.0			**70.9**		2.29	28.63			**63.3**		2.04	9.3			**57.6**		1.86	2.6			**33.8**		1.09	1.9	U		2.5	J	
1,2-Dichlorobenzene	2.3	2.3	0.32			0.33	U		0.3	U		0.07	U		0.60	U		0.1	U		1.3			0.60	U		1.4	U		0.4	U		1.0			0.6	U		1.0	U	
1,4-Dichlorobenzene	3.1	9	0.66			0.35			0.3	U		0.07	U		0.60	U		0.1	U		1.0			0.60	U		1.4	U		0.4	U		0.4	U		0.6	U		1.0	U	
1,2,4-Trichlorobenzene	0.81	1.8	0.32	U		0.22	U		0.29	U		0.07	U		0.60	U		0.1	U		0.4	U		0.60	U		***1.4***	***U***	1.70	0.4	U		0.4	U		0.6	U		***1.0***	***U***	1.25
Hexachlorobenzene	0.38	2.3	0.32	U		0.22	U		0.29	U		0.07	U		***0.60***	***U***	1.58	0.1	U		***0.4***	***U***	1.17	0.60	U		***1.4***	***U***	3.62	0.4	U		***0.4***	***U***	1.00	***0.6***	***U***	1.56	***1.0***	***U***	2.67
Dimethylphthalate	53	53	0.82	U		0.54	U		0.7	U		0.18	U		5.6	U		0.3	U		4.2	U		1.49	U		13	U		0.9	U		3.6	U		1.5	U		2.5	U	
Diethylphlhalate	61	110	1.02	U		0.72	U		0.9	U		0.23	U		5.6	U		1.3	U		4.2	U		2.0	U		13	U		1.2	U		3.6	U		1.9	U		3.3	U	
Di-n-Butylphthalate	220	1,700	1.02	U		0.72	U		0.9	U		0.23	U		5.6	U		1.3	U		4.2	U		2.0	U		13	U		1.2	U		3.6	U		1.9	U		3.3	U	
Butylbenzylphthalate	4.9	64	0.82	U		0.65			0.7	U		0.18	U		1.5	U		0.3	U		1.4			3.2			3.3	U		0.9	U		0.9	U		1.5	U		2.5	U	
bis(2-Ethylhexyl)phthalate	47	78	3.21			2.4			2.2			0.23	U		15.5			24.23			36.7			**98.0**		1.26	**88.7**		1.14	1.5			11.3			1.9	U		6.8		
Di-n-octyl phthalate	58	4,500	1.02	U		0.72	U		0.9	U		0.23	U		5.6	U		1.3	U		4.2	U		2.0	U		13	U		1.2	U		3.6	U		1.9	U		3.3	U	
Dibenzofuran	15	58	2.86			0.72	U		1.0			0.38			5.6	U		3.52			9.35			2.1			13	U		1.2	U		5.9			1.9	U		3.3	U	
Hexachlorobutadiene	3.9	6.2	0.32	U		0.22	U		0.3	U		0.07	U		0.60	U		0.1	U		0.4	U		0.6	U		1.4	U		0.4	U		0.4	U		0.6	U		1.0	U	
N-Nitrosodiphenylamine	11	11	0.32	UJ		0.24	U		0.9	UJ		0.10			0.60	U		1.2	U		0.4	U		**11.9**		1.08	1.4	U		0.4	U		0.4	U		0.6	U		2.5	UJ	
Total PCBs mg/kg OC(g)	12	65	1	U		0.72	U		5.44			1.66			**14.1**		1.17	**16.8**		1.40	**26.0**		2.17	2.0	U		**37.3**		3.10	1.1	U		8.38			1.8	U		3	U	
	ug/kg dry weight																																								
Phenol	420	1,200	34			20	U		20	U		20	U		43	J		59	U		76			20	U		59	U		20	U		58	U		20	U		20	U	
2-Methylphenol	63	63	6.2	U		7.3			6.2	U		6.1	U		6.2	U		17			6.2	U		6.1	U		6.2	U		6.2	U		6.1	U		6.1	U		6.2	U	
4-Methylphenol	670	670	59			20	U		19	J		20	U		58	U		59	U		45	J		20	U		59	U		20	U		58	U		20	U		20	U	
2, 4-Dimethylphenol	29	29	6.2	UJ		6.1	U		6.2	UJ		6.1	U		6.2	U		16			**40**		1.38	6.1	U		6.2	U		6.2	U		6.1	U		6.1	U		6.2	UJ	
Pentachlorophenol	360	690	31	U		30	U		31	U		31	U		290	U		42			70			30	U		40			31	U		31	U		31	U		31	U	
Benzyl Alcohol	57	73	31	UJ		**70**	J1	1.23	31	UJ		31	U		31	U		30	U		31	U		30	U		31	U		31	U		31	U		31	U		31	UJ	
Benzoic Acid	650	650	200	U		200	U		200	U		200	U		580	U		590	U		580	U		200	U		590	U		200	U		580	U		200	U		200	U	

Notes:

(a) Sediment samples were collected March 14, 2008.
(b) This table summarizes sediment sample analytical results with reference to the Sediment Management Standards (SMS) Sediment Quality Standards (SQS) and/or Cleanup Screening Levels (CSL).
(c) The listed chemical parameter criteria represent concentrations in parts per million, "normalized," or expressed, on a total organic carbon basis. To normalize to total organic carbon, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent total organic carbon content of the sediment.
(d) The LPAH criterion represents the sum of the following "low molecular weight polynuclear aromatic hydrocarbon" compounds: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds as listed.
(e) The HPAH criterion represents the sum of the following "high molecular weight polynuclear aromatic hydrocarbon" compounds: Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Total Benzofluoranthenes, Benzo(a)pyrene, Indeno(1,2,3,-c,d)pyrene, Dibenz(a,h) anthracene, and Benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.
(f) The benzofluoranthenes criterion represents the sum of the concentrations of the "b," "j" and "k" isomers.
(g) PCBs = Polychlorinated biphenyls.
D = Concentration from sample diluted to obtain an accurate quantification of the analyte.
J = Estimated concentration as indicated by the laboratory
J1 = Benzyl alcohol is known to be a poor performer. Laboratory QA/QC was outside of limits. This concentration should be considered an estimate. Benzyl alcohol was not detected in the full scan.
U = analyte not detected at this concentration
X = Method detection limit exceeds the SQS or CSL criteria
NA = not analyzed
mg/kg = milligram per kilogram ug/kg = microgram per kilogram OC = organic carbon ppm = parts per million (s) = surface sample, 0-20 cm
Bold indicates concentrations greater than the SMS SQS Grey shading indicates concentrations greater than the CSL *Italics* indicates elevated method detection limit greater than SQS criteria. All associated dry weight concentrations are less than the associated apparent effects thresholds (AET).

SEAT:\5\5147006\06\Finals\514700606 Table 1-2.xls

TABLE 2

SUMMARY OF CONFIRMATION SAMPLE RESULTS[1] RELATIVE TO SMS CRITERIA[2] - SEDIMENT

DAKOTA CREEK INDUSTRIES - INTERIM ACTION COMPLETION

PORT OF ANACORTES, WASHINGTON

Chemical	SMA 1-1		SMA 2-1		SMA 3-2		DCI 4-1		DCI 4-1a		SMA5-2		SMA5-3		SMS Criteria	
															SQS	CSL
Conventionals																
Total Solids (%)	78.1		73.2		73.2		86.7		85.7		83.6		85		--	--
Total Organic Carbon (%)	0.12		0.09		0.09		0.1		0.09		0.32		0.44		--	--
Metals (mg/kg dry weight)																
Arsenic	4.4		1.71		2.11		3.89		2.98		4.2		1.9		57	93
Cadmium	0.054		0.091		0.078		0.077		0.071		0.3	B	0.3	B	5.1	6.7
Chromium	26.2		12.7		51.1		244		96.9		35.3		33.3		260	270
Copper	27.4		16.1		23.6		27.8		25.7		29.1		25.9		390	390
Lead	4.08		3.73		4.21		2.45		3.00		3.00	B	2.90	U	450	530
Mercury	0.033		0.0453		0.0221		0.032		0.036		0.041		0.036		0.41	0.59
Silver	0.07		0.05		0.07		0.07		0.06		0.8	U	0.8	U	6.1	6.1
Zinc	43.9		25.4		42.0		43.7		44.2		53.0		41.7		410	960
LPAHs (mg/kg OC)																
Acenaphthylene	0.20	U	0.50	J	0.49	J	0.24	U	0.27	U	0.12	J	0.55	U	66	66
Acenaphthene	0.76	J	7.56		0.87	J	0.23	U	0.26	U	1.59	J	0.21	J	16	57
Anthracene	0.42	J	9.22		2.78		0.47	U	0.52	U	0.88	J	0.19	J	220	1,200
Fluorene	0.92	J	9.56		1.44	J	0.5	U	0.56	U	1.41	J	0.27	J	23	79
Naphthalene	2.08		11.11		1.44	J	0.91	J	0.91	J	1.56	J	0.18	J	99	170
Phenanthrene	2.42		36.67		7.00		0.81	J	1.00	J	4.69	J	0.86		100	480
2-Methylnaphthalene	0.71	J	7.56		0.68	J	0.5	J	0.47	J	0.25	J	0.12	J	38	64
Total LPAH3	7.26		74.61		14.02		2.22	J	2.38	J	10.49		1.86		370	780
HPAHs (mg/kg OC)																
Benzo(a)anthracene	1.08	J	16.67		5.56		0.48	U	0.53	U	1.00		0.22	J	110	270
Benzo(a)pyrene	0.72	J	14.44		5.89		0.14	U	0.16	U	0.91		0.14	J	99	210
Total Benzofluoranthenes4	1.56	J	22.89		10.11		0.25	U	0.28	U	2.09		0.39	J	230	450
Benzo(g,h,i)perylene	0.78	J	11.00		3.89		0.64	U	0.71	U	0.72		0.64	U	31	78
Chrysene	0.92	J	17.78		7.89		0.47	J	0.28	U	1.69		0.41		110	460
Dibenzo(a,h)anthracene	0.28	U	3.89		1.09	J	0.28	U	0.31	U	0.16	J	0.28	U	12	33
Fluoranthene	2.50		40.00		11.11		0.63	J	0.68	J	4.38		1.00		160	1,200
Indeno(1,2,3-cd)pyrene	0.69	J	9.89		4.44		0.16	U	0.18	U	0.72		0.12	J	34	88
Pyrene	3.33		44.44		12.22		0.72	J	0.72	J	4.38		0.84		1,000	1,400
Total HPAHs5	8.23		126.67		45.53		1.82	J	1.40	J	18.13		3.86		960	5,300
Chlorinated Hydrocarbons (mg/kg OC)																
Hexachlorobenzene	1.00	U6	1.33	U6	1.33	U6	1.2	U6	1.33	U6	0.38	U	0.27	U	0.38	2.3
Hexachlorobutadiene	2.08	U	2.78	U	2.78	U	2.5	U	2.78	U	0.78	U	0.57	U	3.9	6.2
1,2-Dichlorobenzene	2.42	U6	3.22	U6	6.56	U6	2.9	U6	3.22	U6	1.84	U	1.34	U	2.3	2.3
1,4-Dichlorobenzene	2.42	U	3.22	U6	2.89	U	2.9	U	3.22	U6	0.91	U	0.59	U	3.1	9
1,2,4-Trichlorobenzene	2.17	U6	2.89	U6	2.89	U6	2.6	U6	2.89	U6	0.81	U	0.59	U	0.81	1.8

Chemical	SMA 1-1		SMA 2-1		SMA 3-2		DCI 4-1		DCI 4-1a		SMA5-2		SMA5-3		SMS Criteria	
															SQS	CSL
Phthalates (mg/kg OC)																
Diethyl phthalate	1.08	U	1.44	U	1.44	U	1.5		1.56		0.44	J	0.32	J	61	110
Dimethyl phthalate	0.83	U	1.11	U	1.11	U	1	U	1.11	U	0.31	U	0.23	U	53	53
Di-n-butyl phthalate	6.58	U	8.78	U	8.87	U	7.9	U	8.78	U	2.63	J	2.02	J	220	1700
Di-n-octyl phthalate	1.42	U	1.89	U	1.89	U	1.7	U	1.89	U	0.53	U	0.29	U	58	4500
Bis (2-ethylhexyl) phthalate	5.83	U	10.44	J	7.78	U	7	U	20		2.19	U	1.59	U	47	78
Butyl benzyl phthalate	2.67	U	3.56	U	3.56	U	3.2	U	3.56	U	1.00	U	0.73	U	4.9	64
Phenols and Miscellaneous (µg/kg dry weight)																
Pentachlorophenol	20	U	20	U	20	U	20	U	20	U	20	U	20	U	360	690
Phenol	2	U	2	U	2	U	2	U	2	U	2	U	2	U	420	1,200
2 Methylphenol	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	63	63
4 Methylphenol	3.4	J	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	670	670
2,4-Dimethylphenol	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	29	29
Miscellaneous Compounds																
Benzoic acid (µg/kg dry weight)	96	U	96	U	96	U	96	U	96	U	96	U	96	U	650	650
Benzyl alcohol (µg/kg dry weight)	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	57	73
Dibenzofuran (mg/kg OC)	0.73	J	7.00		0.94	J	0.59	U	0.66	U	0.9	J	0.27	U	15	58
N-Nitrosodiohenylamine (mg/kg OC)	1.33	U	1.78	U	1.78	U	1.6	U	1.78	U	0.5	U	0.36	U	11	11
PCBs (mg/kg OC)																
Total PCBs	1.08	U	3.40		1.44	U	1.3	U	1.44	U	0.41	U	0.29	U	12	65

Notes: s

1 Chemical analysis performed by Columbia Analytical Services of Kelso, Washington

2 SMS = Sediment Management Standards Criteria; SQS = Sediment Quality Standards; CSL = Cleanup Screening Level.

3 Total LPAHs = The sum of Acenaphthalene, Acenaphthene, Anthracene, Fluorene, Napthalene and Phenanthrene.

4 Total benzofluoranthenes = The sum of the "b" and "k" isomers.

5 Total HPAHs = The sum of Benzo(a)anthracene, Benzo(a) pyrene, Total Benzofluoranthenes, Benzo(g,h,i)perylene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-c,d)pyrene and pyrene.

6 Elevated non-detection due to organic carbon normalization with a total organic carbon percentage less than 0.1%. The dry weight detection limit is less than the applicable lowest Apparent Effects Threshold.

U = Laboratory data qualifier indicating analyte undetected at given reporting limit

J = estimated value

B= indicates analyte was detected in laboratory blank

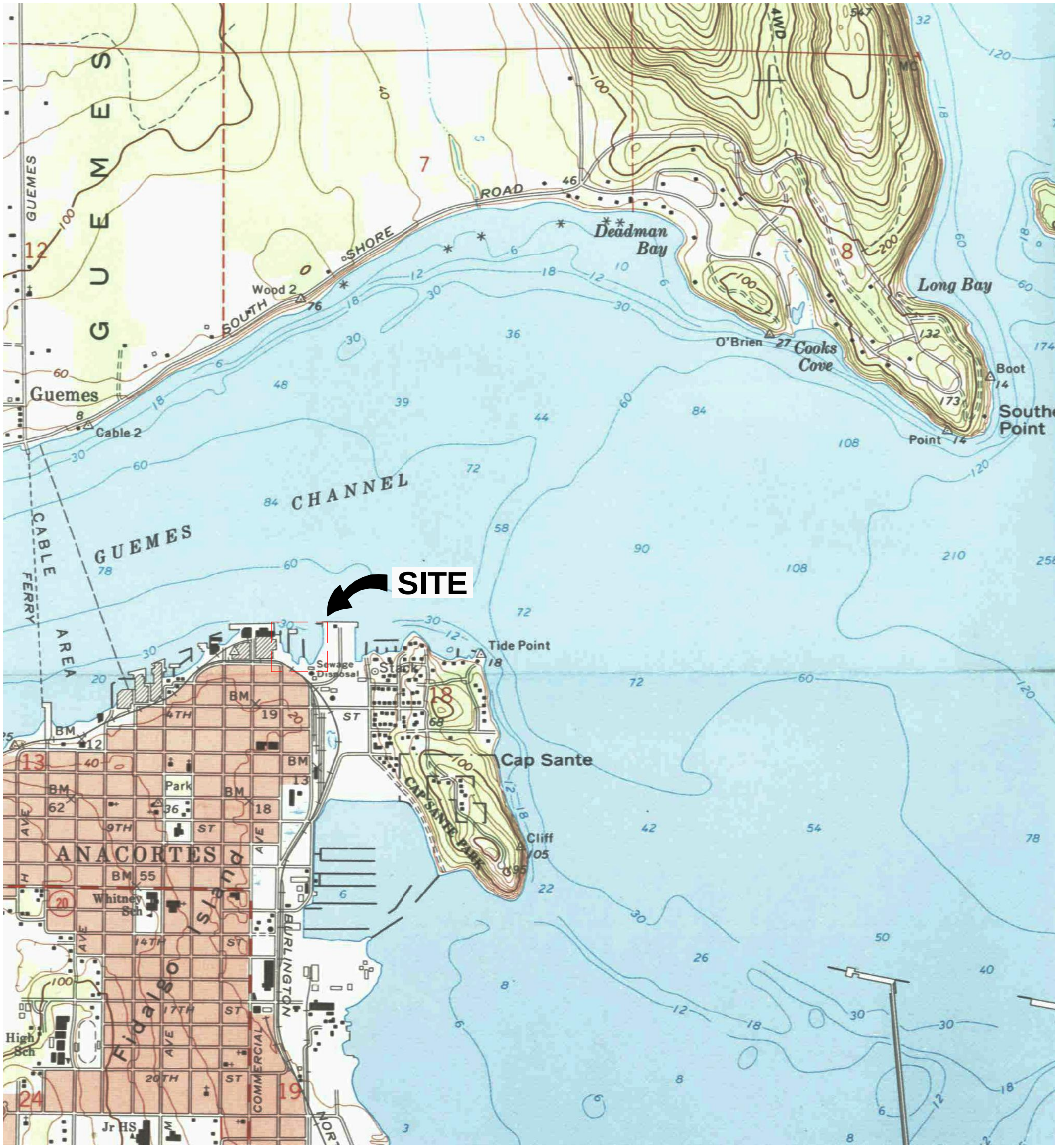
Bold indicates that the detected concentration exceeds the SMS SQS.

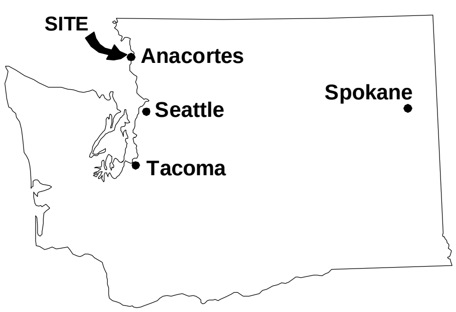
-- = Not available or not applicable.

SEAT:\5\5147006\06\Finals\514700606 Table 1-2.xls

FIGURES

GeoEngineers





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Reference: USGS 7.5' topographic quadrangle map "(Anacortes North, Wash.," photoinspected 1978).

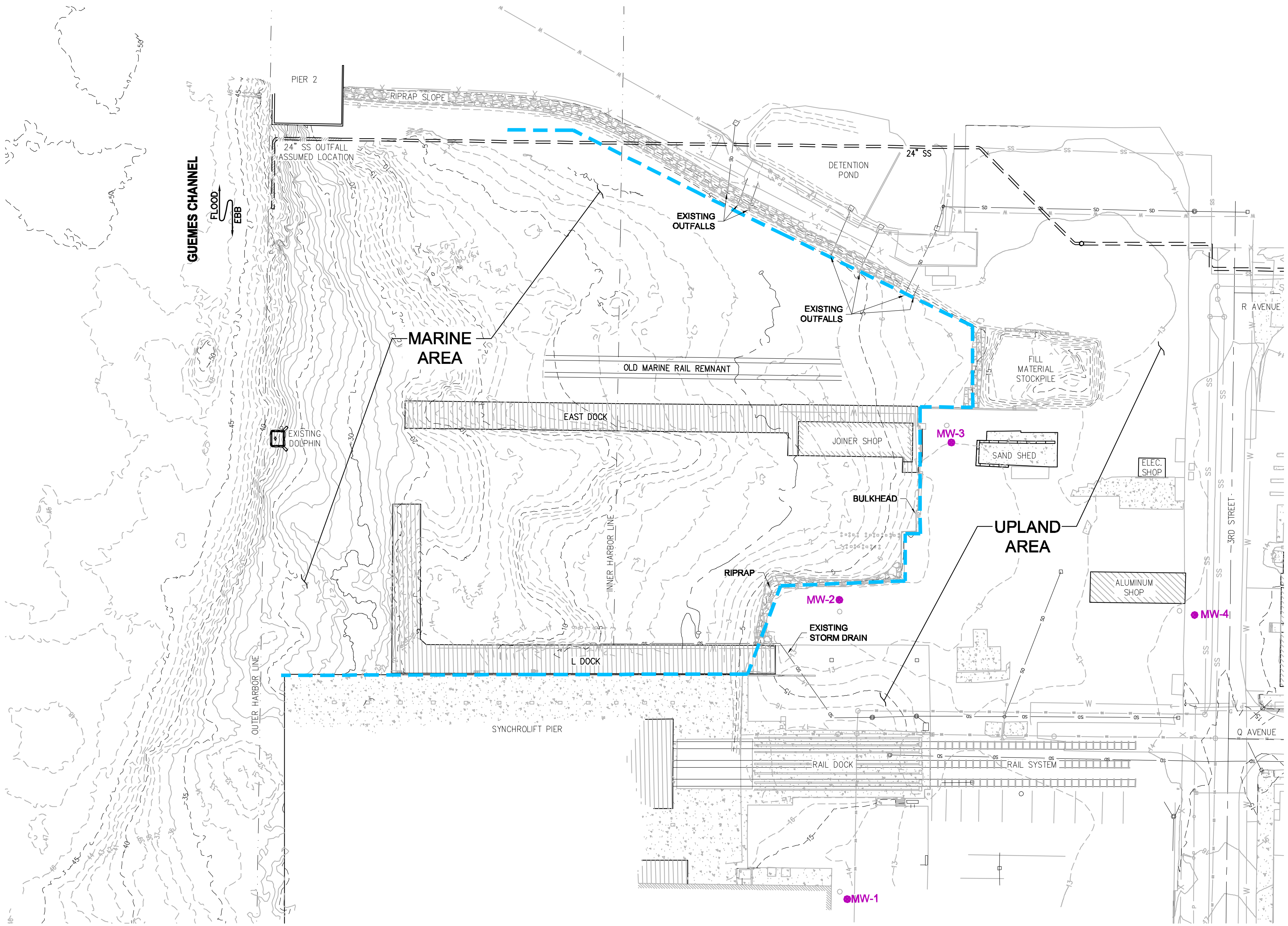
Vicinity Map

Port of Anacortes - Dakota Creek Industries
Anacortes, Washington

GEOENGINEERS

Figure 1

P:\5\5147006\06\CAD\Construction Completion Figures\514700605 Fig 1.dwg\TAB:F1 modified by tmichaud on Jun 08, 2010 - 14:58



Legend

- Fence
- CB Catch Basin
- Sewer manhole
- Storm manhole
- Gravel
- Concrete
- Rip Rap
- Elevation contour
- MW-2 Remedial Groundwater Sample Investigation (Landau Associates 2002 a)
- Boundary between Marine and Upland Areas

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SURVEY NOTES

1) THIS DRAWING BASED ON SURVEY BY LEONARD, BOUDINOT, SKODJE INC. NOV. 2006

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Site Plan - Pre-Interim Action Site Features

Port of Anacortes - Dakota Creek Industries
Anacortes, Washington

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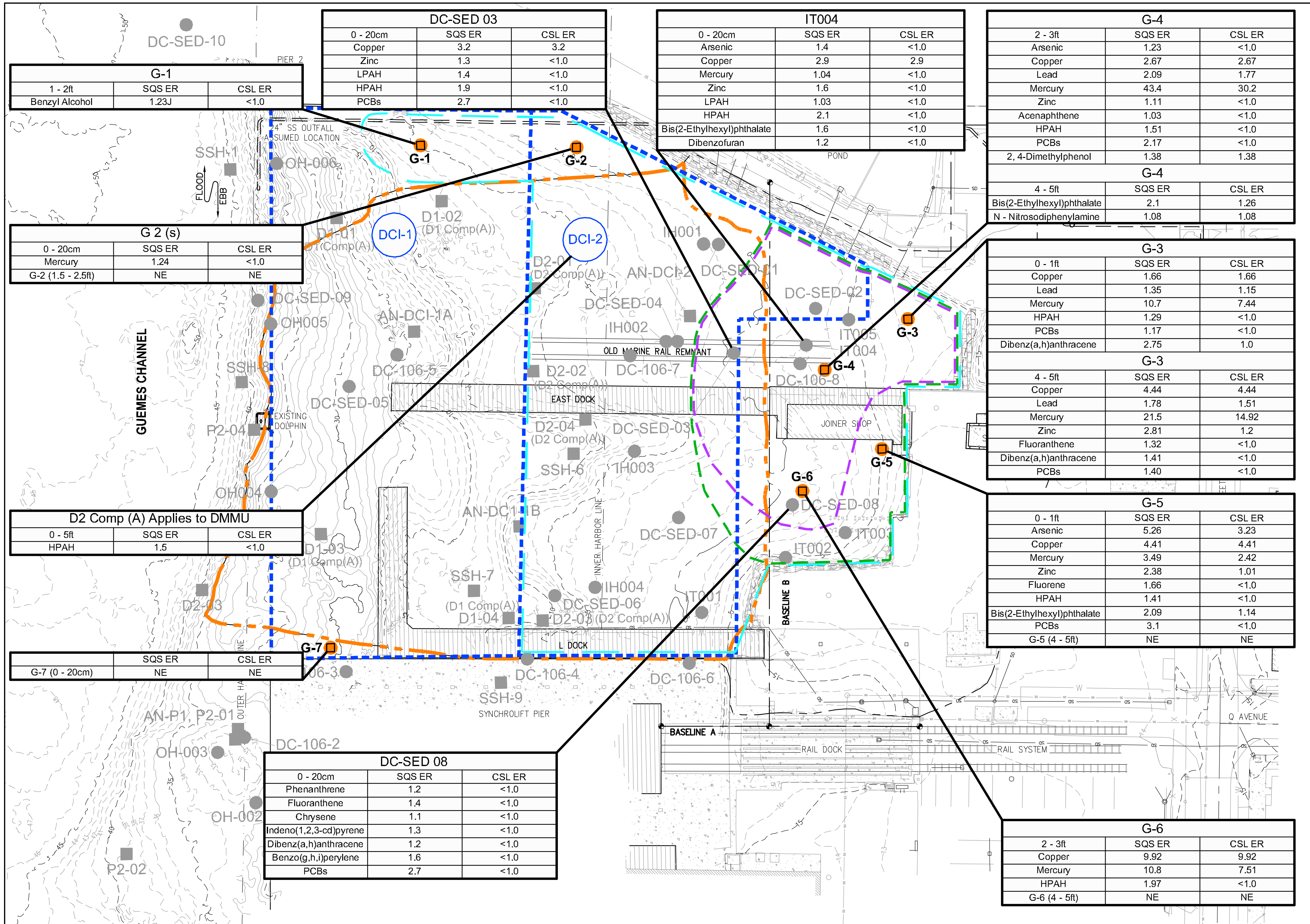
Figure 2



G-1		
1 - 2ft	SQS ER	CSL ER
Benzyl Alcohol	1.23J	<1.0

DC-SED 03		
0 - 20cm	SQS ER	CSL ER
Copper	3.2	3.2
Zinc	1.3	<1.0
LPAH	1.4	<1.0
HPAH	1.9	<1.0
PCBs	2.7	<1.0

IT004		
0 - 20cm	SQS ER	CSL ER
Arsenic	1.4	<1.0
Copper	2.9	2.9
Mercury	1.04	<1.0
Zinc	1.6	<1.0
LPAH	1.03	<1.0
HPAH	2.1	<1.0
Bis(2-Ethylhexyl)phthalate	1.6	<1.0
Dibenzofuran	1.2	<1.0

G-4		
2 - 3ft	SQS ER	CSL ER
Arsenic	1.23	<1.0
Copper	2.67	2.67
Lead	2.09	1.77
Mercury	43.4	30.2
Zinc	1.11	<1.0
Acenaphthene	1.03	<1.0
HPAH	1.51	<1.0
PCBs	2.17	<1.0
2, 4-Dimethylphenol	1.38	1.38
G-4		
4 - 5ft	SQS ER	CSL ER
Bis(2-Ethylhexyl)phthalate	2.1	1.26
N - Nitrosodiphenylamine	1.08	1.08

G 2 (s)		
0 - 20cm	SQS ER	CSL ER
Mercury	1.24	<1.0
G-2 (1.5 - 2.5ft)	NE	NE

G-3		
0 - 1ft	SQS ER	CSL ER
Copper	1.66	1.66
Lead	1.35	1.15
Mercury	10.7	7.44
HPAH	1.29	<1.0
PCBs	1.17	<1.0
Dibenz(a,h)anthracene	2.75	1.0
G-3		
4 - 5ft	SQS ER	CSL ER
Copper	4.44	4.44
Lead	1.78	1.51
Mercury	21.5	14.92
Zinc	2.81	1.2
Fluoranthene	1.32	<1.0
Dibenz(a,h)anthracene	1.41	<1.0
PCBs	1.40	<1.0

D2 Comp (A) Applies to DMMU		
0 - 5ft	SQS ER	CSL ER
HPAH	1.5	<1.0

G-5		
0 - 1ft	SQS ER	CSL ER
Arsenic	5.26	3.23
Copper	4.41	4.41
Mercury	3.49	2.42
Zinc	2.38	1.01
Fluorene	1.66	<1.0
HPAH	1.41	<1.0
Bis(2-Ethylhexyl)phthalate	2.09	1.14
PCBs	3.1	<1.0
G-5 (4 - 5ft)	NE	NE

	SQS ER	CSL ER
G-7 (0 - 20cm)	NE	NE

DC-SED 08		
0 - 20cm	SQS ER	CSL ER
Phenanthrene	1.2	<1.0
Fluoranthene	1.4	<1.0
Chrysene	1.1	<1.0
Indeno(1,2,3-cd)pyrene	1.3	<1.0
Dibenz(a,h)anthracene	1.2	<1.0
Benzo(g,h,i)perylene	1.6	<1.0
PCBs	2.7	<1.0

G-6		
2 - 3ft	SQS ER	CSL ER
Copper	9.92	9.92
Mercury	10.8	7.51
HPAH	1.97	<1.0
G-6 (4 - 5ft)	NE	NE

Legend

Existing and Historical Site Features

- Elevation contour
- DCI-2 Dredge Material Management Unit (DMMU) Designation
- DMMU boundaries
- Estimated Extent of Surface and Subsurface Sediments Exceeding SQS
- Estimated Extent of Surface Sediments Exceeding CSL (0 to 1 foot)
- Estimated Extent of Subsurface Sediments Exceeding CSL (1 to 4 feet)

NE = Concentration of chemicals of concern did not exceed the SQS or CSL criteria.

SQS ER = Ratio of analytical result to sediment quality standard criteria.

CSL ER = Ratio of analytical result to cleanup screening level.

Historical Sediment Sample Location and Type

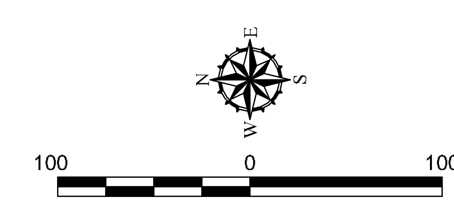
- Subsurface sediment core
- Surface sediment grab

Future Redevelopment Feature

- Planned project Pier 1 dredge boundary

2008 RI/FS Sample Locations and Type

- G-7 Sediment core sample and surface sample location (March 2008)



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Reference: AutoCAD drawing entitled "Existing Conditions and Project Control", file name 064065.01-1.14.dwg, by PND Engineers, Inc., dated September 2007; and PDF of Figure 1.1 "Sediment Sampling Locations" from the Sediment Sampling Data Report by Floyd Snider, dated 1/3/2007.

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Summary of SQS and CSL Exceedances

Port of Anacortes - Dakota Creek Industries
Anacortes, Washington

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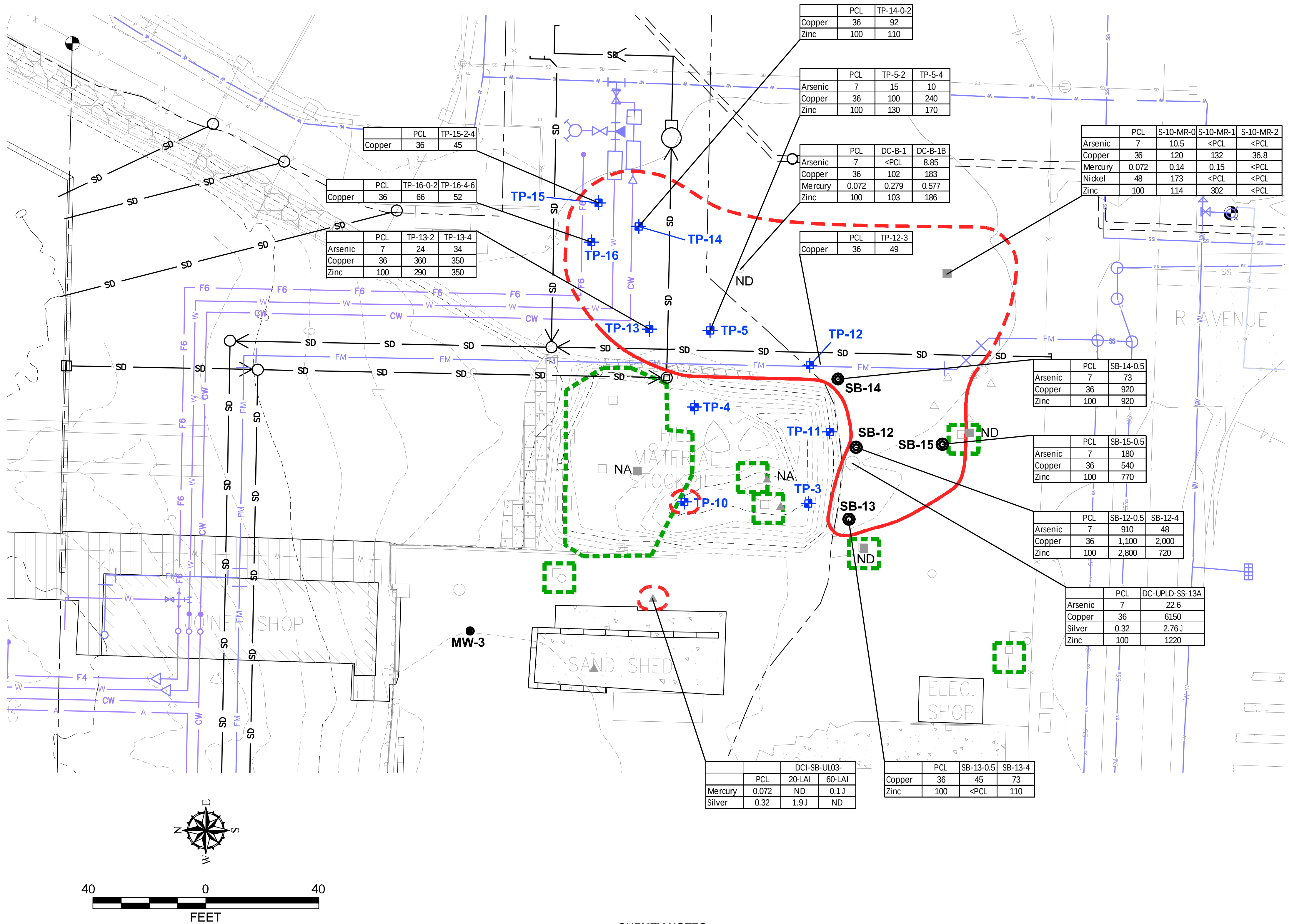
Figure 3

P:\5\5147006\06\CAD\Construction Completion Figures\5147006O5 FIG 3.dwg\TAB:F3 modified by tmichaud on Sep 07, 2010 - 15:11



Legend

Existing and Historical Site Features

- Existing fence
- Gravel
- Concrete
- Rip Rap
- Elevation contour
- Limits of the 2002 Remedial Excavation (Landau Associates, 2002 c)

Historical Soil/Groundwater Sample Location and Type

- Confirmation soil sample (Landau Associates 2002 a)
- Environmental Site Assessment (Otten Engineering 1997)
- Hydraulic winch soil excavation (Landau Associates 2001)
- EPA site inspection (Weston 2001)
- Remedial investigation soil sample (Landau Associates 2002 a)
- MW-3 Remedial investigation groundwater sample (Landau Associates 2002 a)
- ND = Arsenic not detected in historic soil sample near potential remediation excavation
- NA = Arsenic not analyzed in historic soil sample near potential remediation excavation

2008 Soil/Groundwater Sample Location and Type

- SB-14 Soil borings
- TP-3 GeoEngineers test pit locations
- Estimated limits of potential remediation excavation of arsenic in soil exceedances greater than MTCA Method C protection of human health CUL (for direct contact)

Proposed Project Pier 1 Utility Locations

- SD Storm drain line
- SS Sanitary sewer
- FM Force main
- W Water main
- F6 Fire line
- CW Coldwater
- A Compressed Air
- Trench drain, in-line catch basin w/ trash bucket
- Type 2 catch basin w/ grate per WSDOT Std Plan B10.20-00
- Type 2 catch basin w/ solid lid per WSDOT Std Plan B10.20-00
- Storm water pump station

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3. See Tables 1 and 2 for tabulated data screened against cleanup criteria.
4. Soil CUL exceedences are presented in black text and groundwater CUL exceedences are presented in blue text.

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Summary of Preliminary Cleanup Level Exceedances and Upland Sample Locations - Soil

Port of Anacortes - Dakota Creek Industries
Anacortes, Washington

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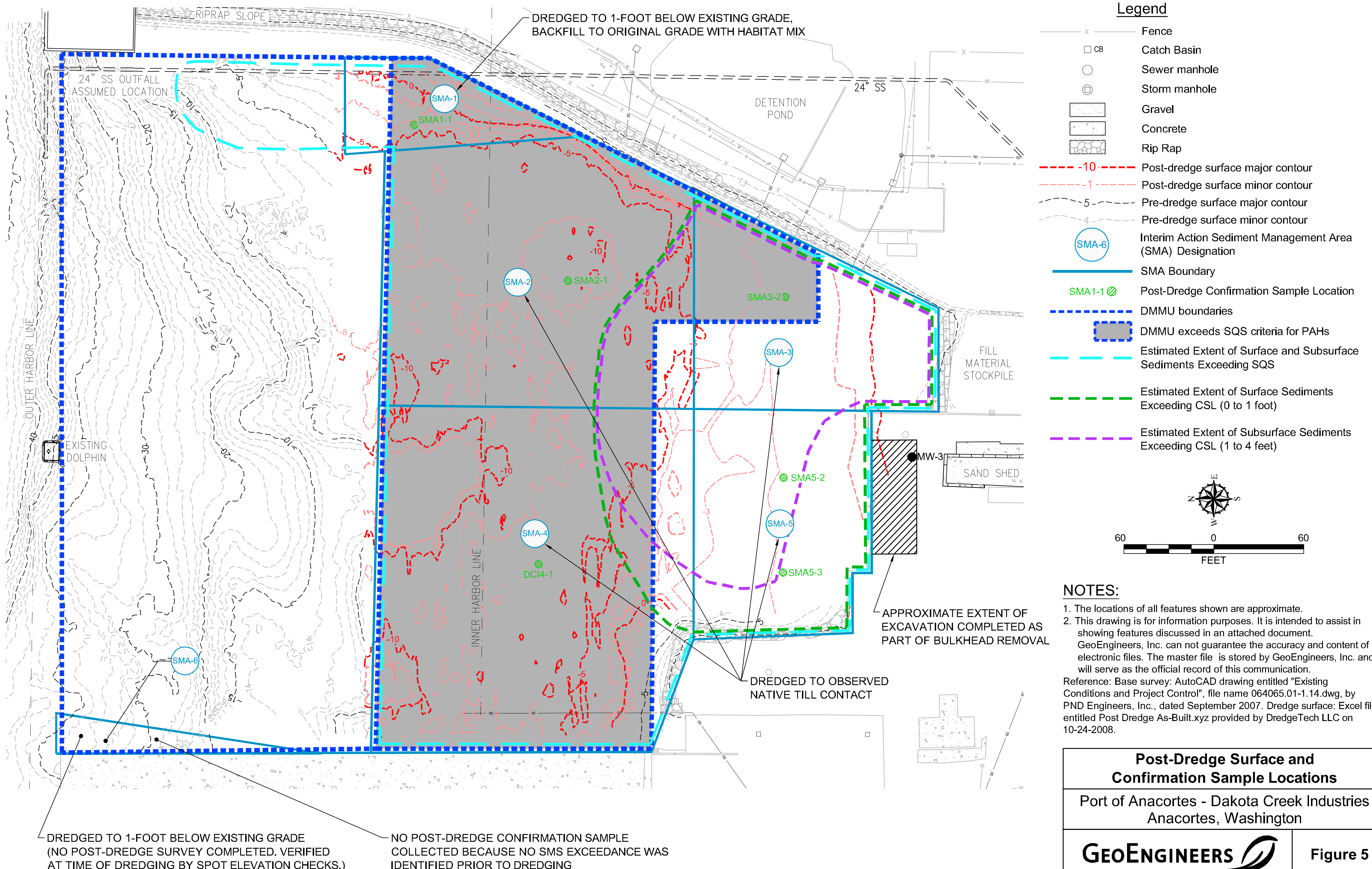
Figure 4

P:\5\5147006\06\CAD\CONSTRUCTION COMPLETION FIGURES\514700605 FIG 4.DWG\TAB:FIG 4 MODIFIED BY TMICHAUD ON JUL 30, 2010 - 10:16



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Reference: Base survey: AutoCAD drawing entitled "Existing Conditions and Project Control", file name 064065.01-1.14.dwg, by PND Engineers, Inc., dated September 2007. Dredge surface: Excel file entitled Post Dredge As-Built.xyz provided by DredgeTech LLC on 10-24-2008.

Post-Dredge Surface and Confirmation Sample Locations

Port of Anacortes - Dakota Creek Industries
Anacortes, Washington

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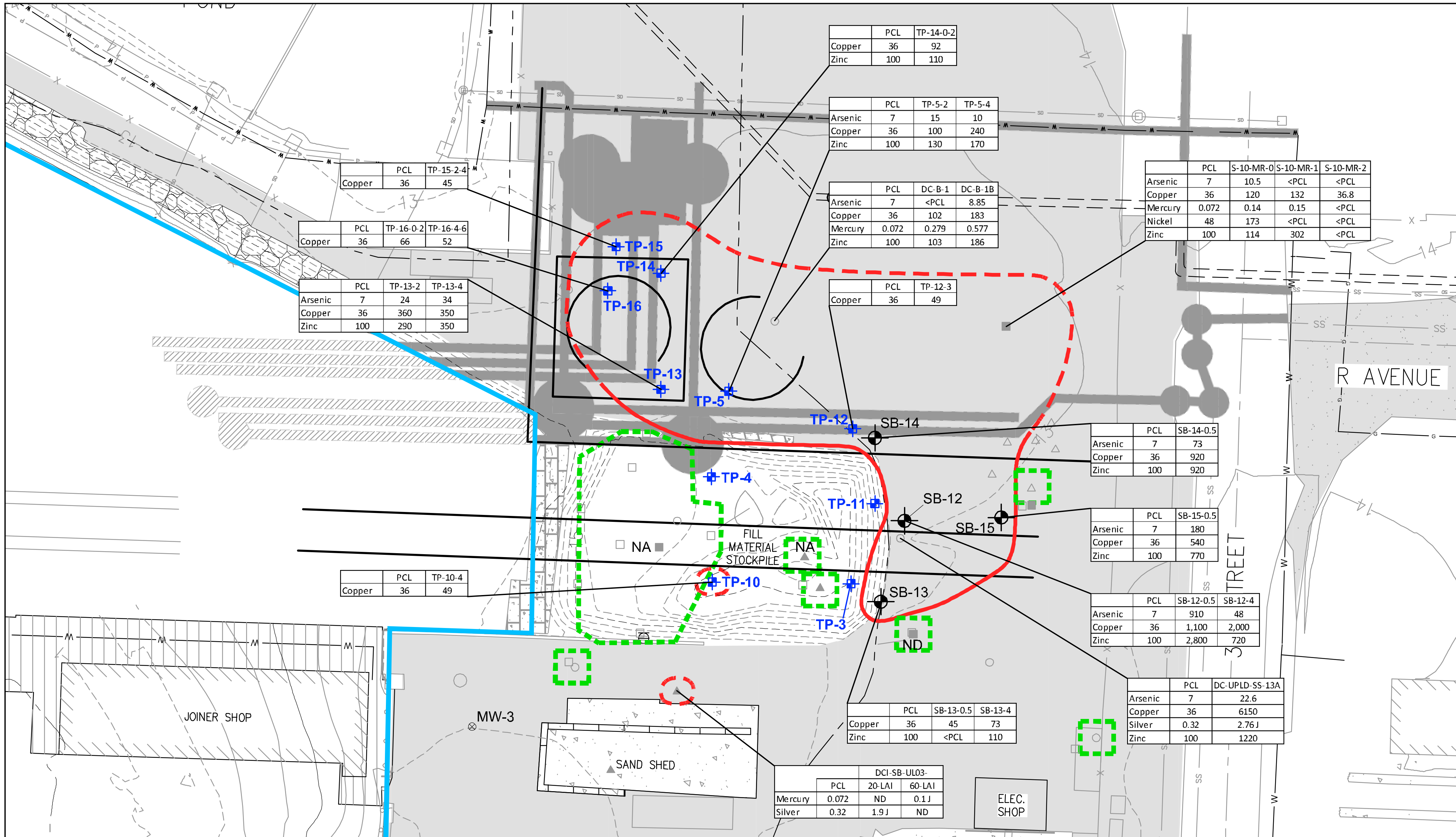
Figure 5

P:\5\5147006\06\CAD\Construction Completion Figures\514700605 FIG 5.dwg\TAB:F5 modified by tmichaud on Sep 07, 2010 - 15:12



NOTES:

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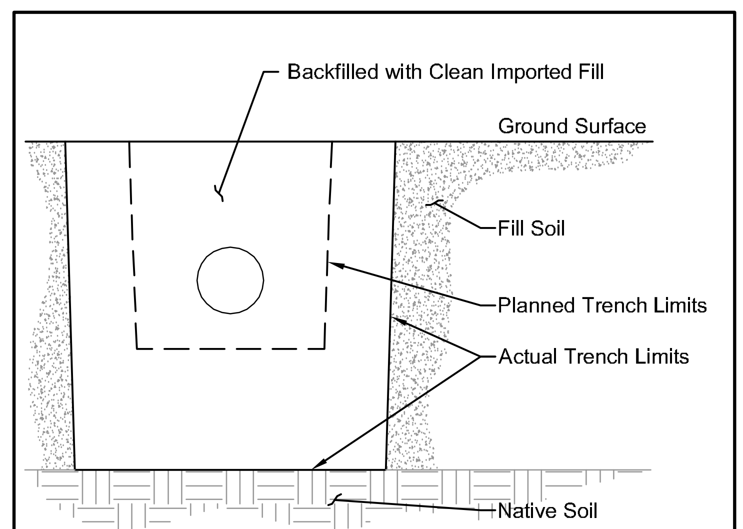

Typical Upland Utility Trench Cross-Section for Installation in Contaminated Fill

Legend

Existing and Historical Site Features

- Existing fence
- Gravel
- Concrete
- Rip Rap
- Elevation contour
- Limits of the 2002 Remedial Excavation (Landau Associates, 2002 c)
- Estimated extent of soil exceeding metals preliminary cleanup levels
- Area of soil removal performed for utility installation during Interim Action Construction
- Area of utility installation performed within new backfill
- Boundary between Marine and Upland Areas

Historical Soil/Groundwater Sample Location and Type

- Confirmation soil sample (Landau Associates 2002 a)
- TPH soil excavation (A-1 Pump Service 1991)
- Environmental Site Assessment (Otten Engineering 1997)
- Hydraulic winch soil excavation (Landau Associates 2001)
- EPA site inspection (Weston 2001)
- Remedial investigation soil sample (Landau Associates 2002 a)
- Remedial investigation groundwater monitoring well (Landau Associates 2002 a)

Remedial Investigation Field Study Sample Location and Type

- SB-2 Soil borings (GeoEngineers 2008)
- MW-5 Monitoring well (GeoEngineers 2008)
- SS-1 Surface soil samples (GeoEngineers 2008)
- SB-11 Hand auger soil boring (GeoEngineers 2008)
- TP-15 Test pit (GeoEngineers 2008)
- ER Ratio of analytical result to preliminary cleanup level

NOTE: Remediated historical exceedences not shown.

40 0 40
FEET

Utility Trench / Remedial Excavation Locations

Port of Anacortes - Dakota Creek Industries
Anacortes, Washington

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Figure 6

P:\5\5147006\06\CAD\Construction Completion Figures\514700605 FIG 6.dwg\TAB:Fig 6 modified by tmichaud on Aug 09, 2010 - 11:35

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