December 17, 2009

Project 10131.000

Mr. Panjini Balaragu
Washington State Department of Ecology
300 Desmond Drive SE
Lacey, Washington 98504

Subject: **Investigation Work Plan—MJB South Dock (Ramp Area Only)**
Anacortes, Washington

Dear Mr. Balaragu:

On behalf of MJB Properties, LLC (MJB), AMEC Geomatrix, Inc. (AMEC), prepared this investigation work plan (Work Plan) for the ramp area on the southern portion of the MJB site located on Fidalgo Bay in Anacortes, Washington (Figure 1). The purpose of this work plan is to characterize for disposal the soils that are within the footprint of a proposed boat ramp and supporting structures and utility corridors (Figure 2). Approximately 4,200 cubic yards (cy) of soil above the mean higher high water (MHHW) mark will require excavation to accommodate the construction project. The sampling results will provide the basis for a disposal plan for soils that are expected to be excavated. The soils that are deeper than or just outside of the planned excavation, which are proposed to be left in place, will be characterized for potential hazardous substances as defined in the Model Toxics Control Act (MTCA) (Chapter 173-340 WAC). Construction of the proposed boat ramp is scheduled to begin in June 2010 under the Joint Aquatic Resources Permit Application reference number NWS-2008-604-NO.

The MJB site is listed on the Washington State Department of Ecology (Ecology) Hazardous Sites List as Facility Site ID 2690. Northern portions of the MJB site, termed the North Yard, are being cleaned up under a Consent Decree between Ecology and the Port of Anacortes and Kimberly-Clark. Remediation in the North Yard is being performed on a separate schedule from the rest of the MJB site because the North Yard was historically part of the former Scott Paper Mill, to which Kimberly-Clark is a successor corporation.

In a letter to MJB dated January 22, 2009, Ecology outlined the remaining data gaps that need to be addressed for the portions of the MJB site that are outside the former Scott Paper Mill site. This letter was in response to the owners' request to remove portions of the MJB site from Ecology's Confirmed and Suspected Contaminated Sites List. Figure 3 is a map of the MJB site outside of the Scott Paper Mill area with subareas, termed A, B, and C. The future ramp area is located within Area A, also known as the South Dock area. This work plan herein focuses on the ramp area only in order to prevent delay of the ramp construction activities. Characterization activities must be completed as soon as possible to provide information to the City for the shoreline permit.

Further evaluations, including an historical records review and focused sampling, are being planned for the other areas of the MJB site outside of the Consent Decree area. These remaining areas of the MJB site will be addressed under separate submittals or work plans.

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Offshore sediments were characterized during numerous previous environmental or dredging characterization studies, including a Baywide sediment study in 2007 sponsored by Ecology (SAIC, 2008). AMEC summarized the results of the marine sediment sampling in the vicinity of the South Dock and submitted a summary memorandum to Ecology on March 26, 2009 (AMEC, 2009). Sediment sampling for the ramp construction project is complete, and a suitability determination was granted on May 6, 2009, by the Dredged Material Management Program for the disposal of the sediments in the ramp area.

1.0 FUTURE RAMP AREA INVESTIGATION

MJB Area A, also known as, the South Dock area, is divided into three subareas: the footprint of the proposed ramp, the Hydraulic Fill Area, and the former Pioneer Mill area (Figure 3). As discussed above, the other South Dock areas, i.e., the Hydraulic Fill area and the former Pioneer Mill area, will be addressed under a separate work plan.

This section addresses the data gaps noted in Ecology's January 22, 2009, letter as they pertain to the proposed ramp area, and the proposed plan for addressing those data gaps.

Background: The current area of the proposed ramp was modified during the 1970s when the former mill buildings were demolished, with subsequent filling to improve the grade of the area. Although the offshore sediments within the footprint of the ramp structure have been characterized, and a suitability determination has been granted by the USACE, the upland soils within the footprint have not been chemically characterized. Figure 3 shows the outline of the ramp structure as currently designed.

In the upland area, the proposed structure will have a gravel driveway about 80 feet long, beginning at T Avenue and extending east. Approximately 80 feet east of T Avenue, it will begin an 80-foot-long slope toward the water at a 12 percent grade. The sloped portion of the ramp will require excavation to achieve the proper angle, and it will be surfaced with concrete. Trenches for water, sewer, and power lines will be excavated directly north of the ramp structure to a depth of approximately 3 feet below ground surface. Nearer to T Avenue, additional utility lines will be located south of the gravel driveway. Directly south of the ramp structure is an existing 48-inch diameter storm drain, which has an outfall that exists within the current footprint of the future ramp. As part of the ramp construction project, a manhole will be constructed to the top of the storm drain, and a 30-ft section of the outfall will be rerouted to the south and away from the ramp footprint.

Excavated soil from the upland portion of the ramp footprint and associated utility corridors will require characterization for disposal or reuse, depending on its quality. Analytical results from the investigation will be compared to screening levels derived from MTCA Method B and presented in the data tables. For any soil samples that exceed the screening levels, a determination will be made regarding the location (whether the sample is in the excavation

volume or outside the planned excavation), and if the results indicate an exceedance that would require disposal at a controlled landfill. For the soil that will need to be disposed of at a controlled landfill, the analyses will be used to prearrange acceptance by a disposal facility so that the material can be loaded directly into trucks upon excavation and will not require temporary stockpiling. Any material within the excavation area that is below screening levels will be tentatively identified for potential reuse as fill elsewhere onsite. A plan will be developed for excavation, stockpiling, and long-term placement of the clean material, which will be provided to Ecology for review prior to the construction.

Soils that will be left in place just below the excavation level or on the sidewalls of the planned excavation will be characterized to determine the residual chemical concentrations. Those samples will be compared to screening levels that will be provided with the sample results tables. If results indicate an exceedance of the screening levels, we will discuss with Ecology the type of remedial action that may be necessary depending on the nature and extent of the contaminant, and the location relative to the proposed ramp structure. Cleanup levels will be proposed and an interim action plan will be developed to outline the process for management of the contaminated soil that is within and outside the construction excavation, including the approach to confirmation sampling. If further characterization is necessary to determine the extent of identified contaminants, a plan will be presented to conduct that investigation. Samples that are collected within the native clay unit that the fill overlies will be assumed to be clean and will not be analyzed. This approach regarding the native material is consistent with the approach that was used in the marine area sampling.

Proposed Investigation: The proposed study will involve an upland investigation of the ramp area to assess the suitability for disposal or reuse of these soils during the ramp construction activities to start in June 2010. The excavated sloping portion of the ramp area covers approximately 4,000 square feet of upland and will require excavation of approximately 4,200 cy of upland soil. All of the soil that will be encountered in the ramp excavation is likely to be fill that post-dates the demolition of the mill buildings. However, the test pit logs will note any observed building debris and the depths at which it is encountered.

Seven shallow test pits will be excavated in the footprint of the upland portion of the ramp structure and the associated utility corridors (Table 1). Two samples will be collected from each of the test pits: one sample from the material to be excavated and one sample from just below the planned depth of excavation. No or minimal excavation is anticipated in the Ramp-7 location, so one sample will be collected from a depth of 3 feet bgs. All samples will be collected in accordance with AMEC's standard field procedures (Appendix A). Projected depths of excavation during future construction in these sample locations are approximately:

- Ramp-1: 3 feet bgs;
- Ramp-2: 5 feet bgs;

- Ramp-3: 8 feet bgs;
- Ramp-4: 4 feet bgs;
- Ramp-5: 4 feet bgs;
- Ramp-6: 3 feet bgs; and
- Ramp-7: 0 feet bgs.

If the field personnel observe any building debris, and if those observations indicate potential contamination (e.g., PID readings, odor, visual staining, or ash), an additional sample will be collected and analyzed for potential contaminants.

Samples will be analyzed for hazardous substances as indicated in Table 1. The list of hazardous substances includes the RCRA 8 metals as generally required by disposal facilities (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) plus copper, nickel and zinc. If the concentrations of metals in samples from the excavation volume are 20 times the dangerous waste criterion for any individual metal, then testing using the Toxicity Characteristic Leaching Procedure (TCLP) will be conducted for those specific metals. (The TCLP method uses a 20:1 dilution ratio of solid to liquid and the 20 times rule conservatively assumes 100% leachability.)

To address the potential for petroleum products related to the former shingle mill, the samples will be tested for total petroleum hydrocarbons (TPH) in the diesel and oil range and semivolatile organic compounds (SVOCs). Soil samples will be screened in the field with a photoionization detector. Any samples with detectable levels of volatile constituents over ambient levels will be sampled using the 5035 method and analyzed for volatile organic compounds, including benzene, toluene, ethylbenzene, and xylenes. The soil sample from location Ramp-7 will be additionally analyzed for dioxin/furans because it is located within the margins of the hydraulic fill area.

One duplicate sample will be collected at a randomly chosen sampling location for data quality purposes. This sample will be analyzed for metals and TPH in the diesel and oil range.

Characterization of Import Materials: Approximately 700 cy of gravel will need to be imported for the ramp construction project. Some of the gravel will be used as surface material on the driveway and parking area, and some of the gravel will be used as subbase for the concrete portion of the ramp structure. The prospective borrow pits in the region will be requested to provide analytical laboratory information on the average concentrations of metals in the materials required for the construction project. If available, borrow pit chemistry information may be obtained from other sources, such as the Port of Anacortes. If there is a candidate borrow pit that has no chemical information, representative materials will be collected from the

pit prior to the construction project and analyzed for the RCRA 8 metals plus copper, nickel, and zinc.

2.0 REPORTING AND SCHEDULE

We intend to mobilize to the site and conduct the ramp area soil investigation within 2 weeks of Ecology's approval of this work plan. The field activities should require one day, and it is anticipated that the field work will be carried out in November 2009. Based on this proposed schedule, preliminary findings will be made available to Ecology in December 2009. Analytical results from the soil testing will be compared to MTCA Methods A and B cleanup levels, and disposal criteria for the prospective disposal facilities. A plan will be drafted for the disposition of the soils that exceed the screening levels in the excavation volume, and will include a management plan for those soils that are not within the planned excavation volume.

Following review of the analytical data, a draft ramp area soil investigation report will be submitted to Ecology for review. This report will be made available to Ecology in January 2010 assuming that the proposed schedule does not get delayed.

3.0 REFERENCES

AMEC (AMEC Geomatrix, Inc.), 2009, Sediment Chemistry in the Vicinity of the MJB Properties at South Dock, Anacortes, Washington, Letter to Peter Adolphson, Washington State Department of Ecology, March 26.

SAIC (Science Applications International Corporation), 2008, Fidalgo Bay Sediment Investigation Fidalgo Bay, Washington, Data Report: Prepared for Washington State Department of Ecology, Olympia.

Please do not hesitate to contact me, either via phone or email, if you have questions or comments regarding the proposed investigation efforts.

Sincerely yours,
AMEC Geomatrix, Inc.

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Fax: (206) 342-1761
E-mail: kathleen.goodman@amec.com

KG/als

Attachments: Table 1 – Soil Sample Locations, Depths, and Analytes
Figure 1 – Vicinity Map
Figure 2 – Ramp Area Sample Locations
Figure 3 – MJB Sub Areas and Ownership of Adjoining Areas
Appendix A – Uplands Sampling and Analysis Plan

cc: Sandra Caldwell, Ecology
Gary Merlino, MJB
Jack Jones, MJB
William Joyce, Salter Joyce Ziker
Jeff Layton, Layton & Sell
Project File

TABLES

TABLE 1

SOIL SAMPLE LOCATIONS, DEPTHS, AND ANALYTES

MJB Properties Future Ramp Area

Anacortes, Washington

Proposed Sample Name	Planned Construction Excavation Depth (feet bgs)	Sample Medium	Soil Sample Depth Interval (feet bgs)	Metals[1]	TPH-Dx[2]	SVOCs[3]	TCLP Metals[4]	VOC[5]	PCDD PCDF[6]
Ramp-1s	3	Soil	1 to 3	X	X	X	As needed	As needed	
Ramp-1d	3	Soil	3 to 5	X	X	X	As needed	As needed	
Ramp-2s	5	Soil	2 to 4	X	X	X	As needed	As needed	
Ramp-2d	5	Soil	6 to 8	X	X	X	As needed	As needed	
Ramp-3s	8	Soil	4 to 6	X	X	X	As needed	As needed	
Ramp-3d	8	Soil	8 to 10	X	X	X	As needed	As needed	
Ramp-4s	4	Soil	2 to 4	X	X	X	As needed	As needed	
Ramp-4d	4	Soil	4 to 6	X	X	X	As needed	As needed	
Ramp-5s	4	Soil	2 to 4	X	X	X	As needed	As needed	
Ramp-5d	4	Soil	4 to 6	X	X	X	As needed	As needed	
Ramp-6s	3	Soil	1 to 3	X	X	X	As needed	As needed	
Ramp-6d	3	Soil	3 to 5	X	X	X	As needed	As needed	
Ramp-7	0	Soil	1 to 3	X	X	X	As needed	As needed	X
Duplicate	randomly selected	Soil		X	X				
Possible Import		Sand/gravel		X					

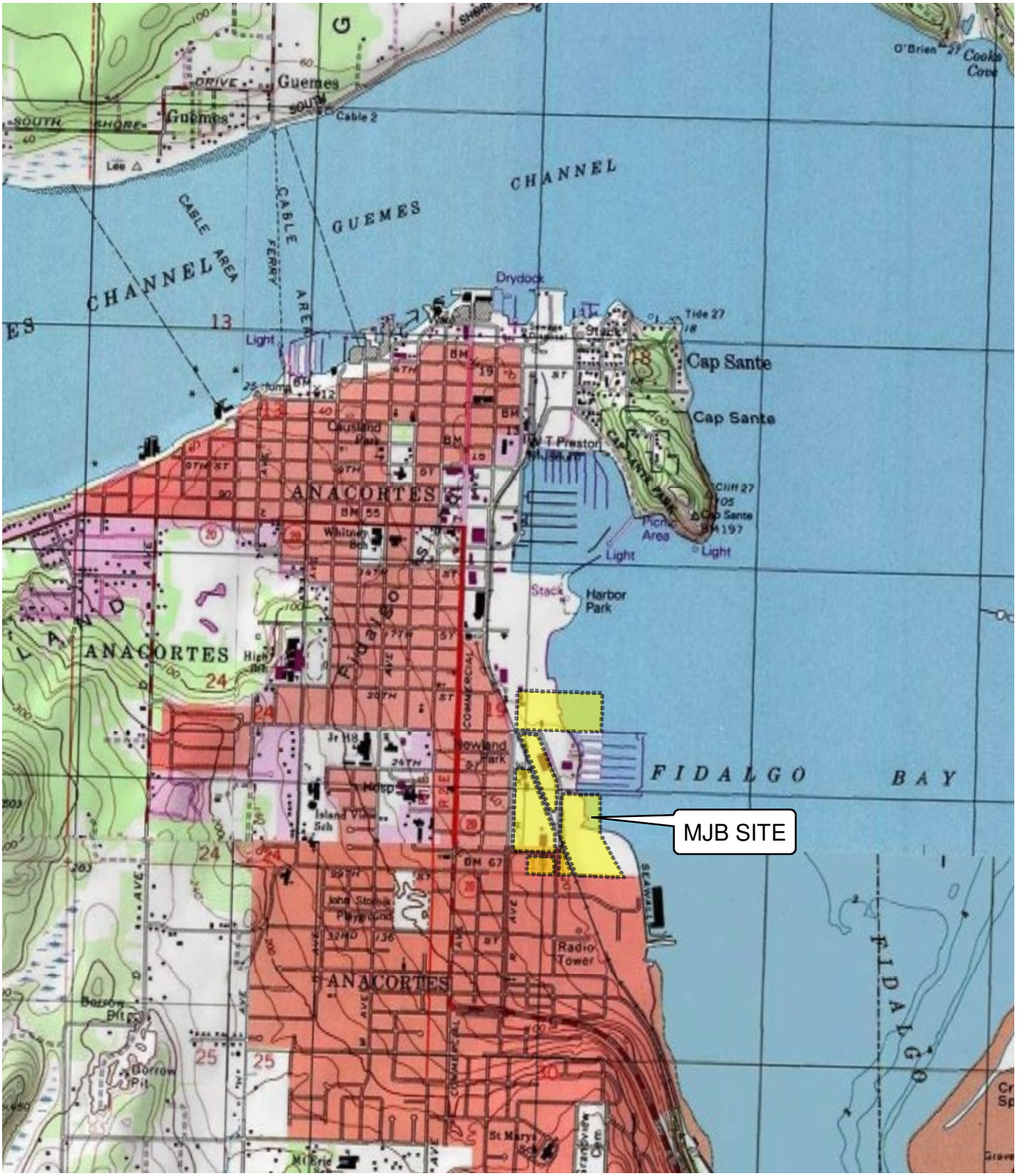
Notes

1. Metals: RCRA 8 metals: arsenic, barium, cadmium, chromium (not speciated), lead, mercury, selenium and silver; plus copper, nickel and zinc using element specific EPA Methods
2. TPH-Dx: total petroleum hydrocarbons in the diesel extended range (which includes diesel and oil) by NWTPH-Dx.
3. SVOCs: semivolatile organic compounds using EPA Method 8270D/SIM.
4. Metals (TCLP): analysis for selected metals by Toxicity Characteristic Leaching Procedure for exceedances of 20 times dangerous waste criteria.
5. VOC: Volatile Organic Compounds using EPA Method 8260B with 5035 sample collection.
6. PCDD/PCDF: polychlorodibenzo-p-dioxin and polychlorodibenzofurans using modified EPA Method 8290; Ramp-7 and any ash samples will be analyzed

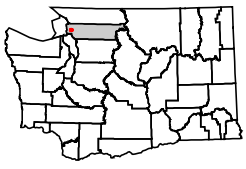
Abbreviations

bgs = below ground surface

FIGURES



Note: Base map from U.S.G.S. 24k



Washington

N

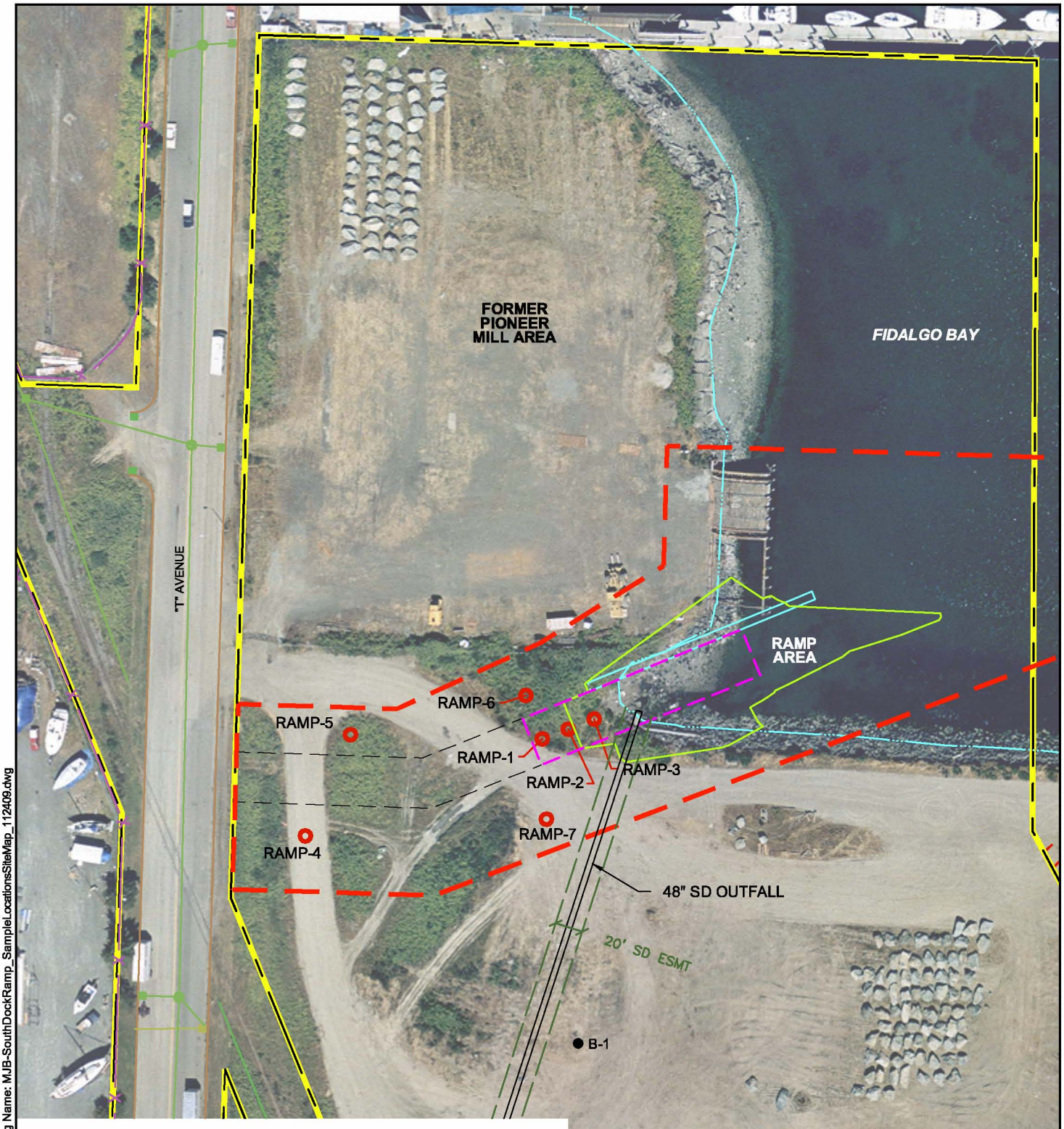
0 1,000 2,000

Feet

VICINITY MAP
MJB Properties
Anacortes, Washington

By: APS	Date: 10/30/09	Project No. 10131
AMEC Geomatrix		Figure 1

S:\10131\006_SouthDockRamp\MJB-VicinityMap



LEGEND

- PROPERTY LINE
- PROPOSED PROJECT BOUNDARY
- PROPOSED BOAT RAMP DREDGE AREA
- PROPOSED BOAT RAMP
- B-1 ● 1991 STUDY BORINGS
- RAMP-1 ○ PROPOSED TEST PITS

IMAGE COURTESY OF CITY OF ANACORTES 2003.

N

0 50 100

APPROXIMATE SCALE IN FEET

RAMP AREA SAMPLE LOCATIONS
MJB Properties
Anacortes, Washington

By: APS	Date: 11/24/09	Project No. 10131
AMEC Geomatrix		Figure 2

Plot Date: 11/24/09 - 2:57pm, Plotted by: adam.stenberg
Drawing Path: S:\10131\006_SouthDockRamp\, Drawing Name: MJB-SouthDockRamp_SampleLocationsSiteMap_112409.dwg

Plot Date: 11/03/09 - 1:13pm, Plotted by: adam.stenberg
Drawing Path: S:\10131\006_SouthDockRamp\, Drawing Name: MJB-SouthDockRamp_SampleLocationsSiteMap_103009.dwg

IMAGE COURTESY OF CITY OF ANACORTES 2003.

LEGEND

PROPERTY LINE

PARCEL LINE

N

0 120 240

APPROXIMATE SCALE IN FEET

MJB SUB AREAS AND
OWNERSHIP OF ADJOINING AREAS
MJB Properties
Anacortes, Washington

By: APS	Date: 11/03/09	Project No. 10131
AMEC Geomatrix		Figure 3

APPENDIX A

Uplands Sampling and Analysis Plan

UPLANDS SAMPLING AND ANALYSIS PLAN
MJB RAMP AREA
ANACORTES, WASHINGTON

Submitted to:
MJB Properties, LLC

Submitted by:
AMEC Geomatrix, Inc., Seattle, Washington

December 2009

Project 10131.000

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UPLANDS SAMPLING AND ANALYSIS PLAN
MJB Ramp Area
Anacortes, Washington

1.0 INTRODUCTION

AMEC Geomatrix, Inc. (AMEC), prepared this Uplands Sampling and Analysis Plan (SAP) on behalf of MJB Properties, LLC (MJB), the current owner of the area proposed for a future ramp and pier structure (site). This document presents the proposed sampling methodology for conducting soil investigation sampling in the vicinity of the site located at the intersection of 27th Street and T Avenue on the western shore of Fidalgo Bay in Anacortes, Washington.

1.1 BACKGROUND

The purposes of this SAP, a companion document to the work plan, are two-fold: 1) to characterize the soils for disposal that are within the footprint of a proposed boat ramp and supporting structures and utility corridors and 2) to demonstrate compliance with MTCA cleanup levels that are appropriate for this site. Approximately 4,200 cubic yards (cy) of soil above the mean higher high water (MHHW) mark will require excavation to accommodate the construction project. The sampling results will provide the basis for a disposal plan for soils that are expected to be excavated. The soils that are deeper than the planned excavation, or just outside of the excavation, which are proposed to be left in place, will be characterized for potential hazardous substances. Construction of the proposed boat ramp is scheduled to begin in June 2010 under the Joint Aquatic Resources Permit Application reference number NWS-2008-604-NO.

1.2 OBJECTIVES AND SCOPE

The objectives of the work to be performed under this SAP are to:

- Collect soil samples to chemically profile soils for disposal (or reuse as appropriate based on chemistry)that are within the volume to be removed as part of the ramp construction project; and
- Collect soil samples from below the planned excavation depth for evaluation of potential historical contamination, and if present, provide a later plan to evaluate the nature and extent of the contamination.

The following field tasks will be performed to gather the necessary data to meet these objectives:

- Dig 7 test pits within the footprint of the upland portion of the future ramp construction area;

- Lithologically log the soils observed in the test pits for soil type, color, grain size, and signs of debris or potentially hazardous substances;
- Screen soil samples from with photoionization detector (PID), and use visual and olfactory observations;
- Collect two soil samples from each of 5 soil sampling locations; one above and one below the planned ramp construction depth;
- Survey the elevation and horizontal locations of the testpits; and
- Document the activities and results and submit them to the Washington State Department of Ecology (Ecology).

This SAP outlines how these tasks will be performed. Approximate sampling locations are shown on Figure A-1.

1.3 ORGANIZATION

The names of the sampling contractor and the analytical laboratory are provided below:

Sampling Contractor:
AMEC Geomatrix
600 University Street, Suite 1020
Seattle, Washington 98101
Contact: Ms. Kathleen Goodman
Phone: (206) 342-1760

Data Validation Contractor:
AMEC Geomatrix
600 University Street, Suite 1020
Seattle, Washington 98101
Contact – Ms. Crystal Neirby
Phone: (206) 342-1760

Analytical Laboratory for Soil and Groundwater Sampling:
OnSite Environmental Inc.
14648 NE 95th Street
Redmond, Washington 98052
Contact: Mr. David Baumeister
Phone: (425) 883-3881

Ecology's Contact for Sampling Coordination:
Panjini Balaragu
Site Manager
Washington State Department of Ecology
Toxics Cleanup Program
P.O. Box 47600
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Phone: 360-407-6161
email: pbal461@ecy.wa.gov

1.4 HEALTH AND SAFETY

The proposed field activities will be conducted in accordance with a Site-Specific Health and Safety Plan (HASP) to be prepared for the start of the field work.

2.0 SOIL INVESTIGATION

This section describes the methods that will be used to collect and analyze soil samples as part of the ramp investigation. There is no known contamination in the ramp area; however, the area has had a history of industrial use. Table A-1 summarizes the field activities to be conducted and samples to be collected.

Depending on the sample depth, soil samples will be collected using an excavator to reach the desired sample depth. Except for samples to be analyzed for VOCs, soil samples will be collected using stainless steel spoons and homogenized in a stainless steel bowl. Following homogenization the material will be placed into precleaned glass jars supplied by the analytical laboratory. All sampling equipment will be properly decontaminated between each confirmation sample location, as discussed in Section 3.0.

Samples will be analyzed in accordance with the methods described in the Table A-2.

2.1 SITE PREPARATION

Prior to the commencement of digging, the following procedures will be followed for site preparation.

- Inspect each potential drilling location in the field for potential access problems (e.g., overhead obstructions or hazards, excessive slopes, soft ground, on-site materials or equipment obstructing access, etc.).
- Clear each drilling location of any brush or debris that may be present.
- Remove any equipment or materials that may be stored in the immediate vicinity of the drilling location.
- Mark the ground locations of the proposed drilling sites.
- Contract an independent service (and if necessary government agencies) to locate underground utilities in the vicinity of each proposed drilling location. Based on the outcome of the search for underground obstructions, it may be necessary to modify the location of one or more proposed drilling sites.

After the locations of test pits have been finalized, and any required permits have been obtained, AMEC will begin final site preparations. The following steps will be included.

- Mark the final digging locations on the ground.
- Set up receptacles for temporary storage of investigation-derived waste (IDW).

2.2 FIELD SAMPLING TECHNIQUES

Figure A-1 shows the proposed sample locations at the site. Soil samples will be collected from five soil sample locations that were selected based on the current draft plan map for construction-related excavation and future ramp layout as depicted on Figure A-1.

The majority of the samples will be shallow samples collected from depths above 10 feet below ground surface (bgs as shown on Table A-1 and Figure A-1). Sample collection will proceed as follows.

- An excavator will be used to perform soil sampling to the maximum desired depth at each soil sample location. The excavating and soil sampling will be supervised by a geologist licensed in Washington State.
- For each sample (except for volatile analyses), a portion of soil will be collected from the designated sample depth interval and placed into a stainless steel bowl for homogenization prior to being placed into a labeled, precleaned sample jar. Each sample jar will be sealed and retained on ice until transported to the contract laboratory.
- If the dense clay layer is encountered at a sample location, a sample will be collected immediately above that layer.
- If the soil from the excavation appears to contain ash (i.e., fly or bottom ash), then additional jars will be filled for a potential dioxin and furan analysis, upon further consultation with the Ecology's sampling coordinator.
- The sampling equipment will be decontaminated between each sampling location using the decontamination procedures outlined in Section 3.0.
- AMEC's project geologist will be responsible for noting any changes in sampling methods caused by sampling difficulties and for ensuring that field observations, sample locations, and lithologic logs of each testpit are properly recorded in the field logbook and on individual field logs.

The sampling equipment will be cleaned prior to conducting test pits at the site and decontaminated before sampling begins at each sample location. A global positioning system (GPS) unit will be used to log the approximate coordinates of the sample locations and any locations where buried waste is identified. The margin of error will be 2 to 3 feet using Coast Guard radio beacon correction.

The soil samples will be delivered to OnSite Environmental Inc.'s (OnSite) laboratory in Redmond, Washington, for analysis. Standard procedures will be followed using chain-of-custody (COC) forms for all samples sent to the laboratory.

2.3 SOIL LITHOLOGIC LOGGING

All test pits will be logged continuously by a field geologist to the total depth. The lithologic log for each test pit will be based on visual observation and description of the corresponding soil samples in accordance with American Society for Testing and Materials (ASTM D2488). Each sample lithologic description will contain the following information:

- Boring identifier;
- Sample depth interval, in feet bgs;
- Color (based on Munsell® color chart);
- Signs of weathering (e.g., rust-colored stains or coatings);
- Texture (particle size, angularity/roundness, and degree of sorting);
- Soil type, based on the Unified Soil Classification System (USCS) (ASTM D2487-98);
- Estimated moisture content (qualitative);
- Organic matter (e.g., plant detritus, woody or fibrous vegetative matter, shell fragments), if any;
- PID reading;
- Noticeable odor, if any; and
- Sheen test results and observations regarding heaviness of the sheen or free product.

2.4 SURVEYING

The horizontal position of all soil and groundwater sample locations will be surveyed following the sampling events by a professional surveyor or recorded using a high-accuracy GPS unit. Survey data will be based on the horizontal Washington State Plane North American Datum of 1988 (NAD88) coordinate system that will be compatible with Environmental Information Management (EIM) submission requirements. The survey shall use such practices that result in horizontal errors no greater than 0.10 feet.

2.5 SAMPLE LABELING AND CHAIN-OF-CUSTODY

A sample label will be affixed to each soil sample container. Each label will include:

- sample number;
- sampling event location;

- date and time of sample collection;
- sample name;
- preservatives added to the sample; and
- parameter(s) for which the sample is to be analyzed.

After sampling is completed for the day, all samples will be packed for shipping and placed in iced transport containers. The transport containers will consist of sturdy, insulated, commercially produced coolers. All bottle caps will be secured tightly. All glass containers will be placed securely into position within the shipping container to avoid breakage. The COC form will be taped to the inside lid of the cooler or shipping container, unless the container is hand-delivered to the analytical laboratory.

During sample collection or at the end of each day and prior to shipping or storage, COC forms will be completed for all samples collected by AMEC. The COC form should include information such as sample names, sample times, sample dates, the type of media, and the analyses requested. Any necessary changes to COC forms, sample container labels, or the field log book will be made by striking out the error with one line, initialing and dating the error, and reentering the correct information. Samples with extra volume for laboratory quality control procedures (matrix spike/matrix spike duplicate [MS/MSD] and laboratory duplicates) will be designated as such on the COC form. The field team will ensure that analyte method numbers and analyte lists required for the project are listed on, attached to, or referred to on the COC form. Every person who takes possession of the samples while transporting the samples from the field to the laboratory must sign the COC form.

AMEC personnel will transport the samples to the laboratory at the end of the sampling day. Upon receipt of the sample transport containers by the analytical laboratory, laboratory personnel will open the containers and examine the contents for problems such as damaged transport containers, broken custody seals, missing or broken sample bottles, COC discrepancies, and documentation errors. Problems will be reported immediately to AMEC. After the samples are analyzed by the analytical laboratory, laboratory personnel will store the samples in a secure location at the laboratory for the remainder of their holding times.

2.6 ANALYSIS OF IMPORT MATERIALS

Approximately 700 cy of gravel will need to be imported for the ramp construction project. Some of the gravel will be used as surface material on the driveway and parking area, and some of the gravel will be used as subbase for the concrete portion of the ramp structure. The prospective borrow pits in the region will be requested to provide analytical laboratory information on the average concentrations of metals in the materials required for the

construction project. If available, borrow pit chemistry information may be obtained from other sources, such as the Port of Anacortes. If there is a candidate borrow pit that has no chemical information, representative materials will be collected from the pit prior to the construction project and analyzed for metals as shown in Table A-1. In the event that a prospective borrow pit needs to the sampled, field sampling procedures, labeling and COC procedures will be followed as outlined in 2.2 and 2.5, where appropriate.

3.0 DECONTAMINATION

Decontamination is performed as a quality assurance measure and a safety precaution to prevent cross-contamination between samples and to maintain a clean working environment. The purpose of decontamination is to remove contaminated materials clinging to gloves, boots, equipment, and sample containers prior to their removal from the work area. Decontamination also includes the removal and disposal of contaminated clothing and gloves.

Decontamination is achieved mainly by rinsing with soap or detergent solutions, tap water, and deionized water. Equipment will be allowed to air dry after being cleaned. Decontamination will be accomplished between each sample collection station and/or depth.

The following is a list of supplies needed to decontaminate equipment and personnel:

- Clean gloves: inner and outer;
- Cleaning liquids and dispensers: soap and/or a powdered detergent solution such as Alconox, tap water, and deionized water;
- Waste storage containers: drums, boxes, and plastic bags;
- Plastic ground cover;
- Chemical-free paper towels;
- Cleaning containers: plastic or stainless steel buckets and pans; and
- Cleaning brushes.

3.1 SAMPLING EQUIPMENT

At a minimum, sampling equipment will be decontaminated prior to initial use and between sampling stations. Sampling equipment (i.e., spoons, bowls) decontaminated prior to field use will be wrapped in aluminum foil and stored in a sealed plastic bag to prevent contamination. Decontamination procedures will include washing and scrubbing with an Alconox soap solution, rinsing with tap water, rinsing with distilled water, and air drying. If heavy, oily substances are found on sampling equipment, Simple Green, dilute acids, or acetone will be used to clean the equipment. Cross-contamination will be minimized by sequencing sampling events from areas expected to have lower concentrations of suspected contaminants to areas suspected of relatively higher concentrations.

3.2 PERSONNEL

The investigation will be conducted under Level D protection (disposable coveralls, steel-toe boots, hard hat, and protective gloves). Currently, there is no known contamination within the

investigation area; however, if the excavation encounters unusual or unexpected materials, the field personnel may upgrade to full Level C protective equipment (Level D plus respirator). Decontamination procedures will be established within the HASP.

3.3 HEAVY EQUIPMENT

Contractors will be required to bring decontaminated equipment to the site. It is the responsibility of the site geologist/engineer to ensure that all heavy equipment (e.g., excavator) removed from the work area is properly decontaminated. An equipment decontamination area will be designated. Most heavy equipment (e.g., excavator) will be decontaminated by brushing, scraping, and hot water pressure washing as necessary.

4.0 ANALYTICAL PROCEDURES

The analyses and applicable methods to be performed on all samples, including quality assurance samples to be collected, are described in the work plan and Table A-2.

5.0 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

The sampling methods described in this SAP will generate IDW that may include soil and decontamination water. Based on site history, potential contaminants in IDW may include petroleum hydrocarbons and metals. All IDW generated by field investigations will be properly handled and disposed of according to local, state, and federal laws.

TABLES

TABLE A-1

SOIL SAMPLE LOCATIONS, DEPTHS, AND ANALYTES

MJB Properties Future Ramp Area
Anacortes, Washington

Proposed Sample Name	Planned Construction Excavation Depth (feet bgs)	Sample Medium	Soil Sample Depth Interval (feet bgs)	Metals[1]	TPH-Dx[2]	SVOCs[3]	TCLP Metals[4]	VOC[5]	PCDD PCDF[6]
Ramp-1s	3	Soil	1 to 3	X	X	X	As needed	As needed	
Ramp-1d	3	Soil	3 to 5	X	X	X	As needed	As needed	
Ramp-2s	5	Soil	2 to 4	X	X	X	As needed	As needed	
Ramp-2d	5	Soil	6 to 8	X	X	X	As needed	As needed	
Ramp-3s	8	Soil	4 to 6	X	X	X	As needed	As needed	
Ramp-3d	8	Soil	8 to 10	X	X	X	As needed	As needed	
Ramp-4s	4	Soil	2 to 4	X	X	X	As needed	As needed	
Ramp-4d	4	Soil	4 to 6	X	X	X	As needed	As needed	
Ramp-5s	4	Soil	2 to 4	X	X	X	As needed	As needed	
Ramp-5d	4	Soil	4 to 6	X	X	X	As needed	As needed	
Ramp-6s	3	Soil	1 to 3	X	X	X	As needed	As needed	
Ramp-6d	3	Soil	3 to 5	X	X	X	As needed	As needed	
Ramp-7	0	Soil	1 to 3	X	X	X	As needed	As needed	X
Duplicate	randomly selected	Soil		X	X				
Possible Import		Sand/gravel		X					

Notes

1. Metals: RCRA 8 metals: arsenic, barium, cadmium, chromium (not speciated), lead, mercury, selenium and silver; plus copper, nickel and zinc using element specific EPA Methods
2. TPH-Dx: total petroleum hydrocarbons in the diesel extended range (which includes diesel and oil) by NWTPH-Dx.
3. SVOCs: semivolatile organic compounds using EPA Method 8270D/SIM.
4. Metals (TCLP): analysis for selected metals by Toxicity Characteristic Leaching Procedure for exceedances of 20 times dangerous waste criteria.
5. VOC: Volatile Organic Compounds using EPA Method 8260B with 5035 sample collection.
6. PCDD/PCDF: polychlorodibenzo-p-dioxin and polychlorodibenzofurans using modified EPA Method 8290; Ramp-7 and any ash samples will be analyzed

Abbreviations

bgs = below ground surface

TABLE A-2

SOIL ANALYSIS LIST, METHODS AND REPORTING LIMITS

MJB Properties Future Ramp Area
Anacortes, Washington

Analyte	Analytical Method[1]	Reporting Limit (mg/kg)[2]	Sample Container	Preservation Temperature	Holding Time
Benzo(a)anthracene	EPA 8270	0.033	8 oz. wide-mouth glass jar	4°C	14 days
Benzo(a)pyrene	EPA 8270	0.033	8 oz. wide-mouth glass jar	4°C	14 days
Benzo(b)fluoranthene	EPA 8270	0.033	8 oz. wide-mouth glass jar	4°C	14 days
Benzo(k)fluoranthene	EPA 8270	0.033	8 oz. wide-mouth glass jar	4°C	14 days
Chrysene	EPA 8270	0.033	8 oz. wide-mouth glass jar	4°C	14 days
Dibenzo(a,h)anthracene	EPA 8270	0.033	8 oz. wide-mouth glass jar	4°C	14 days
Indeno(1,2,3-cd)pyrene	EPA 8270	0.033	8 oz. wide-mouth glass jar	4°C	14 days
TPH - diesel	Ecology NWTPH-Dx	25	4 oz. wide-mouth glass jar	4°C	14 days
TPH - motor oil	Ecology NWTPH-Mo	50	4 oz. wide-mouth glass jar	4°C	14 days
Arsenic	EPA 6010B	10	4 oz. wide-mouth glass jar	4°C	6 months
Barium	EPA 6010B	2.5	4 oz. wide-mouth glass jar	4°C	6 months
Cadmium	EPA 6010B	0.5	4 oz. wide-mouth glass jar	4°C	6 months
Chromium	EPA 6010B	0.5	4 oz. wide-mouth glass jar	4°C	6 months
Chromium (VI)[3]	SM3500 Cr-D[5]	1	4 oz. wide-mouth glass jar	4°C	28 days
Copper	EPA 200.7/6010	0.5	4 oz. wide-mouth glass jar	4°C	6 months
Lead	EPA 7421	5	4 oz. wide-mouth glass jar	4°C	6 months
Mercury	EPA 7471A	0.025	8 oz. wide-mouth glass jar	4°C	analysis: 28 days
Nickel	EPA 200.7/6010	2.5	4 oz. wide-mouth glass jar	4°C	6 months
Selenium	EPA 6020	0.78	4 oz. wide-mouth glass jar	4°C	6 months
Silver	EPA 6020	0.61	4 oz. wide-mouth glass jar	4°C	6 months
Zinc	EPA 200.7/6010	2.5	4 oz. wide-mouth glass jar	4°C	6 months
Semivolatile Organic Compounds	EPA 8270	varies	8 oz. wide-mouth glass jar	4°C	14 days

TABLE A-2

SOIL ANALYSIS LIST, METHODS AND REPORTING LIMITS

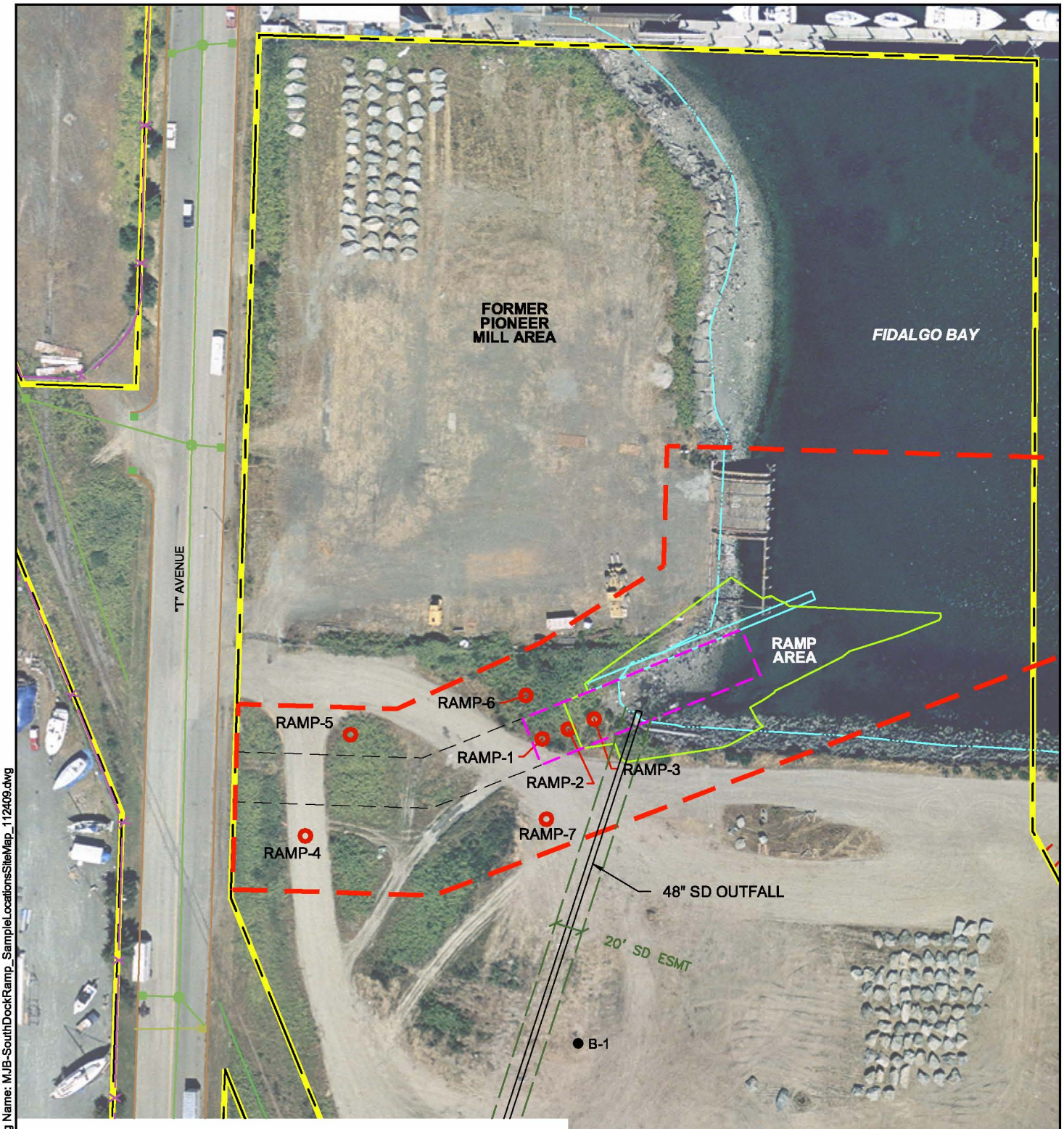
MJB Properties Future Ramp Area
Anacortes, Washington

Analyte	Analytical Method[1]	Reporting Limit (mg/kg)[2]	Sample Container	Preservation Temperature	Holding Time
Phenols	EPA 8270D	0.033	4 oz. wide-mouth glass jar	4°C	14 days
Dioxins and Furans	EPA 8290A	varies - TCDD 1 ng/kg[5]	4 oz. wide-mouth glass jar	4°C	30 days

Notes

1. Method numbers refer to EPA SW-846 or other EPA-approved analytical methods; Washington State Department of Ecology analytical methods; or as noted.
2. Reporting limits based on wet weight and will be slightly higher on a dry weight basis, including matrix interference; mg/kg = milligrams per kilogram or parts per million.
3. Samples that contain concentrations of chromium above MTCA Method A cleanup levels may be analyzed for hexavalent chromium, as determined by the task manager.
4. Standard Methods for Examination of Water and Wastewater.
5. ng/kg = nanograms per kilogram or parts per trillion

FIGURES



LEGEND

- PROPERTY LINE
- PROPOSED PROJECT BOUNDARY
- PROPOSED BOAT RAMP DREDGE AREA
- PROPOSED BOAT RAMP
- B-1 ● 1991 STUDY BORINGS
- RAMP-1 ○ PROPOSED TEST PITS

IMAGE COURTESY OF CITY OF ANACORTES 2003.

N

0 50 100

APPROXIMATE SCALE IN FEET

RAMP AREA SAMPLE LOCATIONS
MJB Properties
Anacortes, Washington

By: APS	Date: 12/16/09	Project No. 10131
AMEC Geomatrix		Figure 1

Plot Date: 12/16/09 - 2:03pm, Plotted by: adam.stenberg
Drawing Path: S:\10131\006_SouthDockRamp\, Drawing Name: MJB-SouthDockRamp_SampleLocationsSiteMap_112409.dwg