CONSTRUCTION COMPLETION REPORT

FORMER HAMBLETON BROS. LOG YARD—REMEDIAL ACTION

MAUL FOSTER ALONGI

Prepared for
PORT OF CAMAS-WASHOUGAL
May 13, 2015
Project No. 0229.04.08

Prepared by
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FORMER HAMBLETON BROS. LOG YARD—REMEDIAL ACTION

The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

This digital seal certifies the signatory and document content.

Jacob Faust, PE
Project Engineer

Alan Hughes, LG
Senior Geologist

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BMP	best management practice
CAP	cleanup action plan
CESI	Clearwater Environmental Services, Inc.
CSBC	crushed surface base course
CUL	cleanup level
cy	cubic yards
Ecology	Washington State Department of Ecology
MFA	Maul Foster & Alongi, Inc.
MTCA	Model Toxics Control Act
Port	Port of Camas-Washougal
Site	Hambleton Bros. Log Yard
SWPPP	Stormwater Pollution Prevention Plan
WCRA	Willamette Cultural Resources Associates, Ltd.

1 INTRODUCTION

On behalf of the Port of Camas-Washougal (the Port), Maul Foster & Alongi, Inc. (MFA) has prepared this report describing the completion of the remedial action at the former Hambleton Bros. Log Yard (Site) located at 335 South A Street, Washougal, Washington (Washington State Department of Ecology [Ecology] Facility Site No. 4399598). The remedial action was completed in accordance with the cleanup action plan (CAP) finalized in May 2013 (Ecology, 2013). Engineering and design documents pertaining to implementation of the CAP were prepared in an engineering design report that was reviewed and approved by Ecology (MFA, 2014).

The remedial action was designed to meet the requirements of the Model Toxics Control Act (MTCA) (Revised Code of Washington 70.105D) and implementing regulations (Washington Administrative Code 173-340), as well as site-specific criteria established in the CAP. These criteria have been met by the completed work documented in this report.

The project consisted of:

- installation of temporary stormwater controls
- demolition of concrete rubble and asphalt
- decommissioning of existing stormwater inlets and associated piping, and three monitoring wells
- consolidation of impacted soils in a former log pond
- installation of a clean soil cap over former aggregate recycling and log pond areas
- investigation of possible buried electrical transformers
- implementation of institutional controls.

2 BACKGROUND

2.1 Site Description

The Site is located in sections 7, 12, and 13 of township 1 north and range 3 east, of the Willamette Meridian (see Figure 1). The Site is approximately 1,000 feet long (north-south) and 1,600 feet wide (east-west) and is zoned as Highway Commercial (CH). The Site is bordered by State Route 14 to the north and South Second Street to the west, with an undeveloped vacant lot to the east. The Columbia River borders the Site to the south. Adjoining properties to the west of Second Street are a commercial hotel and a vacant building slated for commercial use. Properties located north of State Route 14 are in mixed commercial, residential, and light industrial use.

2.2 Site History

Between approximately 1948 and 2010, the Site was occupied by a lumber mill. The lumber mill operations expanded over the years to occupy most of the Site. The Hambleton Lumber Company originally leased the land from the Port in 1953 and eventually bought the Site in the 1970s. The company operated in a niche market, with approximately 75 percent of the mill production in large-dimension green Douglas fir, hemlock, and spruce timbers. Historical lumber mill activities included log storage, sawmill, planer, lumber storage and shipping, and other operations ancillary to mill operations.

At one time, the Site contained an equipment mechanical shop, a chemical storage shed, a single-family residence, a mill, a debarker, and a planer building. Wood-treating activities were not conducted on the Site. The debarker burned to the ground in 2009. Because of poor economic conditions, the mill closed in 2010 and a portion of the Site was purchased by the Port in 2012 (see Site boundary on Figure 2). The portion of the Site purchased by the Port encompasses the areas where impacts are present above MTCA cleanup levels (CULs) as a result of former Hambleton Lumber Company operations. The other portion of the Site where impacts where not present above MTCA CULs was purchased by Killian Pacific.

There have been no structures on the Site since demolition of the lumber mill, shop, office, chemical storage shed, and planer building (see Figure 2). Demolition of these structures was generally completed in November 2011. Concrete foundations from the demolished structures remain. The Site is surfaced with asphalt and gravel; however, areas of the Site are covered in woody debris from log storage.

The Port entered into Agreed Order No. DE 9935 with Ecology to clean up the Site. During the period of public comment concerning the Agreed Order, a former Hambleton Lumber employee indicated that he had witnessed the burial of transformers on the Site in the vicinity of the aggregate recycling area (see Figure 2). The employee reported that a large hole was excavated (approximately 20 feet deep) and a string of transformers chained together were lowered into the hole and covered with soil. The geophysical site investigation (magnetic survey), which was completed on July 23, 2013, revealed several magnetic anomalies beneath the former aggregate recycling area (Figure 3).

The Port received a Remedial Action Grant from the State of Washington to complete the remedial action. The Port released a request for proposal and selected the low bidder to complete the remedial action. The construction contract was awarded on July 15, 2014, and construction began in August 2014. The remedial project was completed on November 4, 2014.

3 PROJECT TEAM AND CONSTRUCTION OVERSIGHT

The following presents the project organization:

- Regulator—Ecology; Scott Rose

- Owner—Port; David Ripp, Executive Director
- Engineer—MFA; Jacob Faust, PE
- Surveyor—KC Development; Cindy Halcumb, PLS
- Geotechnical Engineer—Apex Companies; Stuart Albright, PE
- Site Work Contractor—McDonald Excavating, Inc.
- Transformer Remediation Contractor—Clearwater Environmental Services, Inc. (CESI)
- Cultural Resource Oversight—Willamette Cultural Resources Associates, Ltd. (WCRA)

Construction oversight activities for the project included oversight of environmental and site work. Environmental oversight activities included the full-time oversight of excavation activities near magnetic anomaly areas. Environmental oversight also involved observation of excavation and determination of excavation extents near the magnetic anomaly areas as well as near the contaminated former underground storage tank area on the adjacent property. Environmental cataloging and documentation activities were also performed.

Cultural resource oversight was conducted during the excavation in transformer remediation areas. Refer to the cultural resource memorandum (Appendix A) for further details regarding cultural resource observation during the project.

Site work oversight was periodic in nature, conducted at the beginning and end of significant work tasks. Oversight included the confirmation of the contractor's conformance to the specifications, documentation of the geotechnical engineering requirements for compaction of fill, checks of erosion-control measures, and documentation of completed tasks.

4 REMEDIAL ACTION SUMMARY

4.1 Site Preparation and Layout

Before remedial actions began, best management practices (BMPs) were installed in order to contain impacted soils, reduce erosion during construction, and prevent surface runoff from leaving the Site. BMPs were implemented in accordance with the Construction Stormwater Pollution Prevention Plan (SWPPP). The SWPPP establishes BMPs to address the 13 elements concerning stormwater runoff. BMPs, established in the SWPPP include: silt fencing placed around the down-sloping portion of the perimeter of the Site along the top of riverbank, and a series of berms constructed as barriers between the Site, the adjacent Killian Pacific property, and the Columbia River. See Appendix B for photographs of the Site BMPs.

4.2 Demolition and Clearing

The design report includes these tasks: demolition, clearing and grubbing, stormwater system modifications, site grading, and monitoring well decommissioning.

Demolition for the project included the removal of existing asphalt pavement and remnants of existing concrete foundations. See Drawing AB-4 for project clearing limits. Some of the crushed concrete was stockpiled and used as a replacement for ballast material as a base layer in the former log pond. Asphalt material and the remaining concrete debris were crushed and hauled off site.

4.3 Dewater Former Log Pond

The former log pond dewatering was not necessary because of the nearly complete evaporation of all liquid in the pond before construction. Warm, dry weather provided ideal conditions for drying of the pond bottom. A small amount of liquid remained in the pond during construction; this was mixed into dry sediments and buried under the concrete base stabilization material.

Four pond sediment samples were collected before pond bottom preparation. Samples were analyzed for volatile organic compounds because of historical detections of methylene chloride. Volatile organic compounds were not detected at concentrations above the method reporting limits (refer to Appendix C) in any of the samples. Therefore, institutional controls for vapor intrusion is not necessary for the Site. Appendix D contains a data validation memorandum describing the quality and usability of these data.

4.4 Consolidate and Cap Impacted Materials in Log Pond

The primary task of the work was to prepare the former log pond for fill, then place and compact impacted soils in the former log pond, then install a clean soil cap over the consolidated materials in the former log pond. Photographs 18 through 29 (Appendix A) document the construction of the cap on site.

4.4.1 Prepare Former Log Pond Foundation

Preparation of the former log pond bottom was required to provide a stable base for consolidation of fill materials. Preparation included clearing and grubbing of vegetation and logs, rough grading, installation of synthetic geogrid material, installation of crushed concrete base stabilization material, and installation of crushed surface base course (CSBC). See Drawing AB-6 for constructed sections of former log pond fill.

Vegetation, including cattails, blackberry, shrubs, and small trees, was first removed from the pond. Vegetation was cut at ground level, and disposed of offsite. Care was taken to prevent mixing of pond sediments and soil with cleared vegetation. Several log remnants from mill operations were also removed from the pond and disposed of offsite.

Although dewatering was not required, a small amount of liquid remained in the pond during base preparation, causing softening of the sediment. The pond bottom was rough graded to provide a smooth surface for installation of the geogrid and stabilization material. Alliance BX 2020 geogrid material was placed across the bottom of the pond to prevent loss of base stabilization material into soft, underlying sediments. A minimum 6-inch overlap was maintained at seams and was verified before placement of base stabilization material.

A layer of crushed concrete from on-site demolition was placed directly on top of the geogrid as a base stabilization layer. Crushed concrete was used in place of imported ballast material to save the cost of importing materials as well as export and disposal of site demolition materials. The crushed concrete ranged in size from 6 to 24 inches in diameter and was installed to a depth of 18 inches to greater than 24 inches. A 6-inch lift of imported CSBC was then installed over the crushed concrete to fill voids before consolidation of site soils. The material was placed by an excavator and tracked in via a Komatsu D37 EX bulldozer. The geotechnical engineer approved the base section placement after observing a proof roll with a rolling, fully loaded, 10-yard dump truck. See the geotechnical field report (Appendix E) for further detail.

4.4.2 Consolidate Impacted and Inert Materials

Once the former log pond foundation was prepared, it was used to consolidate impacted Site soil and inert demolition materials (concrete, gravel). The former log pond had approximately 4,420 cubic yards (cy) of capacity available for consolidation of impacted soils and other debris suitable for structural fill. The following quantities were consolidated in the former log pond:

Table 1
Consolidated Materials Quantities and Sources

Impacted Stockpile No. 1	500 cy	On site
Stained soils from adjacent property	120 cy	Adjacent to site
Impacted soils adjacent to former log pond	825 cy	On site
Impacted soils in former aggregate recycling area	700 cy (top 2 feet)	On site
Crushed demolition debris, including concrete and gravel	765 cy	On site
Imported gravel material/filter layer	1,530 cy	Imported (Fisher Pit)

Impacted materials were excavated from locations on the Site and transported to the pond in standard dump trucks. Impacted soils were placed into the pond, spread to 12–inch lifts with a dozer, and compacted with three passes of a smooth drum roller, as directed by the geotechnical engineer. This compaction method produced handheld footing probe depths of less than 2 inches. Water was applied to each soil lift to reduce dust generation and aid in compaction. See the geotechnical report (Appendix E) for further detail.

Impacted soils were graded to a smooth, flat surface, ranging in elevation of 32.1 feet to 34.6 feet. The average elevation of contamination is 33.5 feet. Once all impacted Site soils had been fully placed and compacted, orange demarcation fabric was installed over the impacted soils as a separation barrier between impacted soils and the clean soil cap.

4.4.3 Cap Former Log Pond

The minimum 2-foot-thick, clean soil cap was installed over the impacted soils in the former log pond. Clean soil cap depth over contamination ranges from 2.0 feet to 5.2 feet. See Sheet AB-6 of the Record Drawings for cap profile information. Clean soil was taken from on-site stockpiles 2 and

3 and off-site stockpile 4, located on adjacent Port-owned property (Figure 2). Soil cap was placed in 12–inch, loose lifts and then compacted with three passes of a smooth drum roller as directed by the geotechnical engineer.

Materials with high organic content (bark chips, vegetation, root wads) or other undesirable properties, such as manmade debris, were removed from the fill soil and disposed of offsite. Clean cap soil from the off-site stockpile contained a significant number of large cobbles and boulders. Boulders and cobbles larger than 12 inches in diameter were removed from the soil before loading and placing the soil in the cap areas. The contractor removed as many smaller cobbles as feasible while installing the soil cap; however, some material up to 12inches in diameter remained in the cap and was buried below the ground surface. The final cap surface was constructed to blend into surrounding grades.

4.5 Cap Impacted Soils Adjacent to Log Pond

Impacted soils around the log pond were capped with a minimum 2-foot-thick, clean soil cap. The cap is underlain by a geotextile demarcation fabric to delineate the interface between clean and potentially impacted soils. One to 2 feet of the impacted soil was removed and consolidated in the log pond in order to reduce the amount of aboveground cap placement. The soil cap was constructed to blend smoothly with the former log pond area soil cap and surrounding grades to provide a more usable base surface for future construction and development. The cap material sources were the same as the cap material sources for the former log pond, as seen in Figure 2.

4.6 Cap Former Aggregate Recycling Area

The former aggregate recycling area was capped with a minimum 2-foot-thick, clean soil cap. Clean soil cap depth over contamination ranges from 2.0 feet to 2.7 feet. The cap is underlain by a demarcation fabric to delineate the interface between clean and potentially impacted soils. One to 2 feet of the impacted surface soil was removed and consolidated in the former log pond in order to reduce the amount of aboveground cap placement. The cap material sources were the same as the cap material sources for the former log pond, as seen in Figure 2.

4.7 Excavate Impacted Soils on Adjacent Property

The Site Work Contractor performed the remedial action task of excavation of stained soils on the adjacent Killian Pacific property (Figure 2). The soil was stained by petroleum hydrocarbons but analytical testing showed that the soil was below applicable MTCA CULs. Photographs showing excavation, stained soils, and backfilling are presented in Appendix A.

4.7.1 Excavation

Approximately 120 cy of stained soil on the Killian Pacific property was excavated with a track hoe excavator. The soil was consolidated in the former log pond. The dimensions of the excavation were 21 feet in the north/south dimension by 19 feet in the east/west dimension, with depths ranging

between 2 feet and 8.5 feet below ground surface (bgs). The excavation was advanced to remove visibly stained soil.

4.7.2 Backfill

The excavation pit was backfilled with soil from the clean on-site stockpiles. Soil was placed in the excavated area and compacted after the final lift, using three passes of a Komatsu D37 EX bulldozer. The soil was not compacted in lifts, as the excavation was inaccessible because of steep slopes. The final grade was placed to match the existing grade.

4.8 Remediation of Possible Buried Electrical Transformers

The remedial action included excavation of test pits to identify whether buried electrical transformers were present in the aggregate recycle area, and the subsequent removal and disposal of all vessels, liquid, and impacted soils as necessary. CESI conducted the investigation in August 2014, with oversight from MFA and WCRA. Photographs showing excavation, discovered metal objects, and backfilling are presented in Appendix A.

Based on the strong magnetic anomaly areas identified in the geophysical site investigation, the test pit locations were staked by KC Development, a surveying company licensed by the State of Washington. Three areas of concern were explored with a total of eight test pits.

4.8.1 Excavation

Test pits were excavated with a standard track hoe excavator. Because of the proximity of the proposed test pits, test pits B-1 and B-2 were merged to a single, larger excavation. Similarly test pit C-1 and C-2 were also merged due to their proximity. Excavated soils were stockpiled immediately adjacent to each test pit.

The project specifications required test pits to be advanced to a depth of 20 feet. As each test pit was excavated, native soils were encountered at depths between 5.5 to 8.5 feet bgs. Excavation was continued into the native soils a minimum of 5 feet before terminating the test pit. This resulted in test pit depths of 12 to 17 feet bgs, which is less than the original design. There was no evidence of soil disturbance (debris, stratification, nonhomogeneous materials) in the native soil that would indicate previous excavation or buried materials. Terminating the test pits shallower than the initially required 20 feet was verbally approved by Ecology site manager during the investigation.

The dimensions of the test pits varied, measuring between 4.5 to 7 feet wide, 12 to 16 feet long, and 12 to 19.5 feet deep (Figure 4). Fill material was present in the upper portion of all test pits, to a depth ranging from 5.5 to 8.5 feet bgs. All test pits encountered large metal debris (e.g., pipes, rail, bollards), at depths of 1 to 3 feet bgs, that would be indicated on a magnetic survey.

No electrical transformers or further evidence of buried electrical equipment was encountered in the test pits, and therefore removal and disposal was not necessary. Metal objects removed from the test pits were disposed of at an off-site recycling facility.

4.8.2 Backfill

Excavations were backfilled with the excavated soil. Soil backfill was placed and compacted in accordance with the project specifications and recommendations in the geotechnical report (Apex, 2014). Backfill was compacted with an excavator-mounted plate compactor at approximately 24-inch lifts. The final grade was placed to match the existing grade. Area B and Area C test pits were also covered with a clean soil cap, as described in Section 4.6.

5 MONITORING WELL DECOMMISSIONING

Specified monitoring wells (MW-3, MW-5, and MW-6) were decommissioned. Monitoring well MW-7 was protected and remains for compliance monitoring. Wells were abandoned, in accordance with the specifications (MFA, 2014), by removal of aboveground structures. The wells were then filled with grout and capped. See the Figure 2 for locations of decommissioned monitoring wells. Well decommissioning records are included in Appendix F.

5.1 Institutional controls

The following institutional controls will be implemented to manage and restrict future use of the Site:

- Groundwater Restriction—A restrictive covenant (see Appendix G) will be recorder with Clark County for the Site to prohibit the use of groundwater for potable purposes.
- Soil Management and Cap Maintenance Plan—A soil management and cap maintenance plan has been developed to outline procedures for maintaining the cap and for handling impacted soils during potential future excavation and site work. The soil management plan is included with this report (see Appendix H).
- Groundwater Monitoring—A groundwater monitoring plan is included with this report (see Appendix I). Groundwater monitoring will be conducted on an 18-month schedule following site cleanup until MTCA CULs are achieved.

6 FINAL INSPECTION

The final inspection of the remedial action work was completed on November 7, 2014. Work contracted for the project has been completed. While no work remains, there is ponding in an infiltration trench on site. The ponding does not appear to be a threat to the cap, but should be monitored visually to ensure that no design remedy for the ponding is needed before further development.

7 CERTIFICATION

The construction oversight and final inspection described in this report were performed by MFA on behalf of the Port for all activities related to the preparation of the former log pond, the removal and consolidation of contaminated soils, the capping of those soils, and investigation of potential buried electrical transformers. Based on the observations made during construction, it is the opinion of the Engineer that the Former Hambleton Log Yard Remedial Action was completed in accordance with standard trade practices, in compliance with the technical specifications, and in accordance with the design intent as approved by Ecology.

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

REFERENCES

Apex. 2014. Field report number 1: former Hambleton Brothers Log Yard. Prepared for the Port of Camas-Washougal. Apex Companies, LLC, Portland, Oregon. September 5.

Ecology. 2013. Cleanup action plan, Hambleton Bros Log Yard, Washougal, WA. Washington State Department of Ecology, Lacey, Washington. May.

MFA. 2014. Engineering design report site remediation plan: former Hambleton Brothers Log Yard. Prepared for the Port of Camas-Washougal. Maul Foster and Alongi, Inc., Vancouver, Washington. May 7.

FIGURES

Site Address: 335 South A Street, Washougal, Washington
Source: US Geological Survey (1990) 7.5-minute topographic quadrangle: Camas & Washougal
Section 12, Township 1 N, Range 3E

Note: Property boundary is approximate and based on legal description provided by KC Development (Sept. 10, 2012).

Legend

Property Boundary

Figure 1
Property Location

Port of Camas-Washougal
Washougal, Washington

0 1,000 2,000
Feet

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Figure 2
Site Features

Port of Camas-Washougal
Washougal, Washington

Legend

- Catch Basin (Decommissioned)
- Outfall
- Monitoring Well
- Monitoring Well (Decommissioned)
- Stockpile (with Number Identifier)
- Soil Management Area
- Fill
- Former Aggregate Recycling Area
- Site Boundary
- Property Boundary

Notes:
1. Site features were interpreted from aerial photography and gathered from Figures 2, 3, and 11 of the Initial Independent Cleanup Report and Risk Assessment by Certified Environmental Consulting, Inc. and Evren Northwest (October 16, 2009).
2. UST = Underground Storage Tank.
3. Property boundary is approximate and based on legal description provided by KC Development (Sept. 10, 2012).

0 75 150
Feet

Source: Aerial photograph (2014) obtained from Clark County GIS.

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Path: X:\0229.04\08 Remedial Action\Completion Report\Projects\Fig2 Site Features.mxd
Print Date: 2/11/2015
Approved By: ahughes
Produced By: apadilla
Project: 0229.04.08-04

Source: Aerial imagery (2014) obtained from Clark County GIS.

Notes:
1. Site boundary is approximate.
2. Magentic anomalies surveyed by Zonge International, Inc. (July 2013).

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Legend

- C — Magnetic Anomaly (with Letter Identifier)
- 2 — Stockpile (with Number Identifier)
- Former Aggregate Recycling Area
- Site Boundary

Figure 3
Magnetic Anomaly Locations

Port of Camas-Washougal
Washougal, Washington

0 35 70
Feet

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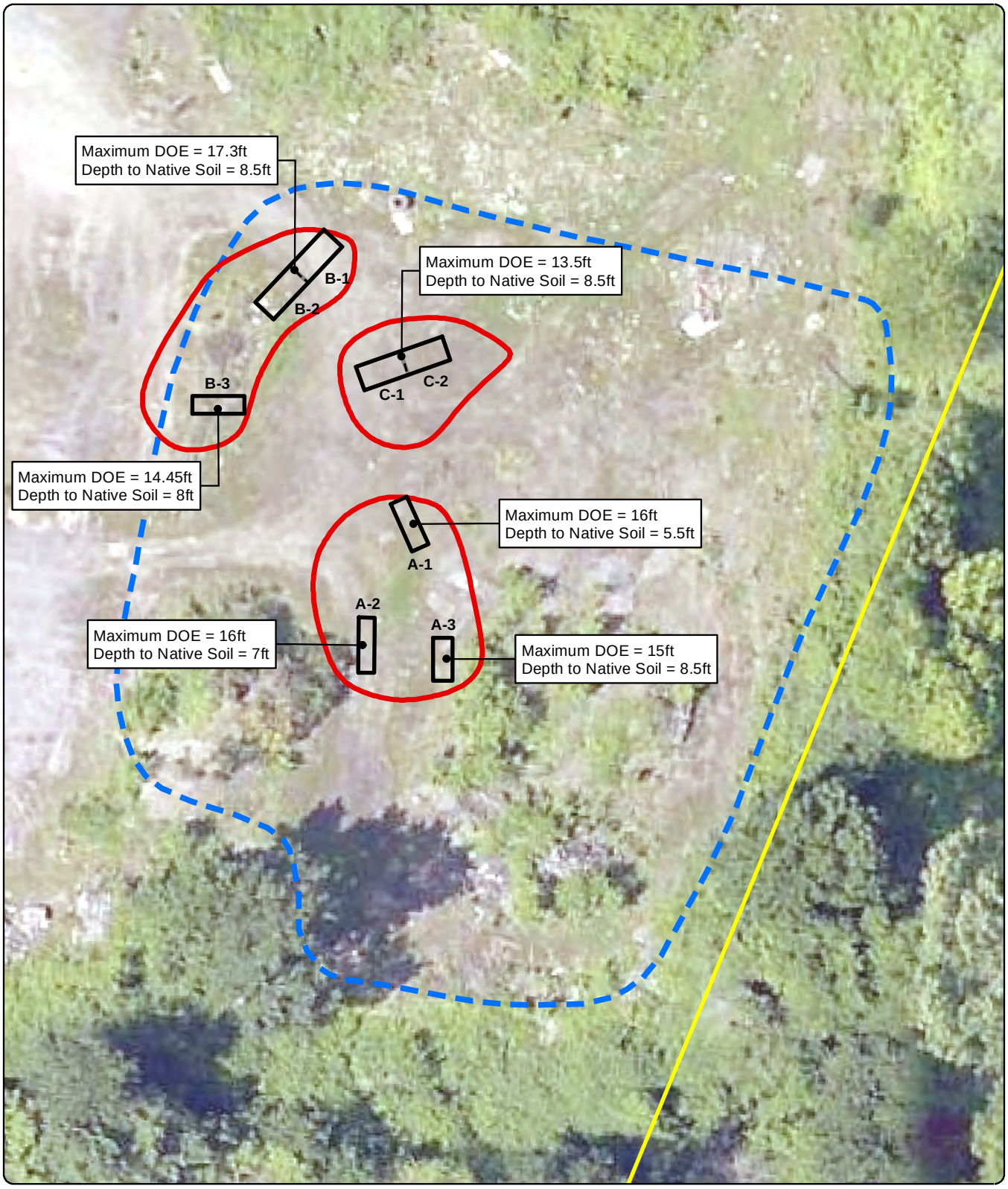
Print Date: 2/11/2015
Approved By: jfaust
Produced By: apadilla
Project: 0229.04.08-04



Source: Aerial imagery (2014) obtained from Clark County GIS.

Notes:
1. Site boundary is approximate.
2. Magentic anomalies surveyed by Zonge International, Inc. (July 2013).
3. DOE = depth of excavation.

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Legend

- TestPit
- Magnetic Anomaly
- Former Aggregate Recycling Area
- Site Boundary

Figure 4
Magnetic Anomaly Test Pits

Port of Camas-Washougal
Washougal, Washington

0 20 40
Feet

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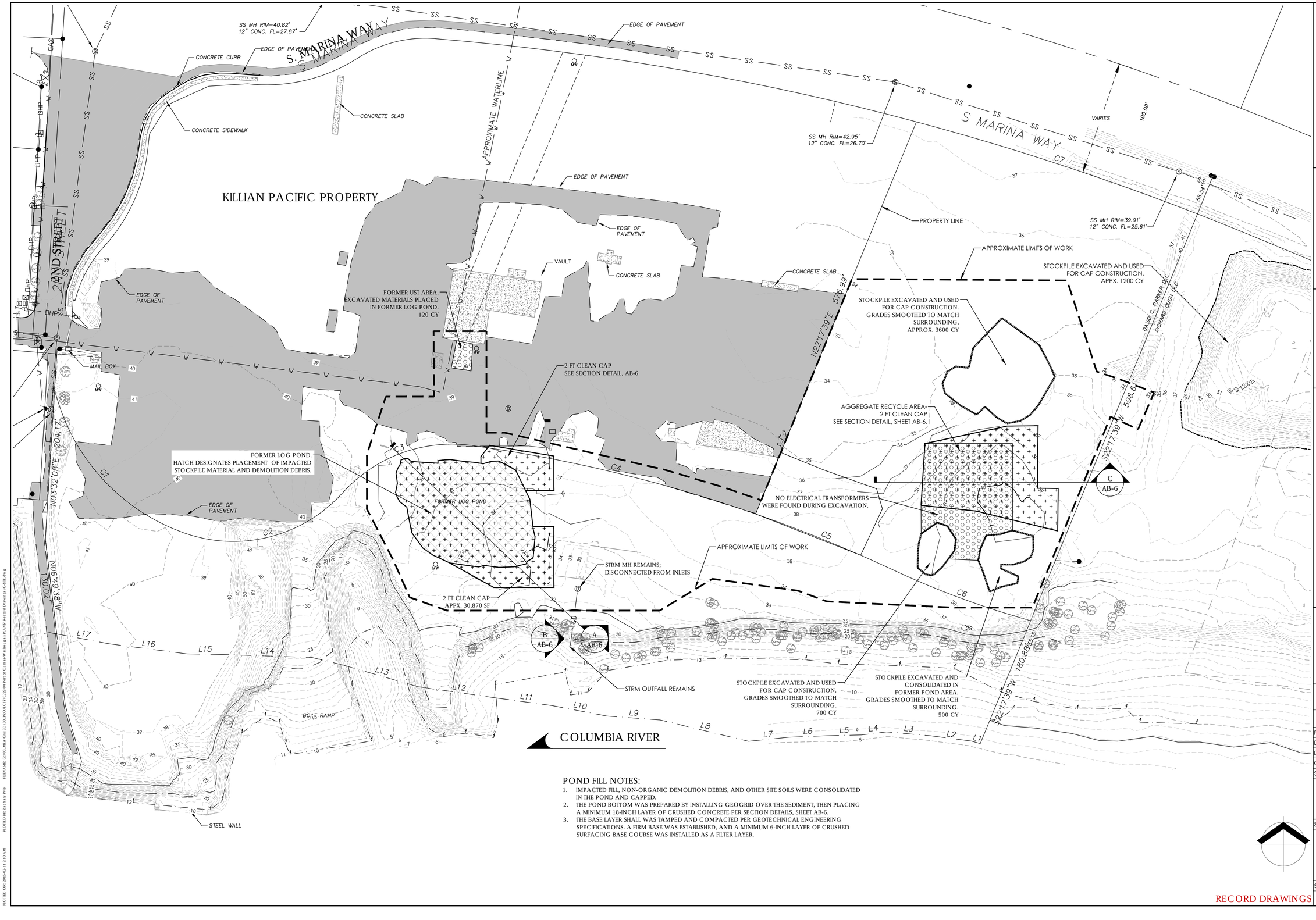
Print Date: 2/11/2015
Approved By: ehess
Produced By: apadilla
Project: 0229.04.08-03

RECORD DRAWINGS



POND FILL NOTES:

1. IMPACTED FILL, NON-ORGANIC DEMOLITION DEBRIS, AND OTHER SITE SOILS WERE CONSOLIDATED IN THE POND AND CAPPED.
2. THE POND BOTTOM WAS PREPARED BY INSTALLING GEOGRID OVER THE SEDIMENT, THEN PLACING A MINIMUM 18-INCH LAYER OF CRUSHED CONCRETE PER SECTION DETAILS, SHEET AB-6.
3. THE BASE LAYER SHALL WAS TAMPED AND COMPACTED PER GEOTECHNICAL ENGINEERING SPECIFICATIONS. A FIRM BASE WAS ESTABLISHED, AND A MINIMUM 6-INCH LAYER OF CRUSHED SURFACING BASE COURSE WAS INSTALLED AS A FILTER LAYER.

RECORD DRAWINGS

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FORMER HAMBLETON BROS. LOG YARD REMEDIAL ACTION RECORD DRAWINGS
PORT OF CAMAS-WASHOUGAL
WASHOUGAL, WASHINGTON

DESCRIPTION	DATE	ISSUE
RECORD DRAWINGS	12/31/2014	1
ISSUE FOR CONSTRUCTION	8/15/2014	1
ISSUE FOR BID	6/25/2014	1
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PROJECT: 0229.04.08
DESIGNED: J. FAUST
DRAWN: Z. PYLE
CHECKED: A. HUGHES

SCALE
0 60' 120
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
SITE PLAN

SHEET
AB-4

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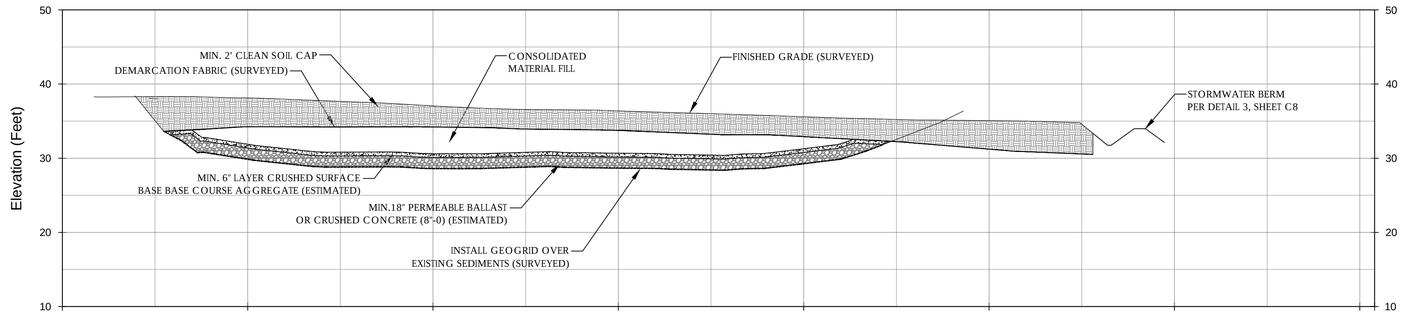

A / C5

POND AREA FILL, CAP, AND GRADING SECTION

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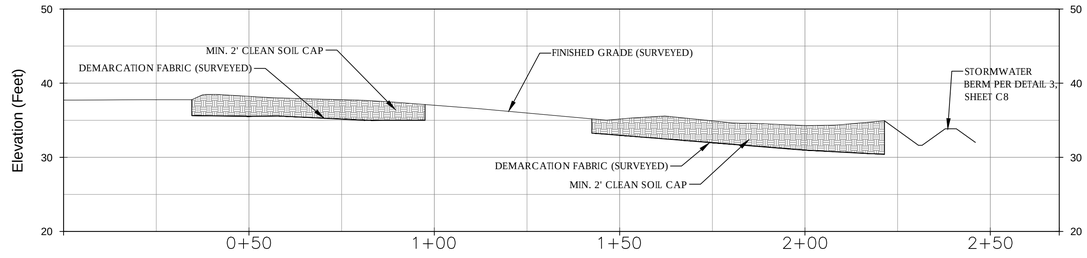
VERTICAL: 1" = 10'



B / C5

POND AREA CAP AND GRADING SECTION

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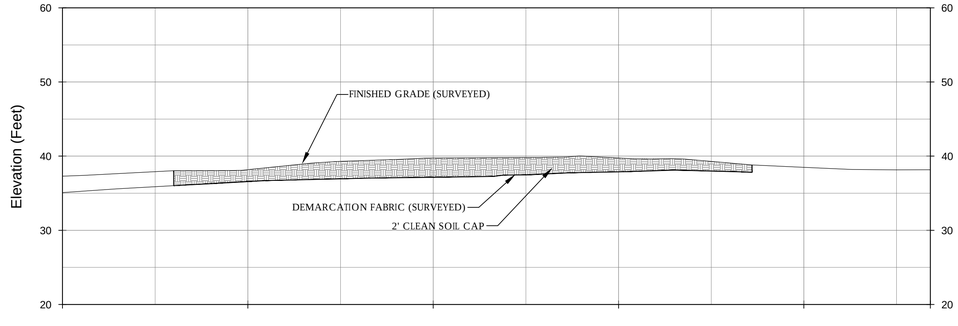
VERTICAL: 1" = 10'



C / C5

FORMER AGGREGATE RECYCLE AREA CAP SECTION

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 10'

RECORD DRAWINGS

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PORT OF CAMAS-WASHOUGAL

JACOB M. FAUST — STATE OF WASHINGTON — 51298 — REGISTERED PROFESSIONAL ENGINEER

FORMER HAMBLETON BROS. LOG YARD REMEDIAL ACTION RECORD DRAWINGS
PORT OF CAMAS-WASHOUGAL
WASHOUGAL, WASHINGTON

ISSUE	DATE	DESCRIPTION
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PROJECT: 0229.04.08
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DRAWN: J. FAUST
CHECKED: A. HUGHES
SCALE

SHEET TITLE

SECTIONS

SHEET

AB-6

PLOTTED ON: 2015-02-11 9:12 AM PLOTTED BY: Zachary Pyle FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0229.04 Port of Camas-Washougal\PIANS\Record Drawings\C-GRAD.dwg

APPENDIX A

CULTURAL RESOURCE MEMO

TECHNICAL MEMORANDUM

Archaeological Monitoring of Excavations at the Former Hambleton Brothers Log Yard
Washougal, Washington

Kanani Paraso, M.A., R.P.A

October 1, 2014

Introduction

The former Hambleton Brothers Log Yard consists of a portion of a lumber mill that operated from 1948 to 2010 in Washougal, Washington. The Hambleton Brothers Log Yard location is in Township 1 North, Range 3 East, Sections 12 and 13 and Township 1 North, Range 4 West, Section 7, Willamette Meridian (Figure 1). Operation of the facility led to deposits of hazardous substances (i.e., petroleum hydrocarbons, metals [lead and mercury], polychlorinated biphenyls, volatile organic compounds, and/or carcinogenic polycyclic aromatic hydrocarbons). In addition, there was the potential for buried electrical transformers in the southeast corner of the former log yard at depths up to 20 feet (ft.) below ground surface. The presence and extent of contamination related to the transformers was unknown.

The Port of Camas-Washougal (Port) acquired the property in 2011 and proposes to improve the site as a mixed-use public, commercial, and residential development. The Port has received a grant from the Washington Department of Ecology (Ecology) to complete remedial action at the site including locating and removing the potential buried electrical transformers and any contaminated soil surrounding the transformers. The Washington Department of Archaeology and Historic Preservation (DAHP) and Clark County classify the project location as a high probability area for archaeological resources. Excavation for the transformers would extend into native sediment where there is the potential for intact archaeological deposits. Maul Foster & Alongi, Inc. (MFA) and the Port contracted with Willamette Cultural Resources Associates, Ltd. (WillametteCRA) to monitor excavation for the electrical transformers.

WillametteCRA archaeologist Kanani Paraso, M.A., R.P.A., monitored the excavation on August 26-27, 2014. Ms. Paraso observed no evidence of archaeological material during the excavation. A summary of the monitoring activities is provided below.

Regulatory Contact

The proposed cleanup actions involve coordination with Ecology. The Washington DAHP has the lead responsibility for ensuring compliance with State Laws that protect archaeological resources and Indian graves in Washington (RCW 25-48, 27.44, 27-53, and 68.60). There is presently no federal involvement in the project.

Previous Archaeology

Three previous archaeological surveys have included all or portions of the former log yard (Reese 1999; Smits et al. 2008, 2011). No evidence of archaeological resources was identified in these surveys but the absence of native soil exposures and the relatively high frequency of archaeological sites in the vicinity suggested that buried archaeological resources could be present. Archaeological monitoring of test pits excavated in 2011 determined that at least three feet and as much as 15 feet of fill is present across the former log yard location and between 5.5 and 8 feet of fill is present in the vicinity of the buried electrical transformers (Smits et al. 2011:Table 1, Figure 2).

Two precontact archaeological resources–a lithic biface fragment (45CL670) and a lithic flake (45CL671)–were recorded along the Columbia River shoreline immediately southeast of the southeastern log yard corner in 2005 (McDaniel 2005). There are no known archaeological sites within the log yard.

Archaeological Investigations Northwest recorded the Hambleton Lumber Company property as an historic resource in 2007 (Smits et al. 2008). Washington DAHP determined the site not eligible for listing on the National Register of Historic Places (NRHP) in 2009.

Fieldwork

On August 26-27, 2014, WillametteCRA archaeologist Kanani Paraso, M.A., R.P.A., monitored excavation for the buried electrical transformers. The transformers were thought to be located in the southeast corner of the former log yard at depths up to 20 ft. below ground surface. Magnetic ground survey detected magnetic anomalies in eight locations that were grouped into three areas: A, B, and C (Figure 2).

Ms. Paraso monitored the excavation of eight test pits (Figure 3). Excavation for the transformers was completed with a mechanical excavator and digging bucket. The size and depths of the test pits varied, measuring between 4.5 to 7 ft. wide and 12 to 16 ft. long and were excavated to between 12 and 19.5 ft. deep (Table 1). Fill material was present in the upper portion of all the test pits and all test pits were excavated several feet into native soil. Fill material consisted of dark brown to black silt loam sediments, gravel, concrete, bricks, woody debris, and metal debris, including whole steel pipe bollards, wire mesh, and fire suppression equipment (Figure 4). Depths to native

Table 1. Summary of Test Pit Excavation.

Test Pit	Length by Width (ft.)	Maximum Depth of Excavation (ft.)	Depth to Native Sediment (ft.)
A-1	14.5 x 5	16	5.5
A-2	15.5 x 4.5	19.5	7
A-3	12 x 5.5	15	8.5
B-1	16 x 7	17.3	8.5
B-2	12 x 7	15.7	8.5
B-3	14.5 x 5	14.45	8
C-1	13.5 x 7	12	8.5
C-2	12 x 7	13.5	6

soil varied between 5.5 and 8.5 ft. below ground surface (Figure 5). Native sediment consisted of yellow brown, fine sandy silt loam, with some small-sized water worn pebbles and cobbles throughout. Large rounded boulders were encountered in the bottom portion of all the test pits within native soil (Figure 6).

Ms. Paraso monitored the excavation, observed sediment in the digging bucket and in the spoil pile, and from the top of the trench visually examined the trench walls for artifacts, features, and evidence of discontinuities in the stratigraphy which might be indicative of archaeological deposits. During the excavation, Ms. Paraso observed no archaeological material or evidence of intact archaeological deposits. Nor did the excavations produce any evidence of buried electrical transformers.

Conclusions and Recommendations

At the request of MFA and the Port, WillametteCRA has completed archaeological monitoring of excavations at the former Hambleton Brothers Log Yard, Washougal, Washington. The excavations were undertaken to locate potential buried electrical transformers from an area that the Washington DAHP and Clark County identify as having a high probability for archaeological resources. There are presently no known archaeological sites within the project area, but the relatively high frequency of sites in the vicinity suggests that buried archaeological resources could be present. The nearest known sites are immediately to the southeast along the Columbia River shoreline.

WillametteCRA provided archaeological monitoring for the excavation of eight test pits. All of the test pits contained between 5.5 and 8.5 ft. of fill material overlying native sediment. No archaeological resources were identified and no evidence of intact archaeological deposits was observed during monitoring. None of the eight test pits produced any evidence of electrical transformers and the excavations have been completed.

Should unanticipated archaeological resources be encountered during future activities at this location, all ground-disturbing activity in the vicinity of the find should be halted and the Washington DAHP notified immediately. Pursuant to RCW 27.44.055 and 68.60.055, in the event that evidence of human skeletal remains is encountered during future work, all ground-disturbing activity in the vicinity of the discovery should be halted immediately, and the Clark County Coroner and the Clark County Sheriff's Department immediately notified. All activity must cease that may cause further disturbance to those remains and the area of the find must be secured and protected from further disturbance and exposure to rain, wind, etc. The remains should not be touched, moved, or further disturbed.

The County Coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the County Coroner determines the remains are non-forensic, then they will report that finding to the DAHP, who will then take jurisdiction over those remains and report them to the appropriate cemeteries and affected Tribes. The State Physical Anthropologist will make a determination of whether the remains are Indian or non-Indian and report that finding to the affected parties. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

References Cited

McDaniel, Sarah
2005 *Cultural Resources Survey Report for the Port of Camas/Washougal Proposed Boat Launching Facility Clark County, Washington*. URS Corporation, Portland, Oregon. Submitted to the Port of Camas/Washougal, Washougal, Washington.

Reese, Jo
1999 *Gravel Loading Facility, Washington.* Archaeological Investigations Northwest, Inc. Letter Report No. 287. Submitted to Coyote Springs Sand & Gravel, Portland, Oregon.

Smits, Nicholas, Judith Chapman, Elizabeth J. O'Brien, and Jo Reese
2008 *Cultural Resource Survey for the SR 14 Camas-Washougal Add Lanes and Build Interchange, Clark County, Washington*. Archaeological Investigations Northwest, Inc. Report No. 2033. Submitted to Skillings Connolly, Inc., Olympia, Washington and Washington Department of Transportation Southwest Region, Vancouver, Washington.

Smits, Nicholas, Michele L. Punke, and Jo Reese
2011 *Cultural Resource Reconnaissance For The Port Of Camas-Washougal's Waterfront Brownfield Integrated Plan Clark County, Washington*. Archaeological Investigations Northwest, Inc. Letter Report No. 287. Submitted to Maul Foster & Alongi, Inc., Vancouver, Washington and Port of Camas-Washougal, Washougal, Washington.

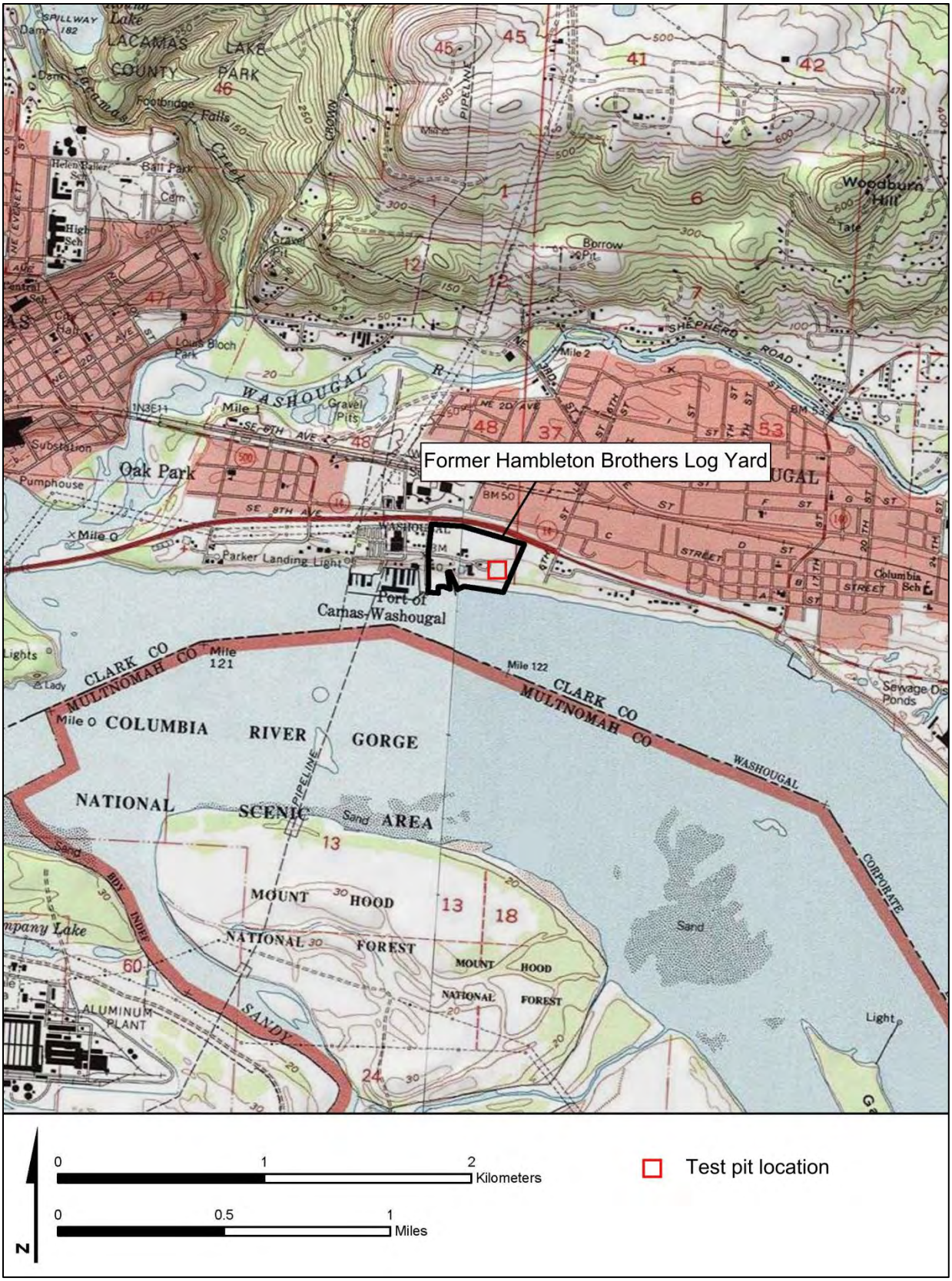


Figure 1. Project area location.

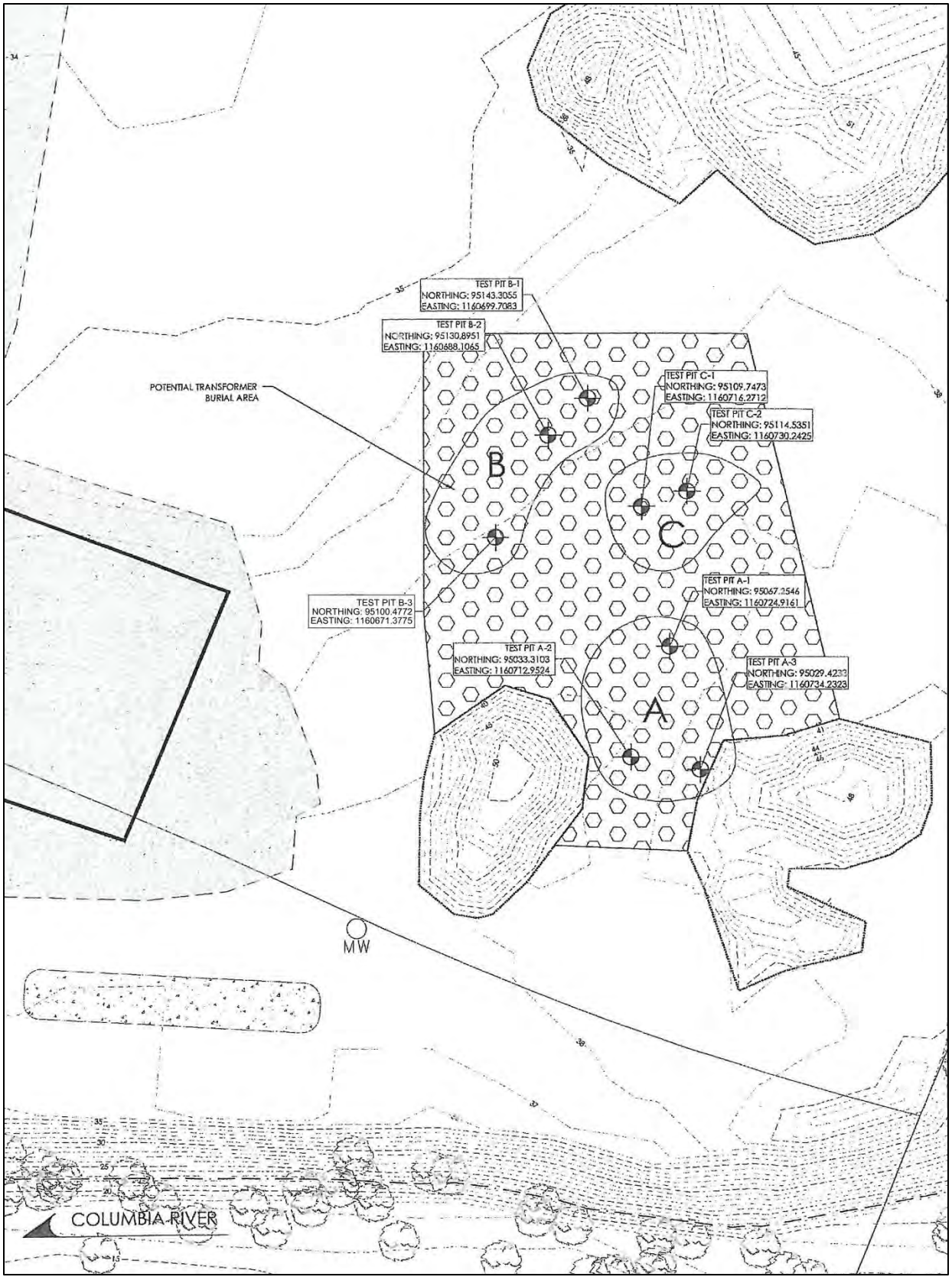


Figure 2. Close-up of areas A, B, and C and the test pit locations (map provided by MFA).

Figure 3. Project area overview, view to north. A-1 in progress, A-2 on left and A-3 on right.

Figure 4. Steel bollard within fill deposits in C-1, view to southeast.

Figure 5. C-2 in progress, fill deposits and top of native sediment visible in trench wall and base of excavation. View to northeast.

Figure 6. Example of large boulders excavated from native sediment, view to northeast.

APPENDIX B

PHOTOGRAPHS

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 1

Date
August 26, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking south, site overview with stakes marking test pit locations for Group A and Group C anomalies

Photograph 2

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking north, metal removed from TP-A1

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 3

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking south, metal removed from TP-A2

Photograph 4

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking north, metal removed from TP-A2

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 5

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking northeast, metal removed from TP-A3

Photograph 6

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Metal removed from TP-B1

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 7

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Metal removed from TP-B2

Photograph 8

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking south, metal removed from TP-B3

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 9

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking east, metal in TP-C1

Photograph 10

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking east, metal removed from TP-C1

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 11

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking west, metal removed from TP-C1

Photograph 12

Date
August 27, 2014

Remedial Action
Potential Electrical Transformers

Description
Looking northwest, metal removed from TP-C2

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 13

Date
September 5, 2014

Remedial Action
Adjacent Soil Excavation

Description
Looking northwest, excavation of 120 cy of impacted soil complete

Photograph 14

Date
September 5, 2014

Remedial Action
Adjacent Soil Excavation

Description
Looking south, backfilling excavation with clean fill material

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 15

Date
August 25, 2014

Remedial Action
Erosion and Settlement Control

Description
Berm and ditch near construction entrance location (facing south)

Photograph 16

Date
August 25, 2014

Remedial Action
Erosion and Settlement Control

Description
Silt fence on east side of site (facing south)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 17

Date
August 25, 2014

Remedial Action
Erosion and Settlement Control

Description
Completed berm and sediment along south end of site (facing west)

Photograph 18

Date
August 28, 2014

Remedial Action
Former Pond Cap Construction

Description
Laying down geogrid in the pond (facing south)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 19

Date
August 28, 2014

Remedial Action
Former Pond Cap Construction

Description
Geogrid nearly complete—one more roll was purchased and gaps and slopes were covered. (northeast)

Photograph 20

Date
August 28, 2014

Remedial Action
Former Pond Cap Construction

Description
Typical size of crushed concrete (reference is 6") (pond surface)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 21

Date
August 28, 2014

Remedial Action
Former Pond Cap Construction

Description
Settlement at bottom of pond (pond surface)

Photograph 22

Date
September 16, 2014

Remedial Action
Former Pond Cap Construction

Description
Overlap maintained on demarcation fabric; approximately 80% of the pond covered with fabric, 50% with clean soil. (east)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 23

Date
September 16, 2014

Remedial Action
Debris Removal

Description
Concrete rubble being broken and ready to be loaded in trucks. At time of picture, about 100-200 cy of concrete was left to be hauled off. (south)

Photograph 24

Date
September 16, 2014

Remedial Action
Stockpile Area Cap Construction

Description
Location of contaminated stockpiles, now topped with demarcation fabric and varying depth of clean soil cover. Surveyor to confirm 2' cap once placed. (east)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 25

Date
September 19, 2014

Remedial Action
Former Pond Cap Construction

Description
Clean cap rough graded over former pond. (facing south)

Photograph 26

Date
September 19, 2014

Remedial Action
Former Pond Cap Construction

Description
Demarcation fabric installed adjacent / northeast of former pond. Asphalt was removed in this area and approximately 1 foot of soil excavated. (facing southeast)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 27

Date
September 23, 2014

Remedial Action
Former Pond Cap Construction

Description
Former pond, now graded and compacted with a roller. Surveyor to confirm correct grading and mark final adjustments in coming days. (facing southeast)

Photograph 28

Date
September 23, 2014

Remedial Action
Stockpile Area Cap Construction

Description
Example of rocks that were picked out of the clean cap fill from the designated stockpiles. Contractor "couldn't promise" that rocks as large as 12 inches had been removed. (south)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 29

Date
October 2, 2014

Remedial Action
Stockpile Area Cap Construction

Description
Former stockpile area graded and prepared for hydroseeding. Large (but not greater than 12" stones, I was told) remain in the cap. (east)

Photograph 30

Date
October 2, 2014

Remedial Action
Debris Removal and Demolition

Description
Edge of broken asphalt near south-central portion of site. Waiting to hear from Port how to finish off the gravelly portion of the site. (east)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 31

Date
November 7, 2014

Remedial Action
Final Site Walk

Description
Former pond and surrounding area capped, graded, and hydroseeded. (west)

Photograph 32

Date
November 7, 2014

Remedial Action
Final Site Walk

Description
Former stockpile area capped, graded, and hydroseeded. (east)

PHOTOGRAPHS

Project Name: Former Hambleton Bros. Log Yard—Remedial Action
Project Number: 0229.04.08
Location: Port of Camas-Washougal, WA

Photograph 33

Date
November 7, 2014

Remedial Action
Final Site Walk

Description
Berm and ditch along south side of property did not show signs of ponding and looked intact. (west)

Photograph 34

Date
November 7, 2014

Remedial Action
Final Site Walk

Description
Ponding occurs around the berm that runs North-South along the boundary between the Port's property and Killian. (north)

APPENDIX C

LABORATORY ANALYTICAL RESULTS

Specialty Analytical

11711 SE Capps Road, Ste B
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

September 05, 2014

Jacob Faust
Maul Foster & Alongi
400 E. Mill Plain Blvd.
Suite 400
Vancouver, WA 98660

TEL: (360) 694-2691
FAX (360) 906-1958

RE: Port of Camas Washougal / 229.04.08

Dear Jacob Faust: Order No.: 1408185

Specialty Analytical received 4 sample(s) on 8/27/2014 for the analyses presented in the following report.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Specialty Analytical

Date Reported: 05-Sep-14

CLIENT: Maul Foster & Alongi
Collection Date: 8/26/2014 1:20:00 PM
Project: Port of Camas Washougal / 229.04.08
Lab ID: 1408185-001
Client Sample ID: GB 1-S-0.25
Matrix: SOIL

Analyses	Result	RL	Qual	Unit	DF	Date Analyzed
VOLATILE ORGANICS BY GC/MS		**SW8260B**				Analyst: **CK**
1,1,1,2-Tetrachloroethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,1,1-Trichloroethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,1,2,2-Tetrachloroethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,1,2-Trichloroethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,1-Dichloroethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,1-Dichloroethene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,1-Dichloropropene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2,3-Trichlorobenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2,3-Trichloropropane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2,4-Trichlorobenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2,4-Trimethylbenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2-Dibromo-3-chloropropane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2-Dibromoethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2-Dichlorobenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2-Dichloroethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,2-Dichloropropane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,3,5-Trimethylbenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,3-Dichlorobenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,3-Dichloropropane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
1,4-Dichlorobenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
2,2-Dichloropropane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
2-Butanone	ND	38.3		µg/Kg-dry	1	9/4/2014 1:18:00 AM
2-Chlorotoluene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
2-Hexanone	ND	38.3		µg/Kg-dry	1	9/4/2014 1:18:00 AM
4-Chlorotoluene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
4-Isopropyltoluene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
4-Methyl-2-pentanone	ND	38.3		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Acetone	ND	95.7		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Benzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Bromobenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Bromochloromethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Bromodichloromethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Bromoform	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Bromomethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Carbon disulfide	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Carbon tetrachloride	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Chlorobenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Chloroethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM

Specialty Analytical

Date Reported: 05-Sep-14

CLIENT: Maul Foster & Alongi
Collection Date: 8/26/2014 1:20:00 PM
Project: Port of Camas Washougal / 229.04.08
Lab ID: 1408185-001
Client Sample ID: GB 1-S-0.25
Matrix: SOIL

Analyses	Result	RL	Qual	Unit	DF	Date Analyzed
VOLATILE ORGANICS BY GC/MS		**SW8260B**				Analyst: **CK**
Chloroform	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Chloromethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
cis-1,2-Dichloroethene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
cis-1,3-Dichloropropene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Dibromochloromethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Dibromomethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Dichlorodifluoromethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Ethylbenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Hexachlorobutadiene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Isopropylbenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
m,p-Xylene	ND	38.3		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Methyl tert-butyl ether	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Methylene chloride	ND	95.7		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Naphthalene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
n-Butylbenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
n-Propylbenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
o-Xylene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
sec-Butylbenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Styrene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
tert-Butylbenzene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Tetrachloroethene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Toluene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
trans-1,2-Dichloroethene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
trans-1,3-Dichloropropene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Trichloroethene	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Trichlorofluoromethane	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Vinyl chloride	ND	19.1		µg/Kg-dry	1	9/4/2014 1:18:00 AM
Surr: 1,2-Dichloroethane-d4	111	71.5-112		%REC	1	9/4/2014 1:18:00 AM
Surr: 4-Bromofluorobenzene	98.7	75.7-122		%REC	1	9/4/2014 1:18:00 AM
Surr: Dibromofluoromethane	103	64.3-124		%REC	1	9/4/2014 1:18:00 AM
Surr: Toluene-d8	96.1	74.9-120		%REC	1	9/4/2014 1:18:00 AM

Specialty Analytical

Date Reported: 05-Sep-14

CLIENT: Maul Foster & Alongi
Collection Date: 8/26/2014 1:25:00 PM
Project: Port of Camas Washougal / 229.04.08
Lab ID: 1408185-002
Client Sample ID: GB 2-S-0.25
Matrix: SOIL

Analyses	Result	RL	Qual	Unit	DF	Date Analyzed
VOLATILE ORGANICS BY GC/MS		**SW8260B**				Analyst: **CK**
1,1,1,2-Tetrachloroethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,1,1-Trichloroethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,1,2,2-Tetrachloroethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,1,2-Trichloroethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,1-Dichloroethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,1-Dichloroethene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,1-Dichloropropene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2,3-Trichlorobenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2,3-Trichloropropane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2,4-Trichlorobenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2,4-Trimethylbenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2-Dibromo-3-chloropropane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2-Dibromoethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2-Dichlorobenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2-Dichloroethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,2-Dichloropropane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,3,5-Trimethylbenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,3-Dichlorobenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,3-Dichloropropane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
1,4-Dichlorobenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
2,2-Dichloropropane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
2-Butanone	ND	26.1		µg/Kg-dry	1	9/4/2014 1:51:00 AM
2-Chlorotoluene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
2-Hexanone	ND	26.1		µg/Kg-dry	1	9/4/2014 1:51:00 AM
4-Chlorotoluene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
4-Isopropyltoluene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
4-Methyl-2-pentanone	ND	26.1		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Acetone	ND	65.2		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Benzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Bromobenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Bromochloromethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Bromodichloromethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Bromoform	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Bromomethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Carbon disulfide	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Carbon tetrachloride	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Chlorobenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Chloroethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM

Specialty Analytical

Date Reported: 05-Sep-14

CLIENT: Maul Foster & Alongi
Collection Date: 8/26/2014 1:25:00 PM
Project: Port of Camas Washougal / 229.04.08
Lab ID: 1408185-002
Client Sample ID: GB 2-S-0.25
Matrix: SOIL

Analyses	Result	RL	Qual	Unit	DF	Date Analyzed
VOLATILE ORGANICS BY GC/MS		**SW8260B**				Analyst: **CK**
Chloroform	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Chloromethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
cis-1,2-Dichloroethene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
cis-1,3-Dichloropropene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Dibromochloromethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Dibromomethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Dichlorodifluoromethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Ethylbenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Hexachlorobutadiene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Isopropylbenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
m,p-Xylene	ND	26.1		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Methyl tert-butyl ether	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Methylene chloride	ND	65.2		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Naphthalene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
n-Butylbenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
n-Propylbenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
o-Xylene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
sec-Butylbenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Styrene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
tert-Butylbenzene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Tetrachloroethene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Toluene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
trans-1,2-Dichloroethene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
trans-1,3-Dichloropropene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Trichloroethene	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Trichlorofluoromethane	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Vinyl chloride	ND	13.0		µg/Kg-dry	1	9/4/2014 1:51:00 AM
Surr: 1,2-Dichloroethane-d4	100	71.5-112		%REC	1	9/4/2014 1:51:00 AM
Surr: 4-Bromofluorobenzene	99.3	75.7-122		%REC	1	9/4/2014 1:51:00 AM
Surr: Dibromofluoromethane	105	64.3-124		%REC	1	9/4/2014 1:51:00 AM
Surr: Toluene-d8	96.9	74.9-120		%REC	1	9/4/2014 1:51:00 AM

Specialty Analytical

Date Reported: 05-Sep-14

CLIENT: Maul Foster & Alongi
Collection Date: 8/26/2014 1:30:00 PM
Project: Port of Camas Washougal / 229.04.08
Lab ID: 1408185-003
Client Sample ID: GB 3-S-0.25
Matrix: SOIL

Analyses	Result	RL	Qual	Unit	DF	Date Analyzed
VOLATILE ORGANICS BY GC/MS		**SW8260B**				Analyst: **CK**
1,1,1,2-Tetrachloroethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,1,1-Trichloroethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,1,2,2-Tetrachloroethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,1,2-Trichloroethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,1-Dichloroethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,1-Dichloroethene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,1-Dichloropropene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2,3-Trichlorobenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2,3-Trichloropropane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2,4-Trichlorobenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2,4-Trimethylbenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2-Dibromo-3-chloropropane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2-Dibromoethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2-Dichlorobenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2-Dichloroethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,2-Dichloropropane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,3,5-Trimethylbenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,3-Dichlorobenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,3-Dichloropropane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
1,4-Dichlorobenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
2,2-Dichloropropane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
2-Butanone	ND	22.7		µg/Kg-dry	1	9/4/2014 2:24:00 AM
2-Chlorotoluene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
2-Hexanone	ND	22.7		µg/Kg-dry	1	9/4/2014 2:24:00 AM
4-Chlorotoluene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
4-Isopropyltoluene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
4-Methyl-2-pentanone	ND	22.7		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Acetone	ND	56.8		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Benzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Bromobenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Bromochloromethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Bromodichloromethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Bromoform	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Bromomethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Carbon disulfide	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Carbon tetrachloride	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Chlorobenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Chloroethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM

Specialty Analytical

Date Reported: 05-Sep-14

CLIENT: Maul Foster & Alongi
Collection Date: 8/26/2014 1:30:00 PM
Project: Port of Camas Washougal / 229.04.08
Lab ID: 1408185-003
Client Sample ID: GB 3-S-0.25
Matrix: SOIL

Analyses	Result	RL	Qual	Unit	DF	Date Analyzed
VOLATILE ORGANICS BY GC/MS		**SW8260B**				Analyst: **CK**
Chloroform	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Chloromethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
cis-1,2-Dichloroethene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
cis-1,3-Dichloropropene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Dibromochloromethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Dibromomethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Dichlorodifluoromethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Ethylbenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Hexachlorobutadiene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Isopropylbenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
m,p-Xylene	ND	22.7		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Methyl tert-butyl ether	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Methylene chloride	ND	56.8		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Naphthalene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
n-Butylbenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
n-Propylbenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
o-Xylene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
sec-Butylbenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Styrene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
tert-Butylbenzene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Tetrachloroethene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Toluene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
trans-1,2-Dichloroethene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
trans-1,3-Dichloropropene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Trichloroethene	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Trichlorofluoromethane	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Vinyl chloride	ND	11.4		µg/Kg-dry	1	9/4/2014 2:24:00 AM
Surr: 1,2-Dichloroethane-d4	109	71.5-112		%REC	1	9/4/2014 2:24:00 AM
Surr: 4-Bromofluorobenzene	95.8	75.7-122		%REC	1	9/4/2014 2:24:00 AM
Surr: Dibromofluoromethane	102	64.3-124		%REC	1	9/4/2014 2:24:00 AM
Surr: Toluene-d8	99.5	74.9-120		%REC	1	9/4/2014 2:24:00 AM

Specialty Analytical

Date Reported: 05-Sep-14

CLIENT: Maul Foster & Alongi
Collection Date: 8/26/2014 1:33:00 PM
Project: Port of Camas Washougal / 229.04.08
Lab ID: 1408185-004
Client Sample ID: GB 4-S-0.25
Matrix: SOIL

Analyses	Result	RL	Qual	Unit	DF	Date Analyzed
VOLATILE ORGANICS BY GC/MS		**SW8260B**				Analyst: **CK**
1,1,1,2-Tetrachloroethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,1,1-Trichloroethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,1,2,2-Tetrachloroethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,1,2-Trichloroethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,1-Dichloroethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,1-Dichloroethene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,1-Dichloropropene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2,3-Trichlorobenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2,3-Trichloropropane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2,4-Trichlorobenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2,4-Trimethylbenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2-Dibromo-3-chloropropane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2-Dibromoethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2-Dichlorobenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2-Dichloroethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,2-Dichloropropane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,3,5-Trimethylbenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,3-Dichlorobenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,3-Dichloropropane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
1,4-Dichlorobenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
2,2-Dichloropropane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
2-Butanone	ND	50.4		µg/Kg-dry	1	9/4/2014 2:58:00 AM
2-Chlorotoluene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
2-Hexanone	ND	50.4		µg/Kg-dry	1	9/4/2014 2:58:00 AM
4-Chlorotoluene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
4-Isopropyltoluene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
4-Methyl-2-pentanone	ND	50.4		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Acetone	ND	126		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Benzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Bromobenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Bromochloromethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Bromodichloromethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Bromoform	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Bromomethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Carbon disulfide	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Carbon tetrachloride	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Chlorobenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Chloroethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM

Specialty Analytical

Date Reported: 05-Sep-14

CLIENT: Maul Foster & Alongi
Collection Date: 8/26/2014 1:33:00 PM
Project: Port of Camas Washougal / 229.04.08
Lab ID: 1408185-004
Client Sample ID: GB 4-S-0.25
Matrix: SOIL

Analyses	Result	RL	Qual	Unit	DF	Date Analyzed
VOLATILE ORGANICS BY GC/MS		**SW8260B**				Analyst: **CK**
Chloroform	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Chloromethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
cis-1,2-Dichloroethene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
cis-1,3-Dichloropropene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Dibromochloromethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Dibromomethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Dichlorodifluoromethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Ethylbenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Hexachlorobutadiene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Isopropylbenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
m,p-Xylene	ND	50.4		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Methyl tert-butyl ether	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Methylene chloride	ND	126		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Naphthalene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
n-Butylbenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
n-Propylbenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
o-Xylene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
sec-Butylbenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Styrene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
tert-Butylbenzene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Tetrachloroethene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Toluene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
trans-1,2-Dichloroethene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
trans-1,3-Dichloropropene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Trichloroethene	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Trichlorofluoromethane	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Vinyl chloride	ND	25.2		µg/Kg-dry	1	9/4/2014 2:58:00 AM
Surr: 1,2-Dichloroethane-d4	97.2	71.5-112		%REC	1	9/4/2014 2:58:00 AM
Surr: 4-Bromofluorobenzene	98.1	75.7-122		%REC	1	9/4/2014 2:58:00 AM
Surr: Dibromofluoromethane	105	64.3-124		%REC	1	9/4/2014 2:58:00 AM
Surr: Toluene-d8	97.0	74.9-120		%REC	1	9/4/2014 2:58:00 AM

QC SUMMARY REPORT

WO#: **1408185**

05-Sep-14

Specialty Analytical

Client: Maul Foster & Alongi

Project: Port of Camas Washougal / 229.04.08 **TestCode: 8260_S**

Sample ID: **CCV MSVWS-1994** SampType: **CCV** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **16684**

Client ID: **CCV** Batch ID: **8108** TestNo: **SW8260B** **5030** Analysis Date: **9/3/2014** SeqNo: **220223**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	82.8	10.0	80.00	0	104	80	120				
1,2-Dichloropropane	71.2	10.0	80.00	0	89.0	80	120				
Chloroform	73.6	10.0	80.00	0	92.0	80	120				
Ethylbenzene	76.8	10.0	80.00	0	96.1	80	120				
Toluene	76.3	10.0	80.00	0	95.4	80	120				
Vinyl chloride	84.8	10.0	80.00	0	106	80	120				

Sample ID: **MB** SampType: **MBLK** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **16684**

Client ID: **PBS** Batch ID: **8108** TestNo: **SW8260B** **5030** Analysis Date: **9/3/2014** SeqNo: **220224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	10.0									
1,1,1-Trichloroethane	ND	10.0									
1,1,2,2-Tetrachloroethane	ND	10.0									
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	10.0									
1,1,2-Trichloroethane	ND	10.0									
1,1-Dichloroethane	ND	10.0									
1,1-Dichloroethene	ND	10.0									
1,1-Dichloropropene	ND	10.0									
1,2,3-Trichlorobenzene	ND	10.0									
1,2,3-Trichloropropane	ND	10.0									
1,2,4-Trichlorobenzene	ND	10.0									
1,2,4-Trimethylbenzene	ND	10.0									
1,2-Dibromo-3-chloropropane	ND	10.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recov

QC SUMMARY REPORT

WO#: **1408185**

05-Sep-14

Specialty Analytical

Client: Maul Foster & Alongi

Project: Port of Camas Washougal / 229.04.08 **TestCode: 8260_S**

Sample ID: **MB**	SampType: **MBLK**	TestCode: **8260_S**	Units: **µg/Kg**	Prep Date:				RunNo: **16684**				
Client ID: **PBS**	Batch ID: **8108**	TestNo: **SW8260B**	**5030**	Analysis Date: **9/3/2014**				SeqNo: **220224**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	ND	10.0										
1,2-Dichlorobenzene	ND	10.0										
1,2-Dichloroethane	ND	10.0										
1,2-Dichloropropane	ND	10.0										
1,3,5-Trimethylbenzene	ND	10.0										
1,3-Dichlorobenzene	ND	10.0										
1,3-Dichloropropane	ND	10.0										
1,4-Dichlorobenzene	ND	10.0										
2,2-Dichloropropane	ND	10.0										
2-Butanone	ND	20.0										
2-Chlorotoluene	ND	10.0										
2-Hexanone	ND	20.0										
4-Chlorotoluene	ND	10.0										
4-Isopropyltoluene	ND	10.0										
4-Methyl-2-pentanone	ND	20.0										
Acetone	ND	50.0										
Benzene	ND	10.0										
Bromobenzene	ND	10.0										
Bromochloromethane	ND	10.0										
Bromodichloromethane	ND	10.0										
Bromoform	ND	10.0										
Bromomethane	ND	10.0										
Carbon disulfide	ND	10.0										
Carbon tetrachloride	ND	10.0										
Chlorobenzene	ND	10.0										
Chloroethane	ND	10.0										

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recov

QC SUMMARY REPORT

WO#: **1408185**

Specialty Analytical

05-Sep-14

Client: Maul Foster & Alongi

Project: Port of Camas Washougal / 229.04.08 **TestCode: 8260_S**

Sample ID: **MB**	SampType: **MBLK**	TestCode: **8260_S**	Units: **µg/Kg**	Prep Date:				RunNo: **16684**			
Client ID: **PBS**	Batch ID: **8108**	TestNo: **SW8260B**	**5030**	Analysis Date: **9/3/2014**				SeqNo: **220224**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroform	ND	10.0									
Chloromethane	ND	10.0									
cis-1,2-Dichloroethene	ND	10.0									
cis-1,3-Dichloropropene	ND	10.0									
Dibromochloromethane	ND	10.0									
Dibromomethane	ND	10.0									
Dichlorodifluoromethane	ND	10.0									
Ethylbenzene	ND	10.0									
Hexachlorobutadiene	ND	10.0									
Isopropylbenzene	ND	10.0									
m,p-Xylene	ND	20.0									
Methyl tert-butyl ether	ND	10.0									
Methylene chloride	ND	50.0									
Naphthalene	ND	10.0									
n-Butylbenzene	ND	10.0									
n-Propylbenzene	ND	10.0									
o-Xylene	ND	10.0									
sec-Butylbenzene	ND	10.0									
Styrene	ND	10.0									
tert-Butylbenzene	ND	10.0									
Tetrachloroethene	ND	10.0									
Toluene	ND	10.0									
trans-1,2-Dichloroethene	ND	10.0									
trans-1,3-Dichloropropene	ND	10.0									
Trichloroethene	ND	10.0									
Trichlorofluoromethane	ND	10.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recov

QC SUMMARY REPORT

WO#: **1408185**

05-Sep-14

Specialty Analytical

Client: Maul Foster & Alongi

Project: Port of Camas Washougal / 229.04.08 **TestCode: 8260_S**

Sample ID: **MB** SampType: **MBLK** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **16684**

Client ID: **PBS** Batch ID: **8108** TestNo: **SW8260B** **5030** Analysis Date: **9/3/2014** SeqNo: **220224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	ND	10.0									
Surr: 1,2-Dichloroethane-d4	105		100.0		105	71.5	112				
Surr: 4-Bromofluorobenzene	109		100.0		109	75.7	122				
Surr: Dibromofluoromethane	96.7		100.0		96.7	64.3	124				
Surr: Toluene-d8	83.3		100.0		83.3	74.9	120				

Sample ID: **LCS MSVWS-1995** SampType: **LCS** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **16684**

Client ID: **LCSS** Batch ID: **8108** TestNo: **SW8260B** **5030** Analysis Date: **9/3/2014** SeqNo: **220302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	75.2	10.0	80.00	0	94.1	61.3	143				
Benzene	76.4	10.0	80.00	0	95.4	79.2	133				
Chlorobenzene	76.3	10.0	80.00	0	95.3	78.2	126				
Toluene	70.7	10.0	80.00	0	88.4	77.9	130				
Trichloroethene	67.3	10.0	80.00	0	84.1	81.1	129				

Sample ID: **LCSD MSVWS-1995** SampType: **LCSD** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **16684**

Client ID: **LCSS02** Batch ID: **8108** TestNo: **SW8260B** **5030** Analysis Date: **9/3/2014** SeqNo: **220303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	76.4	10.0	80.00	0	95.4	61.3	143	75.24	1.46	20	
Benzene	78.2	10.0	80.00	0	97.8	79.2	133	76.35	2.39	20	
Chlorobenzene	69.0	10.0	80.00	0	86.2	78.2	126	76.26	10.0	20	

Qualifiers:

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recov

QC SUMMARY REPORT

WO#: **1408185**

Specialty Analytical

05-Sep-14

Client: Maul Foster & Alongi

Project: Port of Camas Washougal / 229.04.08 **TestCode: 8260_S**

Sample ID: **LCSD MSVWS-1995** SampType: **LCSD** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **16684**

Client ID: **LCSS02** Batch ID: **8108** TestNo: **SW8260B** **5030** Analysis Date: **9/3/2014** SeqNo: **220303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	74.0	10.0	80.00	0	92.5	77.9	130	70.73	4.51	20	
Trichloroethene	68.7	10.0	80.00	0	85.8	81.1	129	67.27	2.05	20	

Sample ID: **1409002-001AMS** SampType: **MS** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **16684**

Client ID: **ZZZZZZ** Batch ID: **8108** TestNo: **SW8260B** **5030** Analysis Date: **9/3/2014** SeqNo: **220304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	12000	2500	10000	0	120	46.6	147				
Benzene	9070	2500	10000	0	90.7	65.2	121				
Chlorobenzene	9040	2500	10000	0	90.4	40.9	122				
Toluene	8240	2500	10000	0	82.4	52.1	127				
Trichloroethene	7800	2500	10000	217.5	75.8	57.6	122				

Sample ID: **1409002-001AMSD** SampType: **MSD** TestCode: **8260_S** Units: **µg/Kg** Prep Date: RunNo: **16684**

Client ID: **ZZZZZZ** Batch ID: **8108** TestNo: **SW8260B** **5030** Analysis Date: **9/3/2014** SeqNo: **220305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	11300	2500	10000	0	113	46.6	147	12010	5.96	20	
Benzene	8500	2500	10000	0	85.0	65.2	121	9070	6.46	20	
Chlorobenzene	8980	2500	10000	0	89.8	40.9	122	9045	0.749	20	
Toluene	8260	2500	10000	0	82.6	52.1	127	8235	0.243	20	
Trichloroethene	9440	2500	10000	217.5	92.2	57.6	122	7800	19.0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recov

KEY TO FLAGS

Rev. May 12, 2010

A	This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards
A1	This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.
A2	This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.
A3	The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.
A4	The product appears to be aged or degraded diesel.
B	The blank exhibited a positive result great than the reporting limit for this compound.
CN	See Case Narrative.
D	Result is based from a dilution.
E	Result exceeds the calibration range for this compound. The result should be considered as estimate.
F	The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.
G	Result may be biased high due to biogenic interferences. Clean up is recommended.
H	Sample was analyzed outside recommended holding time.
HT	At clients request, samples was analyzed outside of recommended holding time.
J	The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.
K	Diesel result is biased high due to amount of Oil contained in the sample.
L	Diesel result is biased high due to amount of Gasoline contained in the sample.
M	Oil result is biased high due to amount of Diesel contained in the sample.
MC	Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.
MI	Result is outside control limits due to matrix interference.
MSA	Value determined by Method of Standard Addition.
O	Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.
Q	Detection levels elevated due to sample matrix.
R	RPD control limits were exceeded.
RF	Duplicate failed due to result being at or near the method-reporting limit.
RP	Matrix spike values exceed established QC limits; post digestion spike is in control.
S	Recovery is outside control limits.
SC	Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.
*	The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

CHAIN OF CUSTODY RECORD

Specialty Analytical
11711 SE Capps Road
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Contact Person/Project Manager: Jacob Faust
Company: Maul Foster & Alongi
Address: 2001 NW 19th Ave #200
Portland, OR 97209
Phone: 503-501-5224 Fax:
Project No: 0229.04.08 Project Name: Port of Camas Washougal
Project Site Location OR: WA: X Other:
Invoice To: 0229.04.08 (MFA) P.O. No.:

Collected By:
Signature: Emily N Hess
Printed: EMILY N HESS

Signature:
Printed:

Turn Around Time
☒ Normal 5-7 Business Days
☐ Rush _____
Specify
Rush Analyses Must Be Scheduled With The Lab In Advance

Date	Time	Sample I.D.	Matrix	No. of Containers	Analyses: VOCs - Method 8260B	Comments	Lab I.D.
08/26/14	1320	GB1-S-0.25	S	1	X		
08/26/14	1325	GB2-S-0.25	S	1	X		
08/26/14	1330	GB3-S-0.25	S	1	X		
08/26/14	1333	GB4-S-0.25	S	1	X		

For Laboratory Use
Lab Job No. 1408185
Shipped Via: Specialty
Air Bill No.:
Temperature On Receipt: -5 °C
Specialty Analytical Containers? Y / N
Specialty Analytical Trip Blanks? Y / N

Relinquished By	Date	Time	Received By	Relinquished By	Date	Time
Emily N. Hess	8/27/14	1355			8/27/14	1451
Company: MFA			Company:	Company:		

Unless Reclaimed, Samples Will Be Disposed of 60 Days After Receipt.
Samples held beyond 60 days subject to storage fee(s)

Received For Lab By: Cindy Hillyard
Date: 8/27/14 Time: 14:57

Copies: White-Original Yellow-Project File Pink-Customer Copy

APPENDIX D

DATA VALIDATION MEMORANDUM

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0229.04.08 | SEPTEMBER 9, 2014 | PORT OF CAMAS-WASHOUGAL

This report reviews the analytical results for soil samples collected by the Maul Foster & Alongi, Inc. project team on the Port of Camas-Washougal site. The samples were collected on August 6, 2014.

Specialty Analytical, Inc. (SA) performed the analyses. SA report number 1408185 was reviewed. The analyses performed and the samples analyzed are listed below. A data validation tracking sheet associated with the analyses, documenting data review, is attached.

Analysis	Reference
Volatile Organic Compounds	USEPA 8260B

USEPA = U.S. Environmental Protection Agency.

Report 1408185
GB1-S-0.25
GB2-S-0.25
GB3-S-0.25
GB4-S-0.25

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2008) and appropriate laboratory and method-specific guidelines (SA, 2014; USEPA, 1986).

The data are considered acceptable for their intended use. No results were qualified.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

Sample temperatures were below acceptance criteria upon receipt at the laboratory, recorded at -5 degrees Celsius (°C). This exceedance is considered minor. No results were qualified.

BLANKS

Method Blanks

Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch. No analytes were detected in the method blank.

Trip Blanks

A trip blank was not submitted with sample delivery group 1408185. A minimum of one soil sample was non-detect for all USEPA Method 8260B volatile organic compounds. No qualification was required.

Continuing Calibration Blanks

Continuing calibration blanks were not reported.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples. All recoveries were within acceptance limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were analyzed at the required frequency. All recoveries were within acceptance limits for percent recovery and relative percent difference (RPD).

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. Laboratory duplicate results were not reported.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) is spiked with target analytes to provide information about laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency. LCS/LCSD recoveries were within acceptance limits for percent recovery RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. No field duplicate samples were collected for this sampling event.

CONTINUING CALIBRATION VERIFICATION AND INITIAL CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) and initial calibration verification (ICV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch. The reported CCV result is within acceptance criteria. No ICV results were reported.

REPORTING LIMITS

SA used routine reporting limits for all results.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies. None were found.

REFERENCES

SA. 2014. Quality assurance manual. Specialty Analytical, Inc., Clackamas, Oregon.

USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. EPA-530/SW-846. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. September (revision 6, February 2007).

USEPA. 2008. USEPA contract laboratory program, national functional guidelines for organics data review. EPA 540/R-08/01. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. June.

ATTACHMENT

DATA VALIDATION TRACKING

DATA VALIDATION TRACKING

This document tracks Stage 2A validation completion for the analysis indicated below.

Lab Report	1408185
Analysis/Method	Volatile Organic Compounds USEPA 8260B
Batch Number(s)	8108

Reviewer	RKG
Date	9/9/14

	Validation Area	Acceptable Yes/No/NA/NR	Comments	Q
Sample	Temperature	No	Temp -5°C is below acceptance criteria. Exceedance is minor; no results qualified.	
	Holding Time	Yes		
	Trip Blank	NA		
	Field/Eq. Blank	NA		
	Field Dup RPD	NA		
Calibr.	CCB	NR		
	ICV	NR		
	CCV	Yes		
Batch	Method Blank	Yes		
	LCS/LCSD %	Yes		
	LCS/LCSD RPD	Yes		
	Lab Dup RPD	NR		
	MS/MSD %	Yes		
	MS/MSD RPD	Yes		
General	Dilution	NA		
	Reporting Limit	Yes		
	MDL	NA		
	Surrogates	Yes		

Samples reviewed (in bold font):			
GB1-S-0.25	-	-	-
GB1-S-0.25	-	-	-
GB1-S-0.25	-	-	-
GB1-S-0.25	-	-	-

Notes:

Definitions:

°C = degrees Celsius.
Calibr. = calibration.
CCB = continuing calibration blank.
CCV = continuing calibration verification.
EMPC = estimated maximum potential concentration.
ICV = initial calibration verification.
LCS/LCSD = laboratory control sample/laboratory control sample duplicate.
MDL = method detection limit.
MS/MSD = matrix spike/matrix spike duplicate.
NA = not applicable.
NR = not reported.
Q = qualifier.
RPD = relative percent difference.

APPENDIX E

GEOTECHNICAL REPORT

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201-4707
(503) 924-4704
www.apexcos.com

PROJECT NUMBER 2117-00
FIELD REPORT NUMBER 1
PAGE 1 OF 1
DATE Friday, September 05, 2014

PROJECT Former Hambleton Lumber Facility
LOCATION Washougal, WA
CLIENT Port of Camas-Washougal/MFA
ARRIVAL TIME 7:30 AM
DEPARTURE TIME 10:15 AM
WEATHER Sunny, warm
PURPOSE OF OBSERVATIONS Observe subgrade/fill areas within former pond
APEX REPRESENTATIVE A. Reese
APEX PROJECT MANAGER S. Albright
CONTRACTOR MacDonald Excavation/MFA
PERMIT NO.
CONTRACTOR REP. Ken Piper
JOB PHONE (360) 835-8794

At the request of Maul Foster Alongi (MFA), an Apex representative arrived on site at approximately 7:30 AM to observe previously prepared base fill/subgrade areas, as well as placement of initial contaminated soil lift within the former pond area of the facility. Fill/subgrade inspection was conducted via visual examination and use of a manual footing probe.

At the time of inspection, fill/subgrade areas within the former pond consisted of an approx. 24"-36" thick base section of crushed concrete (diameter of ~24" minus, fragmented from onsite slabs by contractor) over geotextile. An approx. 6" section of 1.25" minus crushed rock (from Fisher Pit; approx. 511 tons) had been placed on the surface of the crushed concrete base to fill open voids. This material had been emplaced via excavator and tracked in via bulldozer (Komatsu D37 EX). Apex requested that MacDonald run several perpendicular transects across the placement area with a rolling fully loaded dual-axle 10-yard dump truck. In all observed locations, no apparent deflection or pumping was observed under the weight of the dump truck. Based on the result of the proof roll, Apex recommends that the base section placement was consistent with the recommendations provided in our geotechnical report.

Within the former pond area, MacDonald had staged approx. 210 cu. yds of contaminated soil (fine- to medium-grained sand with rounded gravel/cobble/boulders) from elsewhere on the site. MacDonald would like to place this material in lifts of 8-12" thick with the bulldozer (Komatsu D37 EX), then roll 5-10 passes with static smooth drul roller (CAT CS-433C). Material is relatively dry, so additional water will be applied via water truck.

MacDonald grades the stockpile (210 c.y.) in an approx. 12" lift on the southern portion of the former pond area and applies water. Material is observed to be moderately compact following bulldozer grading. Apex recommends that MacDonald separate out any larger cobbles and boulders (>6" diameter). MacDonald then rolls the contaminated material lift with the static drum roller. After 2 passes (forward and back x 2) of the roller, no further deflection is observed. Handheld footing probe penetration is <2".

Based on our observations, Apex recommends that MacDonald perform 3 passes (forward and back x 3) with the static roller for each 12" lift of the contaminated soil section. Apex communicates the recommendations to MFA (Zachary), MacDonald (Ken), and Port of Camas-Washougal (Jeremy) representatives. Apex leaves the site at approximately 10:15 AM.

BY

APEX REPRESENTATIVE

REVIEWED BY

APEX PROJECT MANAGER

APPENDIX F

MONITORING WELL DECOMMISSIONING REPORT

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. AE-29042

Construction/Decommission *(select one)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* R-62288

Type of Well *(select one)*

☒ Resource Protection

☐ Geotech Soil Boring

Consulting Firm

Unique Ecology Well ID

Tag No. BAL-051

Property Owner Port of Camas, Washougal

Site Address 335 South A Street

City Washougal County Clark

Location: SE 1/4-1/4 SW 1/4 Sec 12 Twn 1 R 3 Select One ☒ E ☐ W

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Ron Aspaas

Driller/Engineer /Trainee Signature

Driller or Trainee License No. 0006

If trainee, licensed driller's Signature and License No. 0006

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Lat Min/Sec ____

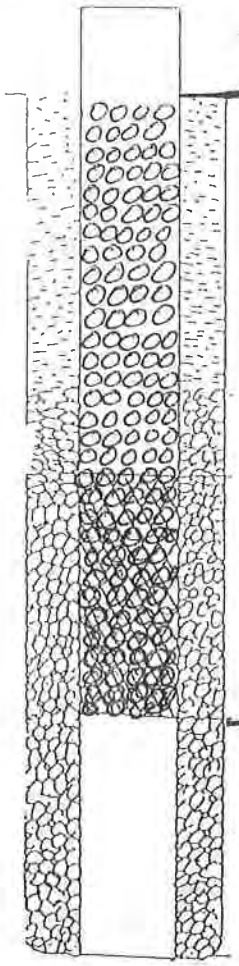
Long Deg ____ Long Min/Sec ____

Tax Parcel No. 153

Cased or Uncased Diameter ____ Static Level ____

Work/Decommission Start Date 10-6-14

Work/Decommission Completed Date 10-6-14

Construction/Design	Well Data	Formation Description
	Removed ballards and monuments sealed with Bentonite chips 0-45 feet.	

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

P01432

CURRENT
Notice of Intent No. R602288

Construction/Decommission
☒ Construction 294132
☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well
☒ Resource Protection
☐ Geotechnical Soil Boring

Property Owner: WASHOUGAL INVESTORS II LLC
Site Address: 335 SOUTH A STREET
City: WASHOUGAL County: CLARK

Consulting Firm: EVREN NW

Unique Ecology Well ID Tag No. BGL 057

Location 1/4 SE 1/4 SW Sec 12 Twn 1N R 3E EWM or WWM

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

WELL CONSTRUCTION CERTIFICATION. I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Trainee Name (Print) Rodney LaBrosse

Driller/Trainee Signature Rodney LaBrosse

Driller/Trainee License No. 2182

Tax Parcel No. 153

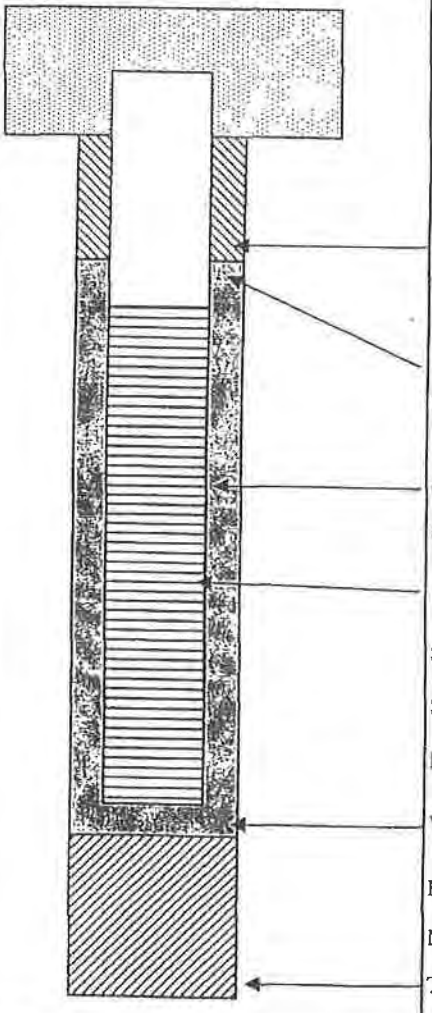
Cased or Uncased Diameter 6" Static Level 34

Work/Decommision Start Date 11/12/2007

Work/Decommision End Date 11/12/07

If trainee, licesned drillers' Signature and License No. _____

Construction/Design



Well Data

Above ground

Concrete Surface Seal Depth	2'	FT
Blank Casing (dia x dep)	2" x 25	
Material	PVC	
Backfill	21	FT
Type	Bentonite chip	
Seal		
Material		
Gravel Pack	22	FT
Material	10/20	
Screen (dia x dep)	2" x 20	
Slot Size	010	
Material	PVC	
Well Depth	45	FT
Backfill		
Material		
Total Hole Depth	45	FT

Formation Description

0 - 30 FT: Black silty sand & cobbles

0 - 45 FT: Sandy gravels

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Washington State Department of Ecology

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NOV 2 8 2007
Washington State Department of Ecology

RECEIVED
MAR 1 4 2008

Scale 1" = _____

Page _____ of _____

Washington State Department of Ecology

ECY 050-12 (Rev 2/01)

The Department of Ecology does NOT warranty the Data and/or the information on this Well Report.

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. AE-29042

Construction/Decommission *(select one)*
- [ ] Construction
- [X] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* R-62288

Type of Well *(select one)*
- [X] Resource Protection
- [ ] Geotech Soil Boring

Consulting Firm

Unique Ecology Well ID
Tag No. BAL-052

Property Owner Port of Camas, Washougal

Site Address 335 South A Street

City Washougal County Clark

Location: SE 1/4-1/4 SW 1/4 Sec 12 Twn 1 R 3 Select One [X] E [ ] W

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

[X] Driller [ ] Engineer [ ] Trainee Name (Print) Ron Aspaas

Driller/Engineer/Trainee Signature

Driller or Trainee License No. 0006

If trainee, licensed driller's Signature and License No. 0006

Lat/Long (s, t, r still REQUIRED) Lat Deg Lat Min/Sec

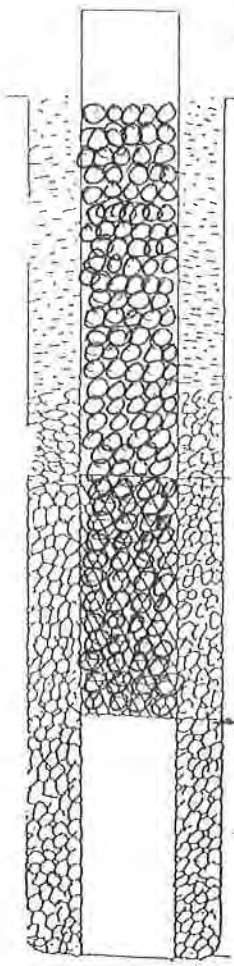
Long Deg Long Min/Sec

Tax Parcel No. 153

Cased or Uncased Diameter Static Level

Work/Decommission Start Date 10-6-14

Work/Decommission Completed Date 10-6-14

Construction/Design	Well Data	Formation Description
	Removed ballards and monument. Sealed with Bentonite chips 0-45 feet.	

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

P01432

CURRENT
Notice of Intent No. RG2288

Construction/Decommission
294133
☒ Construction
☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well
☒ Resource Protection
☐ Geotechnical Soil Boring

Property Owner: WASHOUGAL INVESTORS II LLC
Site Address: 335 SOUTH A STREET
City: WASHOUGAL County: CLARK

Consulting Firm: EVREN NW

Unique Ecology Well ID Tag No. Bal 252

Location 1/4 SE 1/4 SW Sec 12 Twn 1N R 3E EWM or WWM

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☐ Trainee Name (Print) Rodney LaBrasse
Driller/Trainee Signature Rodney LaBrasse
Driller/Trainee License No. 2182

If trainee, licesned drillers' Signature and License No. _____

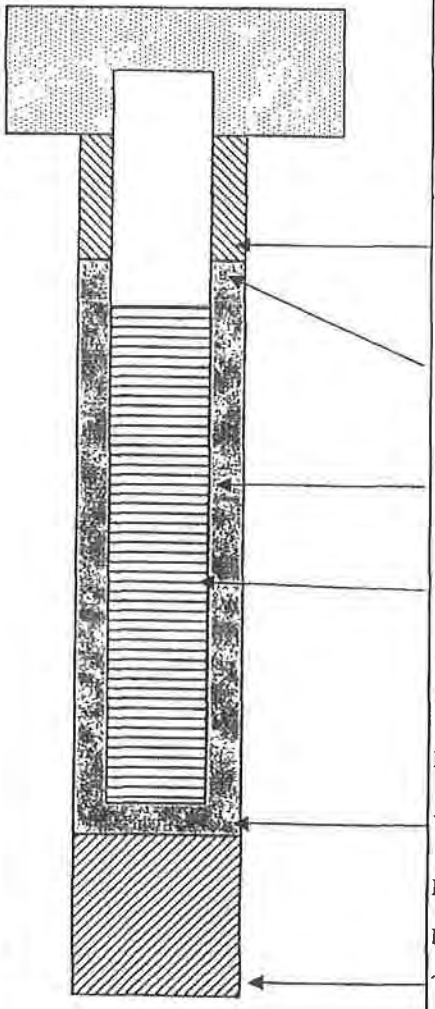
Tax Parcel No. 153

Cased or Uncased Diameter 6" Static Level 34

Work/Decommision Start Date 11/12/2007

Work/Decommision End Date 11/12/07

Construction/Design



Well Data

Above ground

Concrete Surface Seal Depth: 2 FT
Blank Casing (dia x dep): 2" x 25
Material: PVC
Backfill: 21 FT
Type: Bentonite chip
Seal: _____
Material: _____
Gravel Pack: 22 FT
Material: 10/20
Screen (dia x dep): 2" x 20
Slot Size: 010
Material: PVC
Well Depth: 45 FT
Backfill: _____
Material: _____
Total Hole Depth: 45 FT

Formation Description

0 - 30 FT
Black silty sand & gravels

0 - 45 FT
Sand & gravel

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Washington State Department of Ecology

0 - _____ FT

RECEIVED
NOV 28 2007
Washington State Department of Ecology

RECEIVED
MAR 14 2008
Washington State Department of Ecology

Scale 1" = _____ 35283

Page _____ of _____

ECY 050-12 (Rev. 2/01)

The Department of Ecology does NOT warranty the data and/or the information on this well report.

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

[ ] Construction

[X] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* R-62288

Consulting Firm

Unique Ecology Well ID Tag No. BAL-053

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

[X] Driller [ ] Engineer [ ] Trainee Name (Print) Ron Aspaas

Driller/Engineer/Trainee Signature

Driller or Trainee License No. 0006

If trainee, licensed driller's Signature and License No. 0006

CURRENT Notice of Intent No. AE-29042

Type of Well *(select one)*

[X] Resource Protection

[ ] Geotech Soil Boring

Property Owner Port of Camas, Washougal

Site Address 335 South A Street

City Washougal County Clark

Location: SE 1/4-1/4 SW 1/4 Sec 12 Twn 1 R 3 Select One [XX] E [ ] W

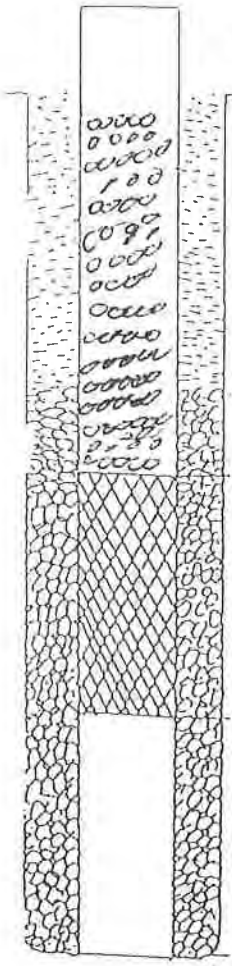
Lat/Long (s, t, r still REQUIRED) Lat Deg Lat Min/Sec Long Deg Long Min/Sec

Tax Parcel No. 153

Cased or Uncased Diameter Static Level

Work/Decommission Start Date 10-6-14

Work/Decommission Completed Date 10-6-14

Construction/Design	Well Data	Formation Description
 0 feet … 40 feet	Removed ballards and monument. Sealed with Bentonite chips 0-40 feet.	

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

P01432

CURRENT

Notice of Intent No. R62288

Construction/Decommission 294134

- [X] Construction
- [ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

- [X] Resource Protection
- [ ] Geotechnical Soil Boring

Property Owner: WASHOUGAL INVESTORS II LLC

Site Address: 335 SOUTH A STREET

Consulting Firm: EVREN NW

City: WASHOUGAL County: CLARK

Unique Ecology Well ID Tag No.: BaL 053

Location: 1/4 SE 1/4 SW Sec 12 Twn 1N R 3E EWM or WWM

WELL CONSTRUCTION CERTIFICATION. I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

- [ ] Driller [ ] Trainee Name (Print): Rodney LaBrosse SR

Driller/Trainee Signature: Rodney LaBrosse

Driller/Trainee License No.: 2182

Tax Parcel No.: 153

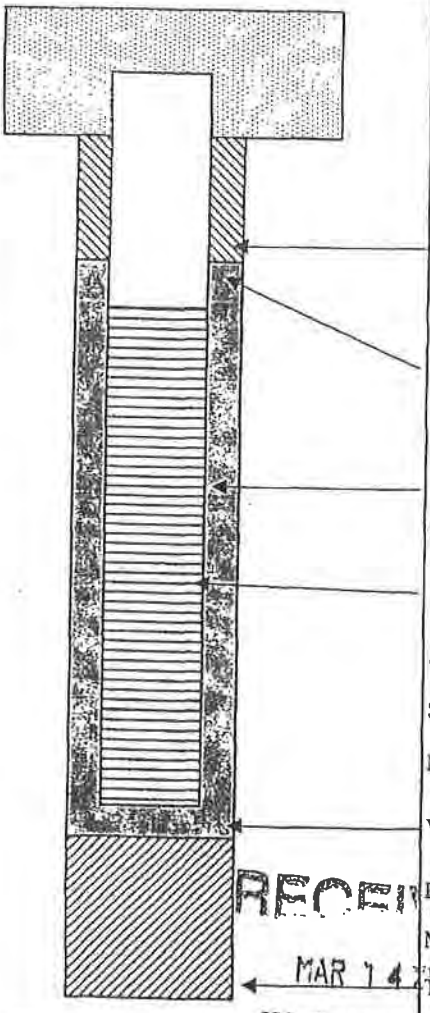
Cased or Uncased Diameter: 6" Static Level: 32

If trainee, licesned drillers' Signature and License No. _____

Work/Decommision Start Date: 11/12/2007

Work/Decommision End Date: 11/12/07

Construction/Design



Well Data

Aboveground

Concrete Surface Seal Depth	2'	FT
Blank Casing (dia x dep)	2" x 25'	
Material	PVC	
Backfill	2	FT
Type	Bentonite chip	
Seal		
Material		
Gravel Pack	17	FT
Material	10/20	
Screen (dia x dep)	2" X15'	
Slot Size	010	
Material	PVC	
Well Depth	40	FT
Backfill Material		
Total Hole Depth	40	FT

Formation Description

0 - 30 FT: Black silty sand & cobbles

0 - 40 FT: gravely silty sand & cobbles

0 - FT

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MAR 14 2008
Washington State Department of Ecology

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DEC 21 2007
Washington State Department of Ecology

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Page _____ of _____

ECY 050-12 (Rev=v 2/01)

APPENDIX G

RESTRICTIVE COVENANT

After Recording Return
Original Signed Covenant to:[1]
Scott Rose
Toxics Cleanup Program
Department of Ecology
PO Box 47775
Olympia, Washington 98504-7775

Environmental Covenant

Grantor: Port of Camas-Washougal
Grantee: State of Washington, Department of Ecology
Brief Legal Description: A portion of the David Parker Donation Land Claim Number 48, situated in the southeast quarter of the southeast quarter of section 12, and in the northeast quarter of the northeast quarter of section 13, township 1 north, range 3 east of the Willamette Meridian, Clark County, Washington.
Tax Parcel Nos.: 73134153 and 73134179

RECITALS

a. This document is an environmental (restrictive) covenant (hereafter "Covenant") executed pursuant to the Model Toxics Control Act ("MTCA"), Chapter 70.105D RCW and Uniform Environmental Covenants Act ("UECA"), Chapter 64.70 RCW.

b. The Property that is the subject of this Covenant is part or all of a site commonly known as **Hambleton Bros Log Yard Site (Facility identification number 4399598).** The Property is legally described in Exhibit A, and illustrated in Exhibit B, both of which are attached (hereafter "Property"). If there are differences between these two Exhibits, the legal description in Exhibit A shall prevail.

c. The Property is the subject of remedial action under MTCA. This Covenant is required because residual contamination remains on the Property after completion of remedial actions. Specifically, the following principal contaminants remain on the Property:

Medium	Principal Contaminants Present
Soil	Residual-range organics (RROs), lead, mercury, polychlorinated biphenyls, and carcinogenic polycyclic aromatic hydrocarbons
Groundwater	Diesel-range organics and RROs
Surface Water/Sediment	N/A

d. It is the purpose of this Covenant to restrict certain activities and uses of the Property to protect human health and the environment and the integrity of remedial actions conducted at the

[1] Some counties keep the original covenant, others don't. If the signed original is available, it must be sent to Ecology. If the signed original is not available, send a legible copy to Ecology.

site. Records describing the extent of residual contamination and remedial actions conducted are available through the Washington State Department of Ecology in the following documents:

- Remedial Action Completion Report. Prepared for Port of Camas-Washougal. Prepared by Maul Foster & Alongi, Inc., Vancouver, WA. May 13, 2013
- Agreed Order No. DE 9935. Prepared the Port of Camas-Washougal. Prepared by the State of Washington Department of Ecology. June 2013

e. This Covenant grants the Washington State Department of Ecology, as holder of this Covenant, certain rights specified in this Covenant. The right of the Washington State Department of Ecology as a holder is not an ownership interest under MTCA, Chapter 70.105D RCW or the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 USC Chapter 103.

COVENANT

The **Port of Camas-Washougal**, as Grantor and fee simple owner of the Property, hereby grants to the Washington State Department of Ecology, and its successors and assignees, (hereafter "Ecology") the following covenants. Furthermore, it is the intent of the Grantor that such covenants shall run with the land and be binding on all current and future owners of any portion of, or interest in, the Property.

Section 1. General Restrictions and Requirements.

The following general restrictions and requirements shall apply to the Property:

a. Interference with Remedial Action. The Grantor shall not engage in any activity on the Property that may impact or interfere with the remedial action and any operation, maintenance, inspection or monitoring of that remedial action without prior written approval from Ecology.

b. Protection of Human Health and the Environment. The Grantor shall not engage in any activity on the Property that may threaten continued protection of human health or the environment without prior written approval from Ecology. This includes, but is not limited to, any activity that results in the release of residual contamination that was contained as a part of the remedial action or that exacerbates or creates a new exposure to residual contamination remaining on the Property.

c. Continued Compliance Required. Grantor shall not convey any interest in any portion of the Property without providing for the continued adequate and complete operation, maintenance and monitoring of remedial actions and continued compliance with this Covenant.

d. Leases. Grantor shall restrict any lease for any portion of the Property to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.

e. Amendment to the Covenant. Grantor must notify and obtain approval from Ecology at least sixty (60) days in advance of any proposed activity or use of the Property in a manner that is inconsistent with this Covenant. Before approving any proposal, Ecology must issue a public notice and provide an opportunity for the public to comment on the proposal. If Ecology approves the proposal, the Covenant will be amended to reflect the change.

Section 2. Specific Prohibitions and Requirements.

In addition to the general restrictions in Section 1 of this Covenant, the following additional specific restrictions and requirements shall apply to the Property.

a. Containment of Soil/Waste Materials.

The remedial action for the Property is based on containing contaminated soil under a cap consisting of two feet of clean soil overlaying a demarcation fabric or as approved in the soil maintenance and cap maintenance plan included as an appendix in the remedial action completion report. The cap locations are illustrated in Exhibit C. The primary purpose of this cap is to minimize the potential for contact with contaminated soil. As such, the following restrictions shall apply within the area illustrated in Exhibit C:

Any activity on the Property that will compromise the integrity of the cap including: drilling; digging; piercing the cap with sampling device, post, stake or similar device; grading; excavation; installation of underground utilities; removal of the cap; or, application of loads in excess of the cap load bearing capacity, is prohibited without prior written approval by Ecology. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to the cap. Unless an alternative plan has been approved by Ecology in writing, the Grantor shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

b. Groundwater Use.

The groundwater within the area of the Property illustrated in Exhibit C remains contaminated and shall not be extracted for any purpose other than temporary construction dewatering, investigation, monitoring or remediation. Drilling of a well for any water supply purpose is strictly prohibited. Groundwater extracted from within this area for any purpose shall be considered potentially contaminated and any discharge of this water shall be done in accordance with state and federal law.

c. Monitoring.

A groundwater monitoring well (MW-7) is located on the Property to monitor the performance of the remedial action. The Grantor shall maintain clear access to these devices and protect them from damage. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to any monitoring device. Unless Ecology approves of an alternative plan in writing, the Grantor shall promptly repair the damage and submit a report documenting this work.

Section 3. Access.

a. The Grantor shall maintain clear access to all remedial action components necessary to construct, operate, inspect, monitor and maintain the remedial action.

b. The Grantor freely and voluntarily grants Ecology and its authorized representatives, upon reasonable notice, the right to enter the Property at reasonable times to evaluate the effectiveness of this Covenant and associated remedial actions, and enforce compliance with this Covenant and those actions, including the right to take samples, to inspect any remedial actions conducted on the Property, and to inspect related records.

c. No right of access or use by a third party to any portion of the Property is conveyed by this instrument.

Section 4. Notice Requirements.

a. Conveyance of Any Interest. The Grantor, when conveying any interest within the area of the Property described/illustrated in Exhibit C, including but not limited to title, easement, leases, and security or other interests, must:

i. Notify Ecology at least thirty (30) days in advance of the conveyance.

ii. Include in the conveying document a notice in substantially the following form, as well as a complete copy of this Covenant:

NOTICE: THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL COVENANT GRANTED TO THE WASHINGTON STATE DEPARTMENT OF ECOLOGY ON [_____] AND RECORDED WITH THE CLARK COUNTY AUDITOR UNDER RECORDING NUMBER [_____]. USES AND ACTIVITIES ON THIS PROPERTY MUST COMPLY WITH THAT COVENANT, A COMPLETE COPY OF WHICH IS ATTACHED TO THIS DOCUMENT.

iii. Unless otherwise agreed to in writing by Ecology, provide Ecology with a complete copy of the executed document within thirty (30) days of the date of execution of such document.

b. Reporting Violations. Should the Grantor become aware of any violation of this Covenant, Grantor shall promptly report such violation to Ecology.

c. Emergencies. For any emergency or significant change in site conditions due to Acts of Nature (for example, flood, fire) resulting in a violation of this Covenant, the Grantor is authorized to respond to such an event in accordance with state and federal law. The Grantor must notify Ecology of the event and response actions planned or taken as soon as practical but no later than within 24 hours of the discovery of the event.

d. Any required written notice, approval, or communication shall be personally delivered or sent by first class mail to the following persons. Any change in this contact information shall be submitted in writing to all parties to this Covenant.

Port of Camas-Washougal Attn: David Ripp 24 South "A" Street Washougal, WA 98671 Phone contact: (360) 835-5560	Environmental Covenants Coordinator Washington State Department of Ecology Toxics Cleanup Program P.O. Box 47600 Olympia, WA 98504-7600 (360) 407-6000

As an alternative to providing written notice and change in contact information by mail, these documents may be provided electronically in an agreed-upon format at the time of submittal.

Section 5. Modification or Termination.

If the conditions at the site requiring a Covenant have changed or no longer exist, then the Grantor may submit a request to Ecology that this Covenant be amended or terminated. Any amendment or termination of this Covenant must follow the procedures in Chapter 64.70 RCW and Chapter 70.105D RCW and any rules promulgated under these chapters.

Section 6. Enforcement and Construction.

a. This Covenant is being freely and voluntarily granted by the Grantor.

b. Grantor shall provide Ecology with an original signed Covenant and proof of recording within ten (10) days of execution of this Covenant.

c. Ecology shall be entitled to enforce the terms of this Covenant by resort to specific performance or legal process. All remedies available in this Covenant shall be in addition to any and all remedies at law or in equity, including Chapter 70.105D RCW and Chapter 64.70 RCW. Enforcement of the terms of this Covenant shall be at the discretion of Ecology, and any forbearance, delay or omission to exercise its rights under this Covenant in the event of a breach of any term of this Covenant is not a waiver by Ecology of that term or of any subsequent breach of that term, or any other term in this Covenant, or of any rights of Ecology under this Covenant.

d. The Grantor, upon request by Ecology, shall be obligated to pay for Ecology's costs to process a request for any modification or termination of this Covenant and any approval required by this Covenant.

e. This Covenant shall be liberally construed to meet the intent of the Model Toxics Control Act, Chapter 70.105D RCW and Uniform Environmental Covenants Act, Chapter 64.70 RCW.

f. The provisions of this Covenant shall be severable. If any provision in this Covenant or its application to any person or circumstance is held invalid, the remainder of this Covenant or its application to any person or circumstance is not affected and shall continue in full force and effect as though such void provision had not been contained herein.

g. A heading used at the beginning of any section or paragraph or exhibit of this Covenant may be used to aid in the interpretation of that section or paragraph or exhibit but does not override the specific requirements in that section or paragraph.

The undersigned Grantor warrants he/she holds the title to the Property and has authority to execute this Covenant.

EXECUTED this _____ day of _____, 20___.

PORT OF CAMAS-WASHOUGAL

_____
DAVID RIPP
EXECUTIVE DIRECTOR

Dated: _____

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

_____

Rebecca S. Lawson, P.E., LHG
Section Manager
Toxics Cleanup Program
Southwest Regional Office

Dated: _____

GRANTOR INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, and acknowledged that **he/she** is the individual described herein and who executed the within and foregoing instrument and signed the same at **his/her** free and voluntary act and deed for the uses and purposes therein mentioned.

_____
Notary Public in and for the State of
Washington, residing at _____.
My appointment expires_____.

GRANTOR CORPORATE ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said corporation.

_____
Notary Public in and for the State of
Washington, residing at _____.
My appointment expires_____.

Exhibit A

LEGAL DESCRIPTION

stewart title

Stewart Title Company
400 E. Mill Plain Blvd, Suite 105
Vancouver, WA 98660
Phone: (360) 696-0621

Order Number: 01209-19691

Title Officer: **Bill Sanderson**
Phone: (360) 696-0621
Email: bill.sanderson@stewart.com

Customer Reference:
01209-19691

SCHEDULE A

1. **Effective Date:** December 08, 2014 at 8:00 AM
2. **Policy Or Policies To Be Issued:**

	$250.00
	$21.00
	$271.00

Proposed Insured:

To Be Determined

3. **The estate or interest in the land described or referred to in this Commitment and covered herein is:**
   Fee Simple
4. **Title to said estate or interest in said land is at the effective date hereof vested in:**
   PORT OF CAMAS-WASHOUGAL, a Washington corporation
5. **The land referred to in this commitment is described as follows:**
   SEE EXHIBIT "A" ATTACHED HERETO

EXHIBIT "A"
LEGAL DESCRIPTION

NEW PARCEL 2:

A Portion of the David Parker Donation Land Claim Number 48, situated in the Southeast 1/4 of the Southeast 1/4 of Section 12, and in the Northeast 1/4 of the Northeast 1/4 of Section 13, Township 1 North, Range 3 East of the Willamette Meridian, Clark County, Washington, being more particularly described as follows:

Beginning at a point on the East line of the David Parker Donation Land Claim Number 48 which bears North 87°36'08" West, 32.34 feet and South 22°17'56" West, 88.55 feet from the Southeast corner of said Section 12; thence along the East line of said Parker Claim, South 22°17'56" West, 180.88 feet to the historic mean low tide line of the Columbia River; thence along said line the following (18) courses:
thence North 74°16'47" West, 12.50 feet;
thence North 82°30'52" West, 56.25 feet;
thence North 85°00'53" West, 60.05 feet;
thence South 83°04'58" West, 34.34 feet;
thence South 88°41'46" West, 46.61 feet;
thence South 87°46'54" West, 52.12 feet;
thence South 84°12'17" West, 55.26 feet;
thence North 76°23'25" West, 123.81 feet;
thence North 85°47'57" West 72,73 feet;
thence North 79°1203" West, 76.34 feet;
thence North 82°14'54" West, 72.46 feet;
thence North 81°48'28" West, 111.65 feet;
thence North 73°50'20 West, 104.97 feet;
thence North 76°21'38" West, 44.79 feet;
thence North 88°04'37" West, 120.50 feet;
thence North 89°04'55" West, 49.45 feet;
thence North 82°34'33" West, 106.88 feet;
thence North 79°20'55" West, 72.58 feet to an existing fence line and the line by boundary agreement recorded under Auditor's File Number 3413871, Clark County Deed Records; thence along said line, North 06°49'20" West, 130.02 feet to an angle point; thence continuing along said line, North 03°32'26" East, 204.17 feet to a point of non-tangent curvature; thence along the arc of a 277.00 foot radius curve concave to the Northeast, through a Central angle of 56°46'52" (Chord bears South 42°05'47" East, 263.41 feet) a distance of 274.51 feet to a point of compound curvature; thence along the arc of a 200.00 foot radius curve concave to the Northwest, through a Central angle of 67°32'13" (Chord bears North 75°44'41" East, 222.34 feet) a distance of 235.75 feet to a point of reverse curvature; thence along the arc of a 200,00 foot radius curve concave to the Southeast, through a Central angle of 55° 53'54" (Chord bears North 69°55'31" East, 187.48 feet) a distance of 195.12 feet to a point of compound curvature; thence along the arc of a 2000.00 foot radius curve concave to the Southwest, through a Central angle of 17°10'53" (Chord bears South 73°32'06" East, 597.49 feet) a distance of 599.74 feet to a point of reverse curvature; thence along the arc of a 1200.00 foot radius curve concave to the Northeast, through a Central angle of 9°32'57" (Chord bears South 69°43'08" East, 199.76 feet) a distance of 200.00 feet to the Point of Beginning.

NEW PARCEL 3

A Portion of the David Parker Donation Land Claim Number 48, situated in the Southeast 1/4 of the Southeast 1/4 of Section 12, and in the Northeast 1/4 of the Northeast 1/4 of Section 13, Township 1 North, Range 3 East of the Willamette Meridian, Clark County, Washington, being more particularly

described as follows:

Beginning at a point on the East line of the David Parker Donation Land Claim Number 48 which bears North 87°36'08" West, 32.34 feet and South 22°17'56" West, 88.55 feet the Southeast corner of said Section 12; thence along the arc of a 1200.00 foot radius non-tangent curve concave to the Northeast, through a Central angle of 9°32'57" (Chord bears North 69°43'08" West, 199.76 feet) a distance of 200.00 feet to a point of reverse curvature; thence along the arc of a 2000.00 foot radius curve concave to the Southwest through a Central angle of 5°47'10" (Chord bears North 67°50'14" West, 201.89 feet) a distance of 201.97 feet; thence North 22°17'56" East, 576.99 feet to the Southerly Right of Way line of State Route 14 as described by deed recorded under Auditors File Number 4709230, Clark County Deed Records; thence along said Right of Way line, along the arc of a 3670.00 foot radius curve concave to the Southwest, through a Central angle of 6°17'18" (Chord bears South 71°51'01" East, 402.58 feet) a distance of 402.78 feet to the East line of said Parker Donation Land Claim; thence along said line, South 22°17'56" West, 598.61 to the Point of Beginning.

COMMITMENT FOR TITLE INSURANCE
SCHEDULE B
Part I

Schedule B of the policy or policies to be issued will contain exceptions to the following matters unless the same are disposed of to the satisfaction of the Company:

GENERAL EXCEPTIONS

A. Taxes or assessments which are not shown as existing liens by the public records.

B. (i) Unpatented mining claims; (ii) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (iii) water rights, claims or title to water; whether or not the matters described (i), (ii) & (iii) are shown in the public records; (iv) Indian tribal codes or regulations, Indian treaty or aboriginal rights, including easements or equitable servitudes.

C. Extended coverage exceptions as follows:

(1) Rights or claims of parties in possession not shown by the public records.

(2) Easements, claims of easement or encumbrances which are not shown by the public records.

(3) Encroachments, overlaps, boundary line disputes, or other matters which would be disclosed by an accurate survey and inspection of the premises and which are not shown by the public records.

(4) Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished imposed by law and not shown by the public records.

D. Any service, installation, connection, maintenance, tap, capacity, construction or reimbursement charges for sewer, water, electricity or other utilities, or for garbage collection and disposal.

E. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this commitment.

F. Any titles or rights asserted by anyone, including but not limited to persons, corporations, governments, or other entities, to tidelands, or lands comprising the shores or bottoms of navigable rivers, lakes, bays, ocean or gulf, or lands beyond the line of the harbor or bulkhead lines as established or changed by the United States Government, or riparian rights, if any.

SPECIAL EXCEPTIONS FOLLOW

COMMITMENT FOR TITLE INSURANCE
SCHEDULE B
Part I

SPECIAL EXCEPTIONS

1. General taxes: First half delinquent May 1; Second half delinquent November 1:

Year:	2014
Amount Billed:	$0.00
Amount Paid:	$0.00
Amount Due:	$0.00, plus interest and penalty if delinquent
Tax Account No.:	073134-179
Levy Code:	112000
Land:	$4,128,400
Improvements:	$0.00

General taxes: First half delinquent May 1; Second half delinquent November 1:

Year:	2014
Amount Billed:	$0.00
Amount Paid:	$0.00
Amount Due:	$0.00, plus interest and penalty if delinquent
Tax Account No.:	073134-153
Levy Code:	112000
Land:	$2,382,700
Improvements:	$0.00

2. The property herein described is carried on the tax rolls as exempt.

   Note: Transfer to a non-exempt buyer may result in Prorated Supplemental property taxes for current year.

3. Assessments or LID's levied by the City of Washougal.

4. Evidence of the corporate existence of Port of Camas-Washougal must be submitted, together with evidence of the identity and authority of the officers thereof to execute the forthcoming instrument.

5. Any unrecorded leaseholds, right of vendors and holders of security interest on personal property installed upon said property, and right of tenants to remove trade fixtures at the expiration of the term.

6. Rights of the State of Washington in and to that portion of the premises, if any, lying below the line of ordinary high tide or ordinary high water of the Columbia River as said line exists today or may have existed in the past.

7. Any prohibition or limitation on the use, occupancy, or improvements of the land resulting from the rights of the public or riparian owners to use any waters which may cover the land or to use any portion of the land which is now or may formerly have been covered by water.

8. The right of use, control, or regulation by the United States of America in exercise of power over commerce, navigation and fisheries.

9. Any question that may arise as to the location of the lateral boundaries of the tidelands or shorelands described herein.

10. Any question that may arise due to the shifting or change in the course of the Columbia River or due to the Columbia River having shifted or changed its course.

11. Unrecorded easements in favor of the City of Washougal lying within vacated streets of Parkersville, recorded in Volume A of Plats, page 7, records of Clark County, Washington.

12. Reservation of all existing and future rights to light view and air, together with the rights of access to and from the State Highway constructed on lands conveyed in Deed from the State of Washington:
    Recorded: March 17, 1964
    Recording No.: G 379782

13. Easement and the terms and conditions thereof:
    Grantee: City of Washougal
    Purpose: Pedestrian and emergency access to Columbia River
    Affects: Vacated 2nd Street attached to Block 8
    Recorded: March 22, 1999
    Recording No.: 3082392

14. Boundary line adjustment, including the terms and conditions thereof, recorded under Auditor's File No. 3413871.

15. Development agreement, including the terms and conditions thereof, recorded May 25, 2012, recorded under Auditor's File No. 4857873 and amended by 5019502.

16. Matter's disclosed by ALTA/ACSM Survey by KC Development February 9, 2012, Job No. 445.11

END OF SPECIAL EXCEPTIONS

Stewart Title
- Vancouver, WA 98663
(360) 696-0621 - (503) 224-5971
This is not a survey. It is furnished as a convenience to locate the land indicated hereon with reference to streets and other land. No liability is assumed by reason of reliance hereon.
Portion of Section: _____
Township: _____
Range: _____

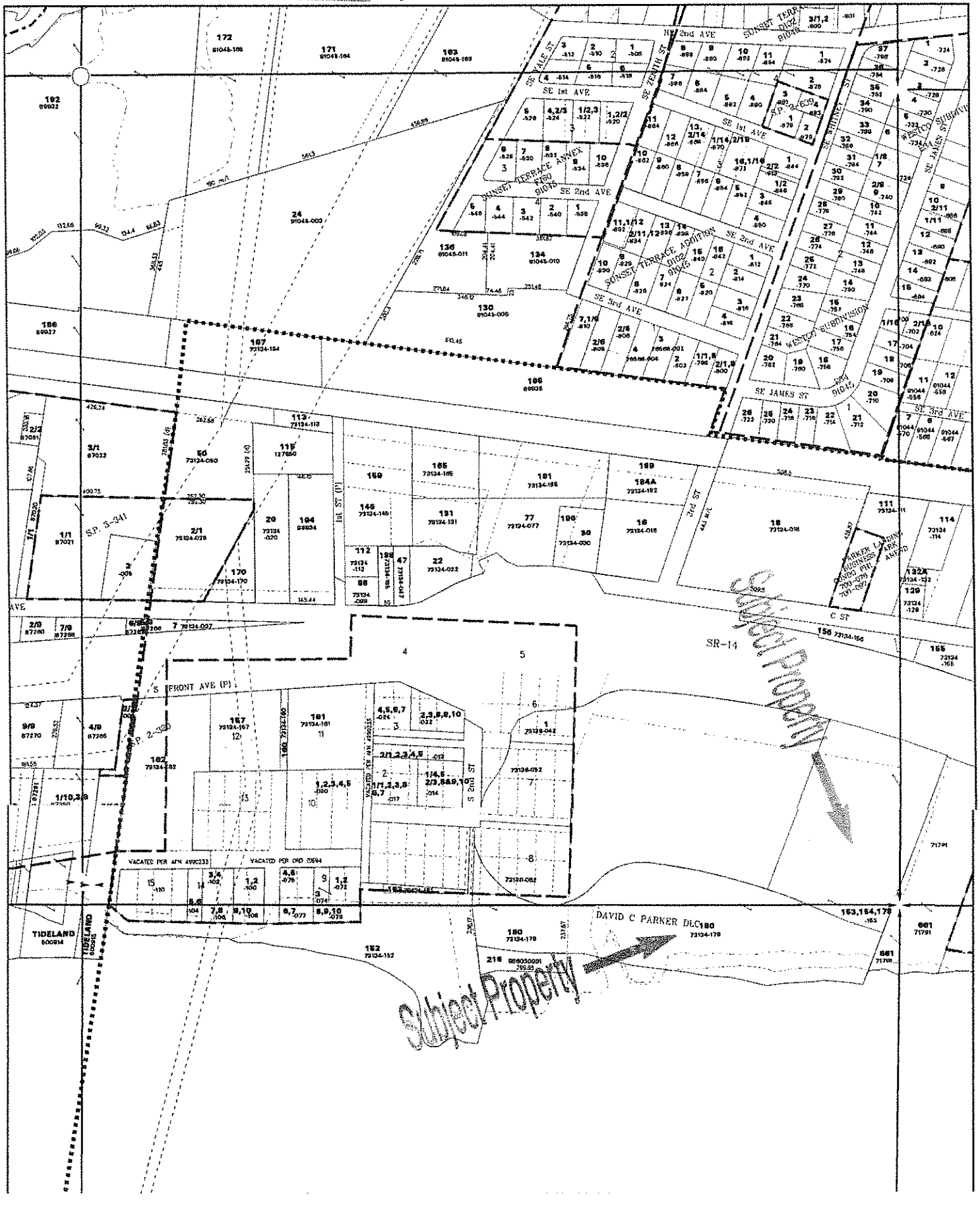

Exhibit B

PROPERTY MAP

Exhibit B
Property Map

Port of Camas-Washougal
Washougal, Washington

Legend

- Former Site Buildings
- Property Boundary

Notes:
1. Property boundary is approximate and based on legal description provided by KC Development (Sept. 10, 2012).

0 75 150
Feet

Source: Aerial photograph (7/2010) obtained from ESRI, Inc. ArcGIS Online.

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Path: X:\0229.04\08_Remedial_Action\Completion Report\Projects\Exhibit B_Property Map.mxd
Project: 0229.04.08-04 Produced By: jschane/maronn Approved By: ahughes Print Date: 2/9/2015

Exhibit C

MAP ILLUSTRATING LOCATION OF RESTRICTIONS

Exhibit C
Map Illustrating Locations of Restrictions

Port of Camas-Washougal
Washougal, Washington

Legend

- Groundwater Management Area
- Soil Management Area
- Former Site Buildings
- Property Boundary

Notes:
1. Property boundary is approximate and based on legal description provided by KC Development (Sept. 10, 2012).

0 75 150
Feet

Source: Aerial photograph (7/2010) obtained from ESRI, Inc. ArcGIS Online.

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Path: X:\0229.04\08 Remedial Action\Completion Report\Projects\ExhibitC_Map Illustrating Location of Restrictions.mxd
Project: 0229.04.08-04 Produced By: jschane/maronn Approved By: ahughes Print Date: 2/10/2015

APPENDIX H

SOIL MANAGEMENT AND CAP MAINTENANCE PLAN

SOIL MANAGEMENT AND CAP MAINTENANCE PLAN

FORMER HAMBLETON BROS LOG YARD

Prepared for

PORT OF CAMAS-WASHOUGAL

May 13, 2015

Project No. 0229.04.08

MAUL FOSTER ALONGI

Prepared by

Maul Foster & Alongi, Inc.

400 E Mill Plain Blvd., Suite 400, Vancouver WA 98660

SOIL MANAGEMENT AND CAP MAINTENANCE PLAN

HAMBLETON BROS. LOG YARD

The material and data in this plan were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

Alan R. Hughes, LG
Senior Geologist

This digital seal certifies the signatory and document content.

Jacob Faust, PE
Project Engineer

CONTENTS

ILLUSTRATIONS

FOLLOWING PLAN:

FIGURES

RECORD DRAWINGS

ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
CUL	cleanup level
Ecology	Washington State Department of Ecology
LRIS	Lake River Industrial Site
MFA	Maul Foster & Alongi, Inc.
HAZWOPER	Hazardous Waste Operations and Emergency Response
MTCA	Model Toxics Control Act
OSHA	Occupational Safety and Health Act
Port	Port of Ridgefield
Property	the Port's Railroad Overpass property
RCRA	Resource Conservation and Recovery Act
RI/FS	remedial investigation and feasibility study
SAP	Sampling and Analysis Plan
SMCMP	Soil Management and Cap Maintenance Plan
USEPA	U.S. Environmental Protection Agency
WAC	Washington Administrative Code

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA) has prepared this Soil Management and Cap Maintenance Plan (SMCMP) on behalf of the Port of Camas-Washougal (Port) for the portion of the former Hambleton Bros. Log Yard property which the Port owns (the Property), located at 335 South A Street, Washougal, Washington, shown in (Figure 1). Information pertaining to the soil management, cap description, and cap maintenance for the Property is provided here.

This SMCMP has been prepared in accordance with the requirement of Washington Administrative Code (WAC) 173-340-440 and related provisions of the November 2007 update of the Washington State Model Toxics Control Act (MTCA). This document addresses soil management procedures to be followed in the event of future development or of any condition in which the protective caps are breached. This document also addresses monitoring and maintenance procedures associated with the Property's protective caps. A decision matrix flow chart for conducting ground-disturbing work on the Property is provided as Figure 2.

The Property is located in sections 12 and 13 of township 1 north and range 3 east, and section 7 of township 1 north and range 4 east of the Willamette Meridian (see Figure 1). The Property is generally flat, with a slight slope toward the Columbia River (south). The Columbia River is at the Property's southern boundary, at the end of an approximately 32-foot downward slope.

The Property is bordered by Killian Pacific property (former Hambleton Lumber Mill property) and State Route 14 to the north and South 2nd Street to the west, with an undeveloped vacant lot to the east which is owned by the Port. Adjoining properties to the west of 2nd Street are a commercial hotel and a vacant building slated for commercial use. Properties located north of State Route 14 are in mixed commercial, residential, and light industrial use. Site features are shown on Figure 3.

2 PROJECT ROLES AND RESPONSIBILITIES

The roles and responsibilities for management of the Property are discussed below. The individuals identified below may change, and it is the responsibility of the party performing work to obtain up-to-date information.

2.1 Port of Camas-Washougal

The Port is the current owner of the Property. The Port will be considered the generator of all wastes removed from the Property, for as long as the Port holds ownership. If ownership of the Property changes, waste generation allocation will change to the new property owner. It is the Port (or subsequent owner) that will ultimately determine whether excavated material is managed on or off the Property, with the assistance and approval of the Washington State Department of Ecology

(Ecology). The Port, as long as it is an owner of the Property, must main records as specified in Section 6.6 and must provide these records to any subsequent property owner. The current director of operations is David Ripp, 360-835-5560.

2.2 Maul Foster & Alongi, Inc.

MFA is the environmental consultant and engineer for the project. MFA has performed and will continue to perform technical analysis and evaluation of plans related to future development; conduct sampling and evaluation of site activities, as necessary; document environmental conditions; and certify compliance with long-term monitoring and maintenance plans and this SMCMP. MFA will assist the Port with regulatory compliance and waste-handling determinations and can be reached at (360) 694-2691.

2.3 Washington State Department of Ecology

Ecology will continue to provide environmental oversight for future redevelopment projects that will encounter impacted site soil. The current Ecology project manager is Scott Rose, (360) 407-6347.

3 RESIDUAL CONTAMINATION IN SOIL

Residual-range organics (RRO), lead, mercury, polychlorinated biphenyls (PCBs), and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) are the indicator hazardous substances in soil for the Property. The contamination remains below the protective caps; and therefore, all work on the Property that breaches the protective caps must adhere to the soil-management procedures outlined in this document. Figure 3 shows the locations of the caps on the property which must be maintained, and indicates which IHSs are likely present in soil beneath the cap at each location. The caps have been surveyed and the data can be made available upon request to MFA.

4 SOIL MANAGEMENT PROCEDURES

Before the start of any work that will expose soil below the protective caps at the Property, a soil-handling work plan will be required. The soil-handling work plan should identify the quantity of soil cap to be worked or moved and where it will be staged; the quantity of impacted soil to be disturbed; and where it will be placed on site, stockpiled, or disposed of. The work plan should show the original cap layout and the restoration of an equally protective cap, as applicable.

The following sections describe the general protocol for soil handling associated with specific construction conditions. Construction conditions outside those defined below will require evaluation

on a case-by-case basis to establish a protocol. The following conditions may be encountered during standard site-development activities.

4.1 Protective Cap Soil

Depending on the type of project, construction activities may be limited to disturbance of the protective cap zone. Disturbances of the protective soil cap (i.e., above demarcation fabric) will not involve any special health and safety requirements (outside standard construction health and safety protocols). Care shall be taken to maintain cap integrity during construction activities taking place on the protective cap. If the protective soil cap is disturbed, reconstruction will be required. Ruts in the protective cap are to be filled with clean fill to avoid ponding. Grading or moving cap material from one location to another will not be permitted if it creates an area in the cap that does not meet the minimum requirements (see Section 5). Cap surface slopes must be maintained for adequate stormwater flow, and best management practices must be implemented to prevent erosion of cap material. Details on cap restoration are provided in Section 5.

4.2 Soil beneath Cap

All construction activities that require excavation below the established or reconfigured cap (e.g., soil cap and demarcation fabric, pavement, concrete, building) and that will result in the disturbance of soil that may be impacted are required to comply with the protocol presented in this section. Impacted soil below the cap may be breached during general construction activities, including but not limited to the following: utility or stormwater conveyance construction, underground structure or building foundation construction, and general earthwork and earth-moving activities. Worker safety requirements pertaining to handling of impacted soil are provided in Section 6.2.

Soil above the demarcation fabric is clean fill. Should the soil cap become contaminated (e.g. contact or be mixed with soil from below the demarcation fabric), clean soil must be imported and used as replacement soil. Impacted soil beneath the demarcation fabric must be handled separately from the clean protective cap soil in order to:

- Avoid cross-contamination of clean protective cap soil.
- Allow reuse of the protective cap for soil cap restoration activities.
- Limit the amount of soil to be handled as impacted soil.
- Ascertain the disposal status of impacted soil.

Soil excavated below the demarcation fabric will be assumed to be impacted by IHSs unless proven otherwise. Therefore, the soil excavated below the cap must be segregated from other excavated soils and handled as contaminated material. Impacted soil can be handled either by placing it where it was originally excavated, by placing and capping at a new location on the Property consistent with approved cap options (see Section 5), or by disposing of the impacted soil off site.

The impacted soil that is generated from construction activities should not be placed on any portions of the Property including the clean soil cap, temporarily or otherwise without lining. Impacted soil, regardless of where the soil is stored, should be placed on and covered by an

impermeable liner at all times. Impacted soil can be stockpiled for up to 90 days without requiring a Resource Conservation and Recovery Act (RCRA) permit. A RCRA permit must be obtained to store impacted soil longer than 90 days.

When impacted soil is excavated, stockpiling should be limited to the extent possible. If soil must be stockpiled on top of the protective soil cap, then stockpiles of impacted soil should be placed as close to the excavation as possible with the smallest footprint possible, and should be placed on and covered with an impermeable liner. The existing ground should be cleared of debris and any objects that have the potential to puncture the liner. A berm, constructed of imported or unimpacted site soil, compost socks, hay bales, sandbags, or equivalent material as approved by the supervising engineer, is to be installed along the perimeter of the impacted soil stockpile. The liner bottom and cover must extend up and over the perimeter berm so there is no impacted soil contact with precipitation or stormwater runoff. Impacted soil is to remain covered except when the stockpile is in use. Impacted soil *must not* be mixed with cap soil. If impacted soil is released on the cap surface, the impacted cap surface is to be removed and handled as impacted soil. Any soil cap that is removed must be replaced with a clean soil cap. Cap systems other than clean soil will require approval by Ecology.

When excavation activity is expected to go below the established cap, the demarcation fabric should be cut away from the boundary of the proposed excavation. To avoid creating a tear or gap in the fabric beyond the excavation area, the fabric may not be pulled or torn by excavation equipment at the boundary of the excavation. Replacement fabric will be overlapped with existing fabric to the extent possible to maintain a consistent fabric covering.

The current cap configuration, thicknesses, and materials for the Property are shown in the attached drawings. A description of cap types approved by Ecology for the Property is provided in Section 5. If activities on the Property are expected to result in handling of impacted soils in a manner inconsistent with this plan or using a cap profile different from that previously approved, Ecology approval must be secured as described in Section 5.2.

4.2.1 Replacement at Original Excavation

Impacted soil placed into its original excavation (around foundations, pipes, or underground structures) should be compacted as directed by the engineer. New demarcation fabric matching the existing fabric specifications shall be installed over the re-placed impacted soil where the fabric will not be covered by an impervious surface, to form continuous coverage with adjacent fabric edges. Impervious surfaces are in and of themselves the demarcation layer.

When impacted soil is excavated and slated for placement at a different on-Property location, it is expected that the impacted soil will be transferred directly to its new location to limit stockpiling to the extent possible. If soil must be stockpiled on the Property including on top of the protective soil cap, then stockpiles of impacted soil should be placed as close to the excavation as possible, should cover the least possible amount of cap area, and should be placed on and covered with an impermeable liner. The existing grade should be cleared of debris and any objects that have the potential to puncture the liner. A berm constructed of imported or unimpacted site soil, compost socks, hay bales, sandbags, or equivalent material as approved by the supervising engineer is to be

installed along the perimeter of the impacted-soil stockpile. The liner bottom and cover must extend up and over the perimeter berm so that there is no impacted-soil contact with precipitation or stormwater runoff. Impacted soil is to remain covered except when in use. Impacted soil *must not* be mixed with cap soil. If impacted soil is released on the cap surface, the impacted cap surface is to be removed and handled as impacted soil. Any soil cap that is removed must be replaced with clean soil.

4.2.2 New Placement Location

If impacted soil cannot be re-placed in the original excavation, then the impacted soil may be used as backfill at other areas of the Property below an approved cap. Instances that may potentially warrant a new placement location include large excavations for subgrade, footing, or utility trenches, where re-placement in the original location is not possible. Upon approval of a new placement location (e.g., beneath landscaping area, roadbed, building structure, constructed staging area), the material must be capped consistent with minimum capping guidelines described in Section 5 of this SMCMP. If new capping profiles or materials are proposed (other than those listed below), approval from Ecology will be required.

4.3 Off-Site Disposal

Soil required for offsite disposal should be characterized as described in the attached Sampling and Analysis Plan (SAP). Results of analysis should be used to determine appropriate offsite disposal location according to Ecology and MTCA requirements. All excavation and hauling of soils determined to be contaminated should be performed by workers with appropriate certifications to do the work. All records for hauling and disposal for any soil removed from the site shall be retained and provided to the Port.

5 PROTECTIVE CAP

The soil cap profiles have been designed to ensure the appropriate degree of protectiveness for ecological and human receptors from the impacted material that remains on the Property. The following describes the cap conditions post remedial action at the Property.

A soil cap of varying thicknesses (but at a 2-foot minimum) was installed over the impacted locations of the site. The cap areas are 1.42 acres in total. See Record Drawings AB-4 and AB-6 for the property's graded areas and cap sections, respectively. The caps consist of demarcation fabric installed over contaminated soil and a minimum of two feet of clean soil. If the soil cap is disturbed, the cap must be reconstructed to match the preconstruction cap thickness and configuration or one of the other options provided below in this section.

When redevelopment of the Property requires alteration of the cap types and/or configuration, the Port will notify Ecology 30 days before construction. The following are approved cap options:

Table
Capping Options

Type of Use	Typical Section
Landscaping/green space	
<2 feet soil	• Geotextile as demarcation; no landscaping; impermeable surface required (e.g., pavement, impermeable liner to prevent infiltration, buildings)
2 to 3 feet soil	• Geotextile as demarcation layer; ground cover; gravel surfaces, or other surface as approved by Ecology; and grasses
3 to 6 feet soil	• Geotextile as demarcation layer; shrubs or trees; gravel surfaces, or other surface as approved by Ecology; and grasses
>6 feet soil	• No geotextile and no vegetation planting restrictions
Parking	Impermeable surface (min. thickness 3 inches) with clean subbase as necessary for construction
Building/structure	Slab-on-grade (min. thickness 3 inches) with subbase as necessary for construction
Sidewalk/pathway	Impermeable surface (min. thickness 2.5 inches) with clean subbase as necessary for construction or gravel surface with minimum 2 feet clean fill

5.1 Soil Cap Requirements

Soil from on-site stockpiles was used as clean capping material following testing and approval from Ecology. Should replacement capping material be necessary to re-establish minimum cap depths per the Capping Options Table, imported soil to be used as clean capping material will require analytical testing to show it is not impacted. The imported soil will follow guidelines that include, but are not limited to, the following.

The owner of the proposed fill material must hire a qualified environmental professional to obtain representative samples of the proposed fill material for laboratory analysis. The engineer and/or environmental professional will conduct sampling in accordance with the SAP found in Appendix A. Samples will be analyzed by a certified environmental testing laboratory. The owner of the proposed fill material is responsible for any and all costs associated with the sampling and analysis of fill material, unless an agreement is made that states otherwise. The final determination for acceptance of clean soil will be made at the discretion of the Port, in consultation with Ecology. The analysis described in the SAP will be used as a guide for decision making.

5.1.1 Geotextile

Geotextile to be used as the demarcation layer must at least meet the minimum technical specifications as follows:

1. Material: Woven Polypropylene Geotextile

2. Color: Safety Orange, Red, Yellow, or Neon Green
3. Burst Strength: 200 psi.
4. Permittivity: 10 gpm/sq. ft
5. UV Resistance: 70% after 200 hours

5.1.2 Vegetation

Areas of 2-foot-minimum cap thickness are to be planted with grasses and vegetation that have shallow root systems. Shallow-rooted trees, shrubs, and grasses are allowed in areas of 3-foot-minimum cap thickness.

5.2 Other Capping Material

Other capping material that may be used includes impermeable surfaces such as building foundations and footings and concrete surfaces or structures. If other surfacing materials are desired as part of future redevelopment activities (other than those listed in the table above), Ecology's approval is required.

6 SITE CONTROLS

The generation of impacted soil triggers the requirement to implement specific site controls. These controls are required in order to protect the adjacent environment and reduce potential exposure of the nearby public to the impacted soil material that remains capped at the Property.

6.1 Fencing and Signage

In the event of redevelopment activities that generate impacted soil, fencing should be maintained in order to restrict public access to areas of the Property that are no longer contained by a cap. Signage shall be posted on the fencing separating the public from uncapped areas.

6.2 Worker Health and Safety

All future redevelopment activities that penetrate the cap, and that thereby generate impacted soil, are to be conducted according to WAC 173-340-810; the Occupational Safety and Health Act (OSHA) of 1970 (29 U.S. Code Sec. 651 et seq.); the Washington Industrial Safety and Health Act (Chapter 49.17 Revised Code of Washington); and relevant regulations. The developer will be required to prepare a health and safety plan before beginning work; this plan should be available for review by the Port and/or Ecology by request. The health and safety plan shall, at a minimum, set forth the requirements and protections for working in areas containing soil that may be chemically impacted, and shall include the following:

- Current Hazardous Waste Operations and Emergency Response (HAZWOPER) certification for workers disturbing impacted soil
- Indicator hazardous substances and site background
- Personal protective equipment
- Personal hygiene and decontamination protocols
- Medical surveillance
- Hazard communication and site control
- Recordkeeping and reporting

6.2.1 Qualified Personnel

The developer will retain a contractor that will complete the development work in compliance with OSHA regulations (29 Code of Federal Regulations [CFR] § 1910.120 and § 1926.65); workers in any area of the Property that is temporarily uncapped during construction and those who will come in contact with impacted soil must be qualified personnel. The qualified personnel must have received the HAZWOPER standard 40-hour training and/or received refresher training in the past year. Managers and supervisors directly overseeing the working crew must have received an additional eight hours of specialized training in hazardous-waste management supervision.

6.3 Land Use Restrictions

The environmental covenant for the Property, found in the Completion Report, provides additional land use restrictions, and should be referenced and complied with when a new land use is proposed. Because impacted soil remains on the Property, there may be requirements associated with development and limitations to specific land uses.

6.4 Hazard Communication

Appropriate training must be provided for personnel who will come in contact with potentially contaminated material. Additionally, all waste containers must be labeled consistent with 29 CFR § 1910.1200.

All contractors doing work on the Property in the vicinity of the caps must obtain a copy of and review the completion report and all attachments.

6.5 Notification and Reporting

Ecology approval must be obtained prior to alteration of approved cap types and/or configuration. As indicated in Section 5.2, Ecology must be provided notice that alternate cap types/configuration are under consideration. This notice should be provided well in advance of development to allow time for the approval process. Ecology will review the request and provide approval or will request

additional information or analysis within 30 days. Construction of the alternate cap/types or configuration will not begin until receipt of Ecology approval.

The contractor shall maintain weekly reports of field activities during any active construction that disturbs soil or other cap material on the Property. The Port will prepare or oversee the preparation of a project completion report to document the management of impacted soil for each project in which such work is conducted. The report will document the management techniques used and the approximate volumes of materials handled, and will provide placement or disposal information, disposal manifests, and analytical data generated during management of the impacted material. The contractor's weekly reports and project completion reports will be maintained by the Port in a cap monitoring and construction master file.

6.6 Recordkeeping

The Port and any subsequent property owner must maintain records, documenting the following:

- On-site placement of excavated soil, including delineation of the disposal areas and estimated volumes
- Off-site disposal of excavated soil, including waste characterization, shipping manifests, and disposal certificates
- Cap breach reports, including where the cap was breached, methods for replacement, figures showing areas of cap disturbance, materials used, and any analytical results

7 PROTECTIVE CAP MONITORING AND MAINTENANCE

The protective cap requires regular and routine inspection to evaluate and maintain its integrity. Monitoring and, if required, maintenance should be conducted annually, at a minimum. This will provide an opportunity to correct small, localized failures before they become larger, more detrimental failures. In addition to annual inspection, an inspection is to take place after a large natural disaster occurs in close proximity to the Property, or after any other large-scale disturbance occurs near or at the Property. As the cap is the main barrier of protection between remaining impacted soil and human and ecological receptors, it is imperative that the cap maintain its intended integrity. This section outlines the monitoring and inspection procedure for each of the protective capping materials.

Monitoring personnel should complete the worksheet provided in Appendix B. The purpose of the monitoring event is to document existing conditions of capping materials and structures. The documentation can be used as a reference in evaluating the severity of cap degradation, if any, to determine if corrective action is required.

7.1 Soil Cap Inspection

The following describe the minimum observation and monitoring requirements per soil cap inspection. The Port will maintain record of all inspections for a minimum of 10 years. All recorded observations (using the worksheet in Appendix B) should be accompanied by photographs documenting the following:

- Overall cap condition
- Visible rills or gullies
- Evidence of stormwater ponding or concentrated flow
- Exposed demarcation fabric

7.2 Vegetation Inspection

The inspection for vegetation should be qualitative and quantitative. The following lists the minimum observation and monitoring requirements per inspection of site vegetation:

- Overall vegetation condition
- Overall vegetation percent coverage
- Areas of nonestablished or failing vegetation
- Areas of dead or dying vegetation
- Observance of invasive species

7.3 Corrective Action

If evidence of erosion or failure is observed in any of the abovementioned caps, the person conducting the inspection and reporting should consult with an engineer familiar with cap materials and structures. The engineer may decide that additional analysis or observation is necessary in order to determine if the damage will reduce the effectiveness of the protective cap. Corrective action will be evaluated on a case-by-case basis according to the type and/or severity of damage and the urgency. The following should be conducted in order to document damage and to evaluate a plan for corrective action:

1. Engineer's internal review of inspection reports and photographs
2. Site visit by the engineer to review damage
3. Additional measurement or analysis (survey, sample collection, or analysis)
4. Consultation with Ecology regarding the damage or deterioration and the engineering assessment
5. Proposal for repair prepared by the engineer (if determined necessary)
6. Obtaining and supervising a contractor completing repair work

7.4 Soil Cap and Vegetation Maintenance

Soil cap and vegetation maintenance will be conducted based on the findings of the annual monitoring report. If areas of the soil cap have eroded, replacement of the eroded areas with soil and vegetation will be required. This may require additional seeding and/or planting.

All vegetated areas should include a survey for invasive species as part of the routine maintenance. An attempt shall be made to eliminate observed invasive species.

LIMITATIONS

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

FIGURES

Site Address: 335 South A Street, Washougal, Washington
Source: US Geological Survey (1990) 7.5-minute topographic quadrangle: Camas & Washougal
A portion of the David C. Parker DLC No. 48; situated in the SW 1/4 of the SE 1/4 of Section 12 and in the NE 1/4 of the NE 1/4 of Section 13, Township 1 N, Range 3E, W.M., Clark County, Washington

Note: Site boundary is approximate.

Legend

Site Boundary

Figure 1
Site Location

Port of Camas-Washougal
Washougal, Washington

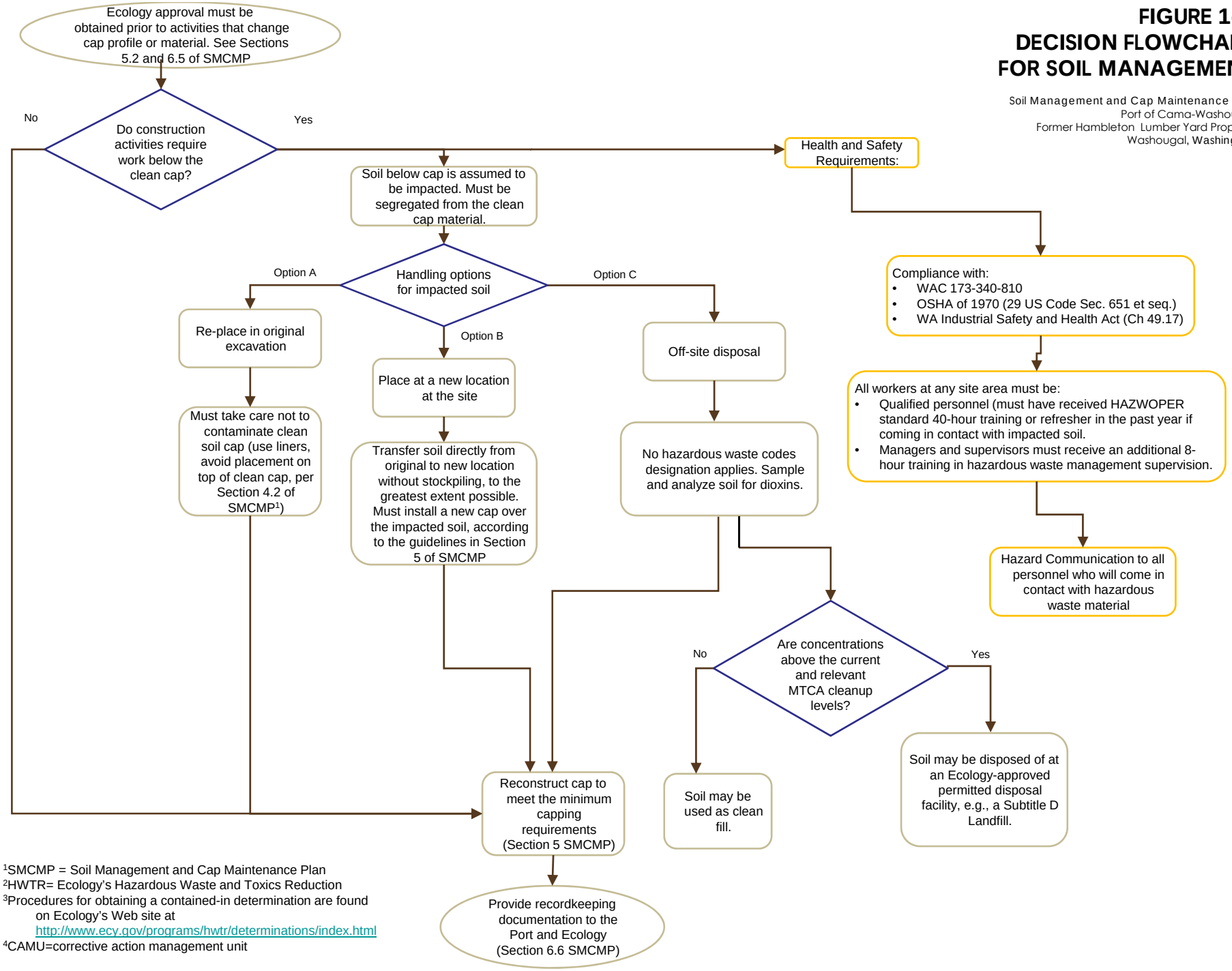
0 1,000 2,000
Feet

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\0229.04\08 Remedial Action\Projects\Fig1 Site Location.mxd
Print Date: 5/6/2014
Approved By: lfaust
Produced By: rmaronn
Project: 0229.04.08

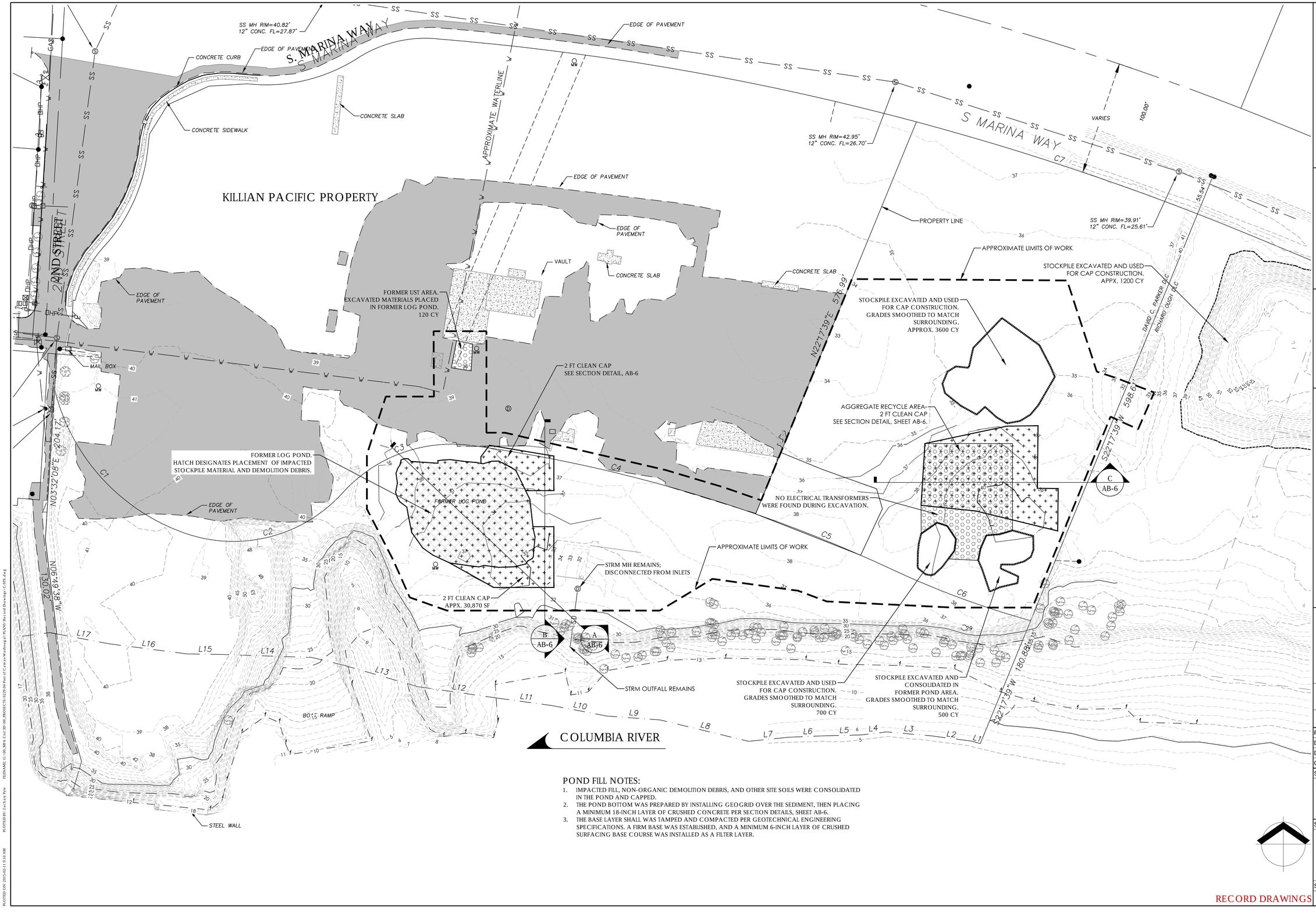
FIGURE 1-2
DECISION FLOWCHART FOR SOIL MANAGEMENT

Soil Management and Cap Maintenance Plan
Port of Cama-Washougal
Former Hambleton Lumber Yard Property
Washougal, Washington



[1]SMCMP = Soil Management and Cap Maintenance Plan
[2]HWTR= Ecology's Hazardous Waste and Toxics Reduction
[3]Procedures for obtaining a contained-in determination are found on Ecology's Web site at http://www.ecy.gov/programs/hwtr/determinations/index.html
[4]CAMU=corrective action management unit

DRAWINGS



POND FILL NOTES:

1. IMPACTED FILL, NON-ORGANIC DEMOLITION DEBRIS, AND OTHER SITE SOILS WERE CONSOLIDATED IN THE POND AND CAPPED.
2. THE POND BOTTOM WAS PREPARED BY INSTALLING GEOGRID OVER THE SEDIMENT, THEN PLACING A MINIMUM 18-INCH LAYER OF CRUSHED CONCRETE PER SECTION DETAILS, SHEET AB-6.
3. THE BASE LAYER SHALL WAS TAMPED AND COMPACTED PER GEOTECHNICAL ENGINEERING SPECIFICATIONS. A FIRM BASE WAS ESTABLISHED, AND A MINIMUM 6-INCH LAYER OF CRUSHED SURFACING BASE COURSE WAS INSTALLED AS A FILTER LAYER.

RECORD DRAWINGS

MAUL FOSTER ALONGI
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PORT OF CAMAS-WASHOUGAL

JACOB W. FAUST
STATE OF WASHINGTON
51298
REGISTERED
PROFESSIONAL ENGINEER

FORMER HAMBLETON BROS. LOG YARD REMEDIAL ACTION RECORD DRAWINGS
PORT OF CAMAS-WASHOUGAL
WASHOUGAL, WASHINGTON

DESCRIPTION	DATE	ISSUE
RECORD DRAWINGS	12/31/2014	1
ISSUE FOR CONSTRUCTION	8/15/2014	1
ISSUE FOR BID	6/25/2014	1
####	####	####
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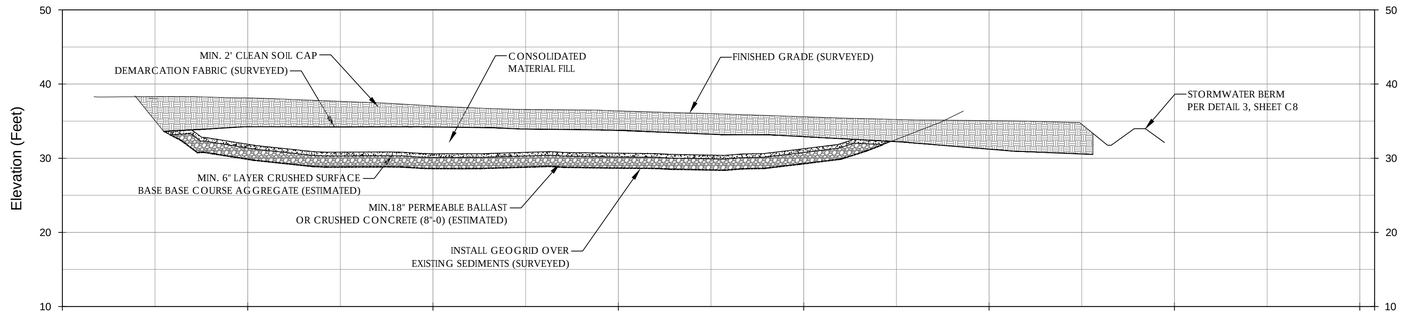
PROJECT: 0229.04.08
DESIGNED: J. FAUST
DRAWN: Z. PYLE
CHECKED: A. HUGHES

SCALE
0 60' 120
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
SITE PLAN

SHEET
AB-4

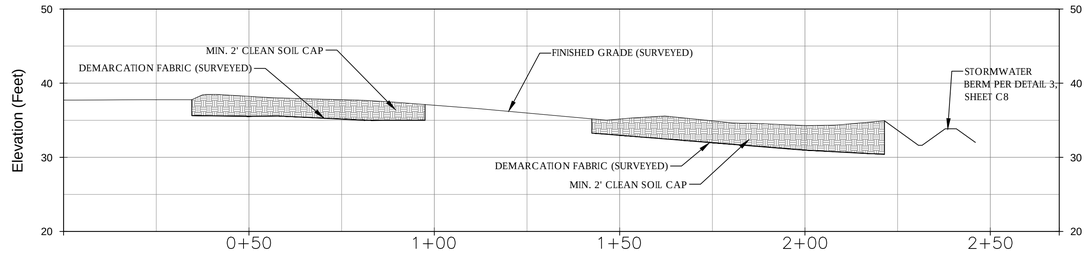
PLOTTED ON: 2015-02-11 9:10 AM PLOTTED BY: Zachary Pyle FILENAME: C:\00_MFA Civil 3D 00_PROJECTS\0229.04 Port of Camas-Washougal\7 PLANS\Record Drawings\CSHT.dwg



A / C5

POND AREA FILL, CAP, AND GRADING SECTION

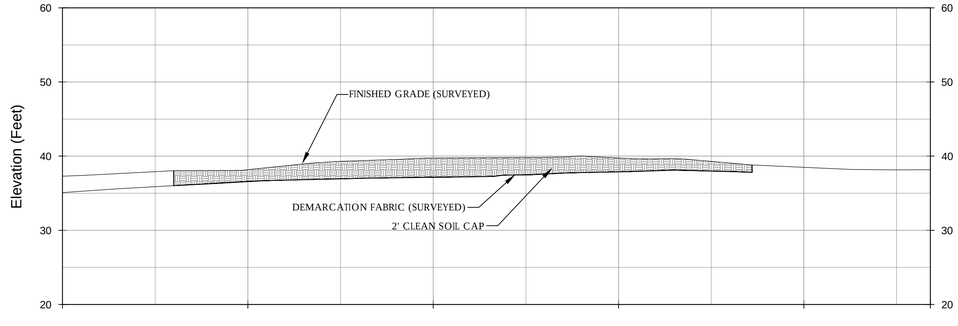
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 10'



B / C5

POND AREA CAP AND GRADING SECTION

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 10'



C / C5

FORMER AGGREGATE RECYCLE AREA CAP SECTION

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 10'

RECORD DRAWINGS

MAUL FOSTER ALONGI
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PORT OF CAMAS-WASHOUGAL

JACOB M. FAUST — STATE OF WASHINGTON — 51298 — REGISTERED PROFESSIONAL ENGINEER

FORMER HAMBLETON BROS. LOG YARD REMEDIAL ACTION RECORD DRAWINGS
PORT OF CAMAS-WASHOUGAL
WASHOUGAL, WASHINGTON

ISSUE	DATE	DESCRIPTION
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---	####	####
---	6/25/2014	ISSUE FOR BID
---	8/15/2014	ISSUE FOR CONSTRUCTION
---	####	####
---	####	####
---	####	####

PROJECT: 0229.04.08
DESIGNED: J. FAUST
DRAWN: J. FAUST
CHECKED: A. HUGHES
SCALE

SHEET TITLE

SECTIONS

SHEET

AB-6

PLOTTED ON: 2015-02-11 9:12 AM PLOTTED BY: Zachary Pyle FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0229.04 Port of Camas-Washougal\PIANS\Record Drawings\C-GRAD.dwg

APPENDIX A

SAMPLING AND ANALYSIS PLAN

SAMPLING AND ANALYSIS PLAN

FORMER HAMBLETON LUMBER MILL

Prepared for

PORT OF CAMAS-WASHOUGAL

May 13, 2015

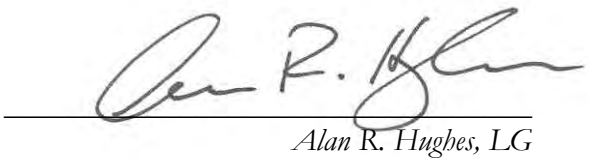
Project No. 0229.04.08

Prepared by
Maul Foster & Alongi, Inc.
400 E Mill Plain Blvd, Suite 400
Vancouver, WA 98660

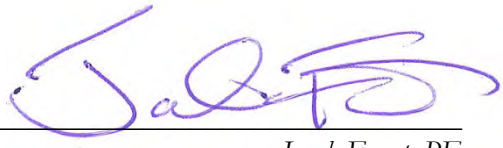
MAUL
FOSTER
ALONGI

The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.



Alan R. Hughes, LG
Senior Geologist



Jacob Faust, PE
Project Engineer

CONTENTS

TABLE

FOLLOWING REPORT:

TABLE

SAMPLE-HANDLING SUMMARY

ACRONYMS AND ABBREVIATIONS

CLARC	Cleanup Levels and Risk Calculation
COC	chain of custody
CUL	cleanup level
DRO	diesel-range organic
Ecology	Washington State Department of Ecology
GRO	gasoline-range organic
HCID	hydrocarbon identification
IDW	investigation-derived waste
IHSs	indicator hazardous substances
LCS	laboratory control sample
LDS	laboratory duplicate sample
MFA	Maul Foster & Alongi, Inc.
MS/MSD	matrix spike and matrix spike duplicate
MTCA	Model Toxics Control Act
NWTPH	Northwest Total Petroleum Hydrocarbons
PCB	polychlorinated biphenyl
Port	Port of Camas-Washougal
QA	quality assurance
QC	quality control
RRO	residual-range organic
SAP	Sampling and Analysis Plan
SMCMP	Soil Management and Cap Maintenance Plan
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA) has prepared this Sampling and Analysis Plan (SAP) on behalf of the Port of Camas-Washougal (Port) to describe the methods and procedures for collecting and analyzing soil that is proposed for use as clean capping material, as well as soil that is intended for off-site disposal. The guidance presented in this SAP is applicable for soil sampling and analysis activities that are required for the Port's 335 South A Street property (Property), as defined in the Soil Management and Cap Maintenance Plan (SMCMP).

1.1 Sampling and Analysis Objectives

The objective of this SAP is to establish procedures for collection of data sufficient for their intended use. This SAP describes methods that will be used to achieve the following objectives:

- To analyze soil for indicator hazardous substances (IHSs) to determine the appropriate off-site disposal method. Sample results will be compared to the relevant Model Toxics Control Act (MTCA) soil cleanup levels (CULs) found in the Washington State Department of Ecology's (Ecology) Cleanup Levels and Risk Calculation (CLARC) database at the time of sampling and analysis.
- To ensure that imported soil capping material is not contaminated at concentrations greater than the relevant MTCA soil CULs found in the CLARC database at the time of sampling and analysis.
- To provide suitable sampling techniques, sample analysis methods, and data verification procedures that ensure data quality.

Samples will be collected as described in Section 2 of this SAP. Following sample collection, samples will be submitted for analysis and screened against CULs, consistent with Section 3. The quality of the data should be evaluated, using the standard data validation protocols presented in Section 4, before off-site disposal or acceptance as clean fill.

2 SAMPLE PROGRAM DESIGN

Procedures to be followed for specific scenarios are provided in this section.

2.1 Sampling of Excavated Soils for Off-Site Disposal

Soil should be stockpiled in order to facilitate the sampling method and organization. Composite sampling will best characterize each stockpile in order to complete a waste profile for the landfill. To

address variability of the soil, choose the most representative stockpile volume and number of samples appropriate for the area in question. The disposal facility may be consulted to determine the minimum needed for waste-profiling purposes.

A representative soil sample will be collected by compositing five subsamples of the material source. The sampler will dig to a depth of 1 foot with a clean shovel and will collect the subsample by hand with clean, disposable gloves. Gloves will be changed and the shovel will be decontaminated between composited samples, consistent with the procedures specified in Section 2.3. Subsamples will be selected to obtain representative material, based on visual inspection and best professional judgment. To the extent possible, subsamples should consist of fine-particle-sized material, with larger rocks removed. Subsamples will be homogenized in a clean container (e.g., a decontaminated stainless-steel bowl or a dedicated container) before being transferred into laboratory-supplied, 16-ounce glass jars. Glass jars are to be preserved as specified in Section 2.5 and samples are to be analyzed as described in Section 3.1.

2.2 Sampling of Imported Soil Cap Material

Soil imported to the Property to be used as clean cap material should be tested prior to acceptance. Soil will be sampled and analyzed before delivery to the Property to certify that it meets the design acceptance criteria. The contractor or contractor's designee will complete soil sampling of soil at the minimum frequency specified by the contract documents. The number of samples required will be based on the likelihood of contamination present, estimated amount of fill needed, and homogeneity of the fill source. For each volume of soil represented by a composite sample, the material should be tracked in a manner that allows rejection of the material if necessary, based on representative analytical results.

A representative soil sample will be collected by compositing, at a minimum, five subsamples of the material at the source. The sampler will dig to a depth of 1 foot with a clean shovel and will collect the subsample by hand with clean, disposable gloves. Gloves will be changed and the shovel will be decontaminated between composited samples, consistent with the procedures specified in Section 2.3. Subsamples will be selected to obtain a representative sample, based on visual inspection and best professional judgment. To the extent possible, subsamples should consist primarily of fine-particle-sized material, with larger rocks removed. Subsamples will be homogenized in a clean container (e.g., a decontaminated stainless-steel bowl or a dedicated container) before being transferred into laboratory-supplied, 16-ounce glass jars.

2.3 Decontamination

Sampling equipment will be decontaminated at a location away from surface water, but near the sampling location (i.e., equipment will not be removed from the Property to be decontaminated). Sampling equipment will be decontaminated using the following procedure:

- Rinse with clean tap or deionized water.
- Wash with nonphosphate detergent.

- Rinse with deionized water.
- Air dry.

All liquids used to decontaminate equipment will be considered investigation-derived waste (IDW) and will be disposed of as outlined in the following section.

2.4 Investigation-Derived Waste

IDW may include soil cuttings and decontamination fluids. Soil collected but not containerized for analysis should be placed back on the soil stockpile. If less than approximately 1 gallon of decontamination fluid is generated it can be land applied to the soil stockpile.

The IDW not reapplied to the soil stockpile will be segregated (e.g., soil and water) and containerized separately. Drums (tops and sides) will be labeled with their contents, the volume of material, the date of collection, and the origin of the material. At the end of each workday, the drums will be sealed and transferred to a designated secured area on the Property, where they will be stored pending waste profiling, transport, and off-site disposal at a permitted facility.

2.5 Sample Handling, Preservation, and Custody

The samples will be placed on ice in a shipping container with chain-of-custody (COC) paperwork and transported to an accredited laboratory for analysis. Samples should be preserved according to the requirements in the attached Table.

3 ANALYTICAL PROCEDURES AND QUALITY ASSURANCE CRITERIA

Samples that have been collected following the procedures in Section 2 will be analyzed following the methods presented in this section. Analytical results will be evaluated relative to CULs. Additional details on the analytical methods, quality control (QC) procedures required by the laboratory, and screening levels are provided below.

3.1 Analytical Methods for Excavated Soils

It is the responsibility of the party generating the impacted soil to verify current disposal requirements with the disposal facility.

Soil excavated from beneath the caps on the Property during construction activities will be analyzed for IHSs:

- Residual-range organics (RRO) by Northwest Total Petroleum Hydrocarbons (NWTPH)

- Semi-volatile petroleum products analytical method NWTPH-Dx,
- Lead by U.S. Environmental Protection Agency (USEPA) Method 6010,
- Mercury by USEPA Method 7471,
- Polychlorinated biphenyls (PCBs) by USEPA Method 8082, and
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by USEPA Method 8270 selective ion monitoring (SIM).

3.1.1 Screening Levels for Excavated Soils

A comparison of IHS concentrations with current MTCA soil CULs will determine the characterization and handling requirements.

3.2 Analytical Methods for Imported Clean Soil Cap Material

Soil intended for use as clean cap material or cover soil at the Property requires the following analyses, at a minimum (note that additional analyses may be requested by the Port or Ecology, upon obtaining information about the location and/or prior use of the intended fill source):

- Petroleum hydrocarbons by NWTPH hydrocarbon identification (HCID) method
- Thirteen priority pollutant metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc) by USEPA Methods 6010/6020/7471

If hydrocarbons are detected in the HCID analysis, followup quantification testing will be required as described below:

- Gasoline-range organic (GRO) detections in HCID require followup analyses of:
  - GROs by NWTPH-Gx
  - Volatile organic compounds (VOCs) by USEPA Method 8260B
- Diesel-range organic (DRO) detections in HCID require followup analyses of:
  - DROs by NWTPH-Dx
  - Benzene, toluene, ethylbenzene, and xylenes by 8260B
  - Polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270 SIM
  - PCBs by USEPA Method 8082
- RRO detections in HCID require followup analyses of:

- RROs by NWTPH-Dx
- VOCs by USEPA Method 8260B
- Polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270 SIM
- PCBs by USEPA Method 8082

3.2.1 Screening Levels for Imported Materials

Sample results for the analytes listed above must be below the lowest MTCA soil CULs found in the CLARC database at the time of sampling and analysis. The laboratory should be notified of the required reporting limits for proper sample screening.

3.3 Laboratory Quality Control Procedures

The laboratory will follow the QC procedures required by each analytical method. The laboratory QC will be used to assess the accuracy and precision of the laboratory analysis. The QC procedures that may be required by the method are described below. The acceptance criteria established by the analytical laboratory and the guidelines referenced in Section 4.2 of this SAP will be used to assess the suitability of laboratory QC.

3.3.1 Calibration Verification

Instruments will initially be calibrated at the start of the project or sample run, as required, and when any ongoing calibration does not meet control criteria. The number of points used in the initial calibration is defined in the analytical method. Calibration will be continued as specified in the analytical method to track instrument performance. If a continuing calibration does not meet control limits, analysis of project samples will be suspended until the source of the control failure is either eliminated or reduced to within control specifications. Any project samples analyzed while the instrument was outside control limits will be reanalyzed.

3.3.2 Matrix Spike/Matrix Spike Duplicate

Matrix spike and matrix spike duplicate (MS/MSD) samples are analyzed to assess the matrix effects on the accuracy of analytical measurements. MS/MSD samples will be prepared by spiking investigative samples with known amounts of analytes before extraction, preparation, and analysis. The MS/MSD samples will be used to assess accuracy and precision of the analytical method by measuring the target compounds' recovery in the investigative matrices.

3.3.3 Method Blanks

Method blanks are prepared using analyte-free (reagent) water and are processed with the same methodology (e.g., extraction, digestion) as the associated investigative samples. Method blanks are used to document contamination from laboratory analytical processes. A method blank shall be prepared and analyzed in every analytical batch.

The results from the method blank analyses are used to verify that reagents and preparation do not impart unacceptable bias to the investigative sample results. The presence of analytes in the method blank sample will be evaluated against method-specific thresholds. If analytes are present in the method blank above the method-specific threshold, corrective action will be taken to eliminate the source of contamination before analysis proceeds. Investigative samples of an analytical batch associated with method blank results outside acceptance limits will be qualified, as appropriate.

3.3.4 Laboratory Control Samples

Laboratory control samples (LCSs) are prepared by spiking laboratory-certified, reagent-grade water with the analytes of interest or with a certified reference material that has been prepared and analyzed. The result for percent recovery of the LCS is a data quality indicator of the accuracy of the analytical method and laboratory performance.

3.3.5 Laboratory Duplicate Samples

Laboratory duplicate samples (LDSs) are prepared by the laboratory by splitting an investigative sample into two separate aliquots and separately preparing and analyzing each aliquot. The results for relative percent difference of the primary investigative sample and the respective LDSs are used to measure precision in the analytical method and laboratory performance. For nonaqueous matrices, sample heterogeneity may affect the measured precision for the LDSs.

3.3.6 Surrogate/Labeled Analogue Compounds

Surrogates and labeled analogue compounds are used to evaluate the recovery of an analyte from individual samples. Surrogate recoveries will be reported by the laboratory and will be used to assess data quality.

3.4 Analytical Data Reporting

The analytical laboratory will provide analytical data packages that include laboratory quality assurance (QA) and QC results to permit independent and conclusive determination of data quality. Data quality will be determined by the reviewer, using the data evaluation procedures described in Section 4. The results of the evaluation will be used to determine whether project data quality objectives are being met.

Required laboratory data deliverables, including electronic deliverables, are listed below.

- Transmittal cover letter
- Case narrative
- Analytical results
- COC
- QA/QC results
- Qualifier definitions

4 DATA VALIDATION AND USABILITY

Data verification is confirmation by examination and provision of objective evidence that specified requirements have been fulfilled (USEPA, 2001). Data verification includes evaluating the completeness, correctness, and compliance of a specific data set against the method, procedural, or contractual specifications (USEPA, 2002). Data validation is confirmation by examination and provision of objective evidence that the particular requirements for specific intended use have been fulfilled (USEPA, 2001). Data validation is an analyte- and sample-specific process that extends the evaluation of data beyond method, procedural, or contractual compliance (i.e., data verification) to the analytical quality of a specific data set (USEPA, 2002). Data verification and validation will be consistent with the procedures outlined in Sections 4.1 and 4.2, respectively.

The specific data reduction, verification, reporting procedures, and assigned personnel will vary for each laboratory; however, all procedures will be completed in accordance with the laboratory's QA plan and standard operating procedures.

4.1 Data Verification

Data verification will consist of a completeness check that is performed before the data review process continues in order to determine whether the required information (the complete data package) is available for further review. It applies to both hard-copy and electronic deliverables. The following QC checks for data reviews will be performed for all generated data:

- Verify that batch QC was implemented properly and analyzed at the required frequency.
- Verify that holding times for extraction and analyses and for sample reservation were met.
- Verify that the quantitation limits and method detection limits were suitable for screening against the required CULs.
- Verify that all project and QC sample results were properly reported and flagged.
- Review COC documentation to verify completeness of the sample set for each data package submitted.
- Assess the impact of laboratory QC procedures and samples.

The laboratory analyst will be responsible for the reduction of raw data generated at the laboratory bench and to verify that the data reduction performed by the laboratory instrument is correct.

The following QC check for data verification will be performed for all generated data:

- Verify that calibrations and calibration checks comply with laboratory criteria.

This QC check will be performed by laboratory analysts, the assigned laboratory project manager or supervisor, laboratory QC specialists, or a combination of these personnel. After the data reports have been reviewed and verified, the laboratory reports will be signed and released for distribution.

4.2 Data Validation Methods

The validation of analytical data will be performed for 100 percent of the data report packages for each analysis type generated by each analytical laboratory. The data validation review will include review of the following items from the Tier II (S2AVE) laboratory data reports: consistency with the COC, holding times, surrogate recoveries, MS recoveries, field duplicate agreement, MSD and laboratory duplicate precision, and method blank analyses. Refer to USEPA (2009) for S2AVE-level data validation and verification requirements.

Data validation reports will provide the appropriate data validation label (i.e., S2AVE or S4VEM). The data validator will review data and assign data qualifiers to sample results, following sections of the USEPA procedures for inorganic data (USEPA, 2010), organic data (USEPA, 2008b), and dioxins (USEPA, 2011); and method-specific guidelines (e.g., USEPA, 2008a).

The purpose of this independent review will be to verify that the laboratory QC program is adequate and that the laboratory met the performance criteria. A full data validation will be performed on the first data package generated for the specific project and contractor laboratory. If problems are encountered, an independent Tier IV (S4VEM) data validation review of laboratory performance criteria may be performed.

Data qualifiers are used to classify sample data as to their conformance to QC requirements. The most common qualifiers are listed below:

- J—Estimate, qualitatively correct but quantitatively suspect.
- R—Reject, data not suitable for any purpose.
- U—Not detected at a specified detection limit.

Poor surrogate recovery, blank contamination, or calibration problems, among other things, can cause the sample data to be qualified. Whenever sample data are qualified, the reasons for the qualifications will be stated in the data validation report. QC criteria not defined in the guidelines for evaluating analytical data are adopted, where appropriate, from the analytical method.

LIMITATIONS

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

REFERENCES

MFA. 2014. Draft soil management and cap maintenance plan for Port of Camas Washougal former Hambleton Lumber Mill property. Maul Foster & Alongi, Inc. November.

USEPA. 2001. EPA requirements for quality assurance project plans. EPA QA/R-5. EPA/240-B-01/003. U.S. Environmental Protection Agency. March.

USEPA. 2002. Guidance for quality assurance project plans. EPA QA/G-5. EPA/240/R-02/009. U.S. Environmental Protection Agency. December.

USEPA. 2008a. Test methods for evaluating solid waste, physical/chemical methods. 3d ed., final update IV. EPA Publication SW-846. U.S. Environmental Protection Agency. January.

USEPA. 2008b. USEPA contract laboratory program, national functional guidelines for organics data review. EPA 540/R-08/01. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. June.

USEPA. 2009. Guidance for labeling externally validated laboratory analytical data for Superfund use. EPA 540/R-08/005. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. January.

USEPA. 2010. USEPA contract laboratory program, national functional guidelines for inorganic Superfund data review. EPA 540/R-10/011. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

TABLE

Table
Sample-Handling Summary
Former Hambleton Lumber Mill Property SMCMP
Sampling and Analysis Plan

Analyte	Method	Suggested Volume	Container	Number of Containers	Preservative	Storage Temperature	Holding Time from Collection
Soil							
Polycyclic Aromatic Hydrocarbons	USEPA 8270	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Volatile Organic Compounds	USEPA 8260	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Polychlorinated Biphenyls	USEPA 8082	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Total Petroleum Hydrocarbons—Hydrocarbon Identification	NWTPH-HCID	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Total Petroleum Hydrocarbons—Diesel and Oil	NWTPH-Dx	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Total Petroleum Hydrocarbons—Gasoline	NWTPH-Gx	4 ounces	Glass Jar	1	none	4 degrees C	14 days
Metals	USEPA 6010/6020/7471	4 ounces	Glass Jar	1	none	4 degrees C	six months

NOTES:

C = Celsius.

NWTPH = Northwest Total Petroleum Hydrocarbons.

SMCMP = Soil Management and Cap Maintenance Plan.

USEPA = U.S. Environmental Protection Agency.

APPENDIX B

MONITORING WORKSHEET

SITE INSPECTION SUMMARY REPORT
PORT OF CAMAS-WASHOUGAL CAP VISUAL MONITORING

Project Number:	0229.04.08		
Date:			
Weather:			
Completed By:			
River Level:		**24hr Precip:**	

Photograph Requirements:

Overview photograph of each cap component to capture composite view of entire cap.

Any noted changes or damage to the cap.

General Observations:

General cap condition and smoothness.

Stormwater flow characteristics (if monitoring conducted during wet weather).

Activity on the site.

Visible changes since previous inspection.

Standing water or areas of concentrated surface water flow.

Visible demarcation fabric.

Specific Observations: To be noted with photographs, measurements, and locations:

Vegetated Cap:

- Vegetative cover with estimated coverage.
- Areas of surface erosion (rills/gullies, concentrated sediment deposits).
- Standing water or concentrated surface water flow.
- Cracking of soil surface perpendicular or parallel to riverbank.
- Invasive species present (location and quantity).

Gravel Cap:

- Surface erosion or displacement of gravel.
- Pumping of subgrade soils to gravel surface.
- Damage, tracking, or penetrations.

Asphalt Cap:

- Settling or bulging indicating differential settlement or heaving.
- Cracking or buckling indicating lateral expansion or contraction.

Measurements:

Length and depth of any surface erosion or damage.

Estimated areal coverage of vegetation on soil cap.

Depth of gravel and soil caps at edges adjacent to pavement cap.

SITE INSPECTION SUMMARY REPORT
PORT OF CAMAS-WASHOUGAL CAP VISUAL MONITORING

Project Number:	0229.04.08	
Date:		
Weather:		
Completed By:		
River Level:		**24hr Precip:**

General Observations:

Specific Observations: To be noted with photographs, measurements, and locations:

Vegetated Cap:

Gravel Cap:

Asphalt Cap:

Measurements:

SITE INSPECTION SUMMARY REPORT
PORT OF CAMAS-WASHOUGAL CAP VISUAL MONITORING

Project Number:	0229.04.08
Date:	

Location (Station or Coordinates)	Observations	Photo Log

APPENDIX I

GROUNDWATER MONITORING PLAN

MAUL FOSTER ALONGI
400 East Mill Plain Blvd., Suite 400 | Vancouver, WA 98660 | 360 694 2691 | www.maulfoster.com

March 16, 2015
Project No. 0229.04.08

Scott Rose
Washington State Department of Ecology
PO Box 47600
Olympia, Washington 98504-7600

Re: Groundwater Monitoring Plan for Former Hambleton Bros. Log Yard

Dear Mr. Rose:

On behalf of the Port of Camas-Washougal (Port), Maul Foster & Alongi, Inc. (MFA) prepared this groundwater monitoring plan for the former Hambleton Bros. Log Yard (the Site) located at 335 South A Street, Washougal, Washington (Washington State Department of Ecology [Ecology] Facility Site No. 4399598). The Port entered into an Agreed Order No. DE 9935 with the Washington State Department of Ecology (Ecology) to perform a remedial action on the Site.

BACKGROUND

Between approximately 1948 and 2010, the Site was occupied by a lumber mill. The Hambleton Lumber Company originally leased the land from the Port in 1953 and eventually bought the Property in the 1970s. The company operated in a niche market, with approximately 75 percent of the mill production in large-dimension green Douglas fir, hemlock, and spruce timbers. Historical lumber mill activities included log storage, sawmill, planer, lumber storage and shipping, and other operations ancillary to mill operations.

The Port completed groundwater monitoring on the Site and found the only compound to exceed Model Toxics Control Act cleanup levels (CULs) was heavy petroleum hydrocarbons (e.g., diesel range and residual range organics). Petroleum hydrocarbons concentrations only exceeded the CUL in monitoring well MW-7 on the Site (see attached Figure).

GROUNDWATER MONITORING PLAN

Depth-to-water measurements will be collected from monitoring well MW-7 during the sampling events as discussed in the Cleanup Action Plan[1] for the Site. Groundwater samples will be collected using dedicated equipment and industry standard techniques (e.g., peristaltic pump). Groundwater samples will be collected in a laboratory-supplied amber glass bottle.

[1] Draft Cleanup Action Plan, Hambleton Bros Log Yard, Washougal, WA. Prepared by Washington State Department of Ecology, Toxics Cleanup Program, Lacey, WA. May 2013.

The groundwater sample bottle will be placed on ice in a shipping container with chain-of-custody paperwork and transported to an Ecology certified laboratory for analysis. The groundwater sample will be analyzed for diesel range organic (DRO) and residual range organic (RRO) hydrocarbons using the Northwest Total Petroleum Hydrocarbon Method NWTPH-Dx.

GROUNDWATER MONITORING SCHEDULE

Groundwater monitoring conducted will be completed on an 18 month rotation to monitor residual petroleum hydrocarbon plume. Samples will be collected in April or October, during typically higher and lower groundwater levels.

The next scheduled sampling event is April 2015. Groundwater monitoring is anticipated to continue until the concentrations of DRO and RRO in groundwater are below applicable screening criteria or until Ecology agrees that monitoring is no longer required.

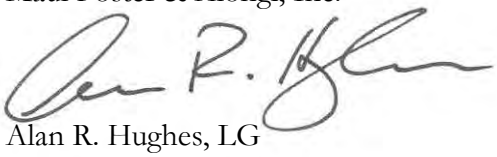
GROUNDWATER REPORTING

After each groundwater monitoring event, a brief letter report will be prepared and submitted to Ecology. The letter reports will summarize the groundwater analytical results. The analytical data will be uploaded to Ecology's Environmental Information Management database system.

If you have any questions regarding the proposed groundwater monitoring plan please contact me.

Sincerely,

Maul Foster & Alongi, Inc.



Alan R. Hughes, LG
Senior Geologist

Attachment: Figure

cc: David Ripp, Port of Camas-Washougal

FIGURE

Figure
Monitoring Well Location

Port of Camas-Washougal
Washougal, Washington

Legend

- Monitoring Well
- Former Site Buildings
- Site Boundary

Notes:
1. Property boundary is approximate and based on legal description provided by KC Development (Sept. 10, 2012).

0 75 150
Feet

Source: Aerial photograph (7/2010) obtained from ESRI, Inc. ArcGIS Online.

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\0229.04\08. Remedial Action\Completion Report\Projects\Fig. Monitoring Well Location.mxd
Produced By: jschanel/mailconn Approved By: ahughes Print Date: 2/9/2015
Project: 0229.04.08