EXHIBIT C

INTERIM ACTION WORK PLAN

Georgia-Pacific West Site, Bellingham, Washington

Prepared for: Port of Bellingham

Project No. 070188-001-11 • June 23, 2011 Public Review Draft

Aspect CONSULTING

earth + water

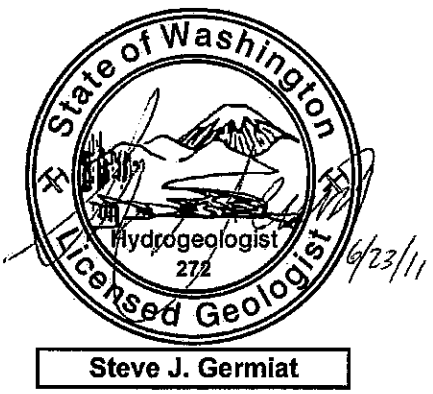
INTERIM ACTION WORK PLAN

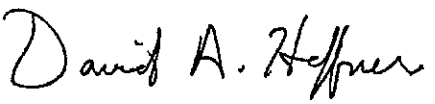
Georgia-Pacific West Site, Bellingham, Washington

Prepared for: Port of Bellingham

Project No. 070188-001-11 • June 23, 2011 Public Review Draft

Aspect Consulting, LLC





Steve Germiat, LHG, CGWP
Sr. Associate Hydrogeologist
sgermiat@aspectconsulting.com

Dave Heffner, PE
Associate Remediation Engineer
dheffner@aspectconsulting.com

V:\070188 Port Bellingham\Deliverables\Interim Action Work Plan\Public Review Draft\Interim Action Work Plan - Public Review Draft.docx

Contents

List of Figures

Acronym and Abbreviation List

ASB	Aerated stabilization basin
Aspect	Aspect Consulting, LLC
BMP	Best management practice
BMC	Bellingham Municipal Code
BNSF	BNSF Railway Company
CFH	Caustic filter house
City	City of Bellingham
Ecology	Washington State Department of Ecology
e.g.	For example
FEIS	Final environmental impact statement
FS	Feasibility study
GP	Georgia-Pacific Corporation
IA	Interim action
i.e.	In other words
mg/kg	Milligrams of solute per kilogram of soil
MLLW	Mean lower low water
MRU	Mercury recovery unit
MTCA	Model Toxics Control Act (Chapter 173-340 WAC)
NAPL	Non-aqueous phase liquid
No.	Number
NPDES	National Point Discharge Elimination System
OSHA	Occupational Safety and Health Administration
pH	Negative logarithm of hydrogen ion concentration
Port	Port of Bellingham
RCW	Revised Code of Washington
RI	Remedial investigation
RI/FS	Remedial investigation/Feasibility study
SEPA	State environmental policy act
Site	Georgia-Pacific West Site
SMA	Shoreline Management Act
SOW	Statement of work
TPH	Total petroleum hydrocarbons
µg/L	Micrograms of solute per liter of solution
WAC	Washington Administrative Code
Work Plan	Interim Action Work Plan (this document)

1 Introduction

The Port of Bellingham (Port) intends to perform an interim action (IA) at the Georgia-Pacific West Site (Site) in Bellingham, Washington (Figure 1). The interim action goal is to remove contaminated soil and building materials that serve as sources of contaminants that continue to, or have the potential to migrate to groundwater and/or air (via soil vapor) at select locations throughout the Site.

The IA will be conducted under an amendment to Agreed Order No. DE 6834 between the Port and Washington State Department of Ecology (Ecology). This Interim Action Work Plan (Work Plan) has been prepared as an exhibit to the Agreed Order Amendment for Ecology review and approval, as well as public comment, before completing the IA.

1.1 Site Description and Background

The Site, located at 300 West Laurel Street in Bellingham, Washington, encompasses approximately 64 acres on the south side of the Whatcom Waterway (Figure 2). The Site is bordered on the north by the Whatcom Waterway (at mudline), on the east and south by the BNSF Railway Company (BNSF) main line, and on the west by the Bellingham Shipping Terminal and Bellingham Bay (Figure 2)[1].

A Pulp and Tissue Mill operated at the Site from 1926 through 2007. A Chlor-Alkali Plant, producing chlorine gas and sodium hydroxide (caustic) using a mercury cell technology, operated within a portion of the Mill between 1965 and 1999 (Figure 2). Steam heat was supplied to the Mill by burning fuel oil (e.g., Bunker C oil) in an on-Site Steam Plant. The fuel oil was stored in a 375,000-gallon tank located east of the Steam Plant and, later, in one of eight Million Gallon Tanks (Tank 2) located immediately north of the BNSF main line and west of the Pulp and Tissue Mill.

Contamination from historical industrial activities has impacted Site upland soils and groundwater with a variety of constituents, including mercury, total petroleum hydrocarbons (TPH), and other constituents. The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. The Site constitutes a Facility under RCW 70.105D.020(5).

In 1999 and 2002, Georgia-Pacific (GP) entered into a pair of Agreed Orders with Ecology to perform plant decommissioning and a remedial investigation/feasibility study (RI/FS) for the Chlor-Alkali Plant portion of the Site. In addition to decommissioning the former Chlor-Alkali Plant's process equipment and machinery in 2000, GP independently conducted significant environmental investigation (including a RI/FS) and cleanup work for the Chlor-Alkali Plant area. In 2004, GP also conducted an extensive Phase II Environmental Site Assessment for the remaining portion of the property (the Pulp and Tissue Mill) prior to GP's sale of the Site to the Port.

[1] Note: Consistent with other Site documents, this Work Plan contains directional references relative to "Mill north" as established by GP, with the "Mill north" axis approximately 45 degrees west of true north (see North arrows on figures).

The Port purchased the Site from GP in January 2005, and is currently evaluating potential future land uses, including continued industrial use and potential re-zoning to accommodate mixed use redevelopment.

In August 2009, the Port entered Agreed Order No. DE 6834 with Ecology to complete a RI/FS for the Site in accordance with WAC 173-340-350 and the Statement of Work (SOW) and Schedule in the Agreed Order. In accordance with the SOW, the Port prepared a RI/FS Work Plan, and subsequently prepared two Addenda to the RI/FS Work Plan, each of which was reviewed and approved by Ecology. The Site RI/FS is currently underway.

The first amendment to Agreed Order No. DE 6834 allows the Port to undertake IAs, prior to completion of the RI/FS and with public review and Ecology approval, in accordance with WAC 173-340-430 and WAC 173-340-600(16). The IA outlined in this Work Plan will reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance at the Site. The IA will be implemented in advance of selection of the final cleanup action for the Site, and should not conflict with reasonable alternatives for the final cleanup action (WAC 173-340-430[3][b]).

1.1.1 Site Physical Conditions

The Site is relatively flat, with land surface elevations generally ranging from 14 to 16 feet above mean lower low water (MLLW). Currently, most of the Site is covered by pavement with some remaining buildings from the historical mill operations. Average annual rainfall for the area is approximately 37 inches per year, with average monthly precipitation ranging from 1.4 inches in August to 5.8 inches in November. Apart from minor overland flow directly into the Whatcom Waterway, stormwater generated on the Site is collected in catch basins, conveyed via pipes, and pumped via force main beneath the waterway to the Aerated Stabilization Basin (ASB) north of the Whatcom Waterway, under the terms of the Port's National Permit Discharge Elimination System (NPDES) permit for that facility.

The hydrogeologic units at the Site with relevance to the IA, from ground surface down, are as follows:

- **Fill Unit** – A shallow unconfined water-bearing unit which contains the contaminated soil to be removed during the IA. The Fill Unit extends to depths between about 15 and 20 feet within the IA areas, and the water table depth ranges from about 2 to 8 feet depending on location and season;
- **Tidal Flat Aquitard** – A low-permeability silt and silty sand unit ranging from approximately 5 to 15 feet in thickness, which hydraulically separates and maintains a downward vertical gradient between the shallower Fill Unit and the deeper Lower Sand; and
- **Lower Sand** – A confined water-bearing marine sand unit that, on average, is more uniform and more permeable than the Fill Unit. The potentiometric surface (hydraulic head) in the Lower Sand is several feet above the top of the Tidal Flat Aquitard (i.e., artesian pressure), but several feet below the water table elevation in the Fill Unit.

Figure 3 is a subsurface cross section illustrating a typical sequence of these hydrogeologic units beneath the Site, including depiction of the Fill Unit water table and artesian water level in the Lower Sand.

1.1.2 Contaminant Source Areas on Site

The contaminants of concern addressed in this IA are the highest concentrations of mercury and heavy-oil-range TPH detected in Site soil, and elevated mercury concentrations in building materials not removed during the prior (2000) decommissioning of the Chlor-Alkali Plant. The highest soil mercury occurs within the Caustic Plume subarea and the highest soil TPH occurs in the Bunker C Tank subarea, as defined in the RI/FS Work Plan (Aspect, 2009). Ambient air monitoring data confirm that mercury concentrations within the interior building materials of the Mercury Cell Building represent an ongoing source of mercury to air. The source areas targeted in this IA are described briefly below.

Caustic Plume Subarea

Within the Caustic Plume subarea, detected soil mercury concentrations range from less than 1 milligram per kilogram (mg/kg) to nearly 39,000 mg/kg. The highest soil mercury concentrations occur in the area where Chlor-Alkali Plant process wastewaters and sludges were managed, west and northwest of the Mercury Cell Building, referred to in the Interim Action Pre-Design Investigation Report (Aspect, 2011) as the Mercury Source Area of the Caustic Plume Subarea. During the pre-design investigation of the Mercury Source Area, two localized occurrences of visible elemental mercury were encountered – at the former Caustic Filter House where mercury was filtered from the caustic produced in the chlor-alkali process, and at the Mercury Recovery Unit where mercury was recovered from the brine used in the electrolysis process. Soil mercury concentrations associated with the visible elemental mercury in these locations ranged from 5,090 to 38,700 mg/kg. In perimeter borings bounding the visible elemental mercury occurrences, soil mercury was detected at concentrations ranging from less than 1 to 1,220 mg/kg depending on depth.

In short, the Caustic Filter House and Mercury Recovery Unit represent substantial mercury “hot spots” – potential sources of mercury to soil vapor, and to differing degrees, to groundwater within the Caustic Plume subarea. The leachability of the elevated soil mercury is strongly dependent on groundwater pH. Groundwater at the location of the former Caustic Filter House has very high pH and very high dissolved phase mercury (pH 11 and 619 µg/L mercury in February 2011). Conversely, groundwater in the area of the Mercury Recovery Unit has moderate pH and low dissolved phase mercury (pH 8 and 0.4 µg/L mercury in February 2011) (Aspect, 2011).

Mercury Cell Building

Within the Mercury Cell Building, also located within the Caustic Plume subarea, elemental mercury was used in the electrolytic process to generate chlorine gas and sodium hydroxide (caustic) throughout the 34-year duration of the Chlor-Alkali Plant on Site. GP removed the process machinery and some building materials from the Cell Building during the 2000 Chlor-Alkali Plant decommissioning conducted under a previous Agreed Order with Ecology (Foster Wheeler, 2000). However, the building’s foundation, framing, and internal supports, and the support shop on the building’s north end, remain in place.

Initial sampling and analysis of the remaining structural materials confirmed that the building materials contained total mercury concentrations up to 358 mg/kg (Anchor Environmental, 2008). The mercury on interior surfaces within the Mercury Cell Building was presumably transported in vapor phase from elemental mercury used as a cathode in the chlor-alkali electrolysis process. As such, residual mercury on the building surfaces is expected to remain volatile. This expectation is supported by the results of air sampling conducted within the Cell Building in February 2011.The measured mercury concentration in indoor air was above MTCA air cleanup levels for unrestricted and industrial land use, but below the Occupational Safety and Health Administration (OSHA) permissible exposure limit for workers (Aspect, 2011). The Mercury Cell Building represents a potential source of mercury to Site air.

Bunker C Tank Subarea

Within the Bunker C Tank subarea, the former Bunker C storage tank reportedly did not have a bottom. Consequently, Bunker C oil-saturated soil exists beneath the former tank, and soil TPH concentrations up to 88,000 mg/kg (well above residual saturation) may continue to generate mobile non-aqueous phase liquid (NAPL) (aka “free product”). As evidence of this, there is a thin accumulation of NAPL floating on the water table in a monitoring well located next to the former tank containment structure. The former Bunker C storage tank location represents a potential source of petroleum free product within the Bunker C Tank subarea.

1.2 Work Plan Organization

Following this introductory section, the remaining sections of this Work Plan are as follows:

- Section 2 – Overview of Interim Action to be Performed
- Section 3 – Common Elements for Interim Action Areas
- Section 4 – Specific Considerations for Interim Action Areas
- Section 5 – Permitting and Substantive Requirements
- Section 6 – Reporting
- Section 7 – Schedule
- Section 8 – Integration with Final Cleanup Action
- Section 9 – References

2 Overview of Interim Action to be Performed

2.1 Goal of Interim Action

As outlined in Section 1.1.2, the Site RI activities and supplemental investigations conducted to date have identified localized occurrences of contaminated soil that have relatively high concentrations of specific constituents and represent ongoing sources of contamination to Site groundwater and/or air via vapor intrusion. In addition, mercury-

contaminated building materials within the former Chlor-Alkali Plant's Mercury Cell Building have been identified as a contaminant source to Site air.

Based on the collective investigation information, the goal of the IA presented in this Work Plan is to achieve permanent control of localized mercury and TPH contaminant sources to groundwater or air through removal and off-site disposal of contaminated soil and building materials in the areas identified in Section 1.1.2. Source control is the first and most important cleanup step for controlling contaminant exposure via the soil-to-groundwater and vapor migration pathways.

It should be noted that, in addition to removal and off-site disposal, alternative means of source control were also considered. However, because it is an element, mercury cannot be chemically transformed or degraded to a less-toxic state (although it can be chemically immobilized). Similarly, heavy-oil-range TPH is only marginally degradable and has limited treatment options. Given the nature and concentrations of the contaminants of concern addressed in this IA (mercury and heavy oil-range TPH) the Port proposed soil excavation with off-Site disposal of the contaminated soil, and demolition with off-Site disposal of contaminated building materials, as the most permanent, expedient, and cost-effective means to achieve the desired source control in these specific areas.

2.2 Interim Action Areas

The IA will remove contaminated soil and contaminated building materials from three Site areas, referred to as the IA areas, all of which are located within previously identified Site Subareas defined in the RI/FS Work Plan. The IA areas, shown on Figure 4, are defined as follows:

- **Caustic Plume IA area:** The locations of the former Caustic Filter House and Mercury Recovery Unit, within the Caustic Plume Subarea, where visible elemental mercury occurs in subsurface soil;
- **Mercury Cell Building:** Building materials within the Mercury Cell Building, containing elevated mercury concentrations that represent a source of mercury to air; and
- **Bunker C Tank IA area:** The location of the former Bunker C Tank within the Bunker C Tank Subarea, where elevated TPH concentrations in soil pose a potential threat for generation of petroleum-based NAPL. Soils containing elevated TPH concentrations west of the former Bunker C Tank, adjacent to the Steam Plant, will be addressed following demolition of the Steam Plant, and are not within the IA area as described in Section 2.2.1.

The data upon which the IA is based are presented in the Interim Action Pre-Design Investigation Report (Aspect, 2011). The reader is referred to that report for a comprehensive presentation of the data used to define the IA areas presented in this Work Plan. The locations and cleanup elements for each IA area are described in more detail in Section 4.

2.2.1 Areas Investigated But Not Included in IA

As described in the Interim Action Pre-Design Investigation Report (Aspect, 2011), two additional areas – Law-1 area and Million Gallon Tanks subarea – were investigated to

support scoping of a potential IA for them. These two areas, and a portion of the Bunker C Tank subarea with elevated TPH concentrations, are not included in the current IA for reasons outlined below.

For the Law-1 area, the collective soil data do not identify a soil mercury source contributing to the localized elevated dissolved mercury concentrations, and the groundwater data indicate a substantial reduction in mercury concentrations between the shoreline monitoring wells (e.g., Law-1 well) and downgradient intertidal wellpoints which are screened partially in mercury-contaminated sediment (Aspect, 2011). In addition, a modeling assessment of this area is underway to predict groundwater mercury attenuation occurring up to the point of discharge (sediment mudline) within the Log Pond – for both the current condition and future condition that includes an enhanced Log Pond sediment cap as part of the Whatcom Waterway cleanup project. Finally, a mercury treatability study is also underway, which will provide Site-specific information regarding treatment options for dissolved-phase mercury. Given the pending assessments, and the absence of a clearly defined source, a source removal early IA for the Law-1 area may have limited results if conducted at this time.

One soil sample from the Million Gallon Tanks subarea exceeds the 10,000 mg/kg Method C soil TPH screening level (Aspect, 2011). The small volume of soil represented by the single sample is not a significant source of petroleum hydrocarbons to air (via soil vapor) or to groundwater. Consequently, a source removal early IA for this subarea is not warranted at this time.

Within the Bunker C Tank subarea, soils along a pair of subsurface pipelines[2] contain TPH concentrations above the 10,000 mg/kg screening level [at explorations BC-SB17 and BC-SB18; (Aspect, 2011)]. The petroleum in this area is inferred to be a separate release from that beneath the former Bunker C storage tank. The Steam Plant is undergoing demolition at the time of this Work Plan preparation. Following Steam Plant demolition, further definition of the TPH extent relative to the Steam Plant foundation and adjacent waterway bulkhead is warranted before initiating a source removal IA.

Although these areas are not included in this early IA, cleanup of each area will be addressed within the ongoing Site RI/FS and Cleanup Action Plan process being conducted in accordance with the Agreed Order.

2.3 Soil Remediation Levels for IA

The Site is currently within the RI/FS process, so Ecology has not yet established final cleanup levels for the Site. Therefore, the IA areas are defined based on soil containing contaminant concentrations above specific soil remediation levels which may be less stringent than final cleanup levels, in accordance with WAC 173-340-355. Final soil cleanup levels will be defined as part of the final Cleanup Action Plan and will address each exposure pathway defined in the RI/FS (e.g., direct contact, leaching to groundwater, generation of NAPL, vapor generation etc.). The soil remediation levels for this IA are aimed at addressing certain pathways of exposure, as outlined specifically

[2] Pipeline from the pier to the former Bunker C storage tank, and an adjacent separate pipeline connecting the storage tank and Steam Plant where the fuel was burned,

below. Assessment to ensure all pathways are addressed will be done through the RI/FS and for final cleanup.

The lateral extent of each IA soil excavation area will be defined based on area-specific soil remediation levels as discussed below. The IA excavation areas will be adjusted laterally as necessary to remove soil with contaminant concentrations exceeding the IA lateral remediation levels. However, to help ensure against future remobilization or the need for additional excavation within an IA excavation area for final cleanup, the entire vertical soil profile within each lateral area (to a maximum depth of 15 feet[3]) will be excavated to a different "vertical" remediation level. Vertical remediation levels are anticipated to achieve soil cleanup levels for the Site, and will be evaluated against cleanup levels ultimately selected for the Site as part of the MTCA RI/FS and Cleanup Action Plan process.

However, irrespective of soil concentrations at depth, an IA excavation will not extend deeper than 1 foot into the Tidal Flat Aquitard, to avoid compromising the hydraulic isolation that the Aquitard provides between the Fill and Lower Sand units (hydrogeologic units described in Section 1.1.1).

Area-specific IA soil remediation levels are discussed below.

2.3.1 Mercury within Caustic Plume IA Area

Within the Caustic Plume IA area, the occurrences of visible elemental mercury are sources of mercury to groundwater and air via vapor intrusion. For the purposes of the IA, the applicable soil remediation levels for mercury are visible elemental (metallic) mercury and a soil mercury concentration of 2,100 mg/kg. Data collected during the IA investigation indicate soil mercury concentrations above 5,000 mg/kg in association with the visible elemental mercury (Aspect, 2011). In the course of removing soil containing visible mercury, the IA area is defined by meeting a soil mercury lateral remediation level of 2,100 mg/kg, which is two times the 1,050 mg/kg industrial soil cleanup level provided in the 2001 CLARC tables for direct contact. The 2,100 mg/kg mercury remediation level is well below the minimum 5,000 mg/kg concentration observed in association with the visible elemental mercury source material and, as such, provides a factor of safety for the source removal intent of this IA.

Within the footprint of the Caustic Plume IA excavation area defined by the lateral remediation level, soil containing mercury concentrations above a 24 mg/kg vertical remediation level will be removed to a maximum depth of 15 feet.

2.3.2 TPH within Bunker C Tank IA Area

Within the Bunker C Tank IA area, soils containing percent levels (>10,000 mg/kg) of TPH represent a potential source of mobile NAPL and, where above the water table, vapor-phase petroleum hydrocarbons (vapor intrusion pathway). For the purposes of the IA, a TPH soil lateral remediation level of 10,000 mg/kg is established for the Bunker C Tank IA area. This soil remediation level is anticipated to be protective of groundwater via dissolved-phase leachability and NAPL mobility (Aspect, 2011). A vertical remediation level of 3,100 mg/kg is established for the Bunker C Tank IA area, based on

[3] The depth for compliance with soil cleanup levels based on direct contact exposure is 15 feet (WAC 173-340-740(6)(d)).

direct contact exposure (Aspect, 2011). Within the footprint of the Bunker C Tank IA area defined by the remediation level, soil containing detected TPH concentrations above 3,100 mg/kg will be removed to a maximum depth of 15 feet.

It is anticipated that these remediation levels may be protective for all pathways, including direct contact, and impacts to groundwater, surface water, and sediment, but this will be further assessed in the RI/FS and Cleanup Action Plan process.

3 Common Elements for Interim Action Areas

The IA includes excavation and off-Site disposal of contaminated soils from two IA areas, and demolition and disposal of contaminated building materials from one IA area. While each IA area has unique conditions, there are a number of cleanup-related elements common to the IA areas, which are described in this section. Details unique to specific IA areas are described in Section 4.

3.1 Waste Designation

Prior to the start of the IA construction, the building materials from the Cell Building and contaminated soils from the two IA soil excavation areas will be profiled and designated for off-Site disposal. If, during execution of the interim action, soil with visible mercury is encountered outside of the area that has been previously designated, the soils may be designated for off-site disposal at that time. In accordance with Washington state dangerous waste regulations (Chapter 173-303 WAC) and landfill requirements, the profiling will rely upon data from samples representative of each waste stream to be disposed of.

3.2 Temporary Removal and Replacement of Utilities

Prior to the start of IA construction, active subsurface utilities (e.g., stormwater infrastructure) that may be impacted by the IA activities will be removed or temporarily rerouted to prevent damage to them. The utilities will be restored to their pre-construction function by the end of the IA.

3.3 Monitoring Well Decommissioning and Replacement

Prior to the start of IA construction, groundwater monitoring wells that may be impacted by the IA activities will be decommissioned by a licensed well driller in accordance with the requirements of Chapter 173-160 WAC. Following completion of the IA, monitoring wells deemed by Ecology to be necessary will be replaced by new wells.

3.4 Soil Excavation and Handling

The IA involves conventional excavation of contaminated soils, likely with ancillary uncontaminated soils, to anticipated depths to 15 feet or more below existing grade within the inferred IA soil excavation areas shown on Figures 5 and 6. The areas defined on Figures 5 and 6 are the anticipated extents of contaminated soil above soil remediation levels and, as such, would be the excavation bottom.

The excavation sidewalls will be sloped or otherwise stabilized as needed to facilitate excavation to the required depths. The IA excavations will not extend deeper than 1 foot into the Tidal Flat Aquitard underlying the Fill Unit (see Section 1.1.1). Dewatering will be conducted for excavations below the water table to facilitate removal and handling of unsaturated soil, as described in Section 3.5. To the extent practical, contaminated soil will be direct-loaded for off-Site disposal, rather than stockpiled temporarily on-Site. If temporary soil stockpiles are generated, they will be managed as described in Section3.6.

3.5 Dewatering and Water Management

Construction dewatering will be conducted during each IA soil excavation to meet two goals:

1. Dewater the saturated contaminated soil (Fill Unit) in place to facilitate effective soil removal/handling and excavation verification soil sampling (discussed in Section 3.9.2); and

2. Depressurize the Lower Sand to prevent breach of the Tidal Flat Aquitard beneath the excavation. The head in the Lower Sand is several feet above the top of the Aquitard as discussed in Section 1.1.1 and illustrated on Figure 3. Therefore, removal of Fill Unit soil and groundwater above the Aquitard may create upward seepage and loss of soil strength in the Aquitard material, creating potential for liquefaction of the excavation bottom. Soil excavation and dewatering/depressurization for each IA area will be conducted so as to not comprise the physical integrity of the Tidal Flat Aquitard.

Means and methods for dewatering the Fill Unit to facilitate soil excavation will be determined by the construction contractor, and may include temporary sumps within the open excavation, well points outside the excavation, and/or groundwater cutoff technologies. Sumps are an effective means of dewatering excavations within lower permeability material where groundwater heads need only be depressed several feet. If sumps are inadequate for dewatering the excavation, closely-spaced vacuum well points may be used outside the excavation footprint.

Methods such as temporary shoring, trench boxes, etc. can also be employed to reduce water inflow and/or stabilize the Fill Unit excavations. However, such technologies must not penetrate deeper than the upper 1 foot of the Tidal Flat Aquitard to avoid compromising the hydraulic isolation between the Fill Unit and Lower Sand that the Aquitard provides.

The water level (head) in the Lower Sand unit will be reduced to approximately the bottom of the excavation (Fill Unit) so as to minimize the hydraulic gradient across the intervening Aquitard, and limit the potential for breach of the excavation bottom. The depressurization will require pumping from wells completed in the Lower Sand. To limit the potential for contaminant carry-down from the Fill Unit to the Lower Sand, the depressurization wells will be completed using dual casing drilling techniques – sealing off the Fill Unit prior to advancing drilling through the Aquitard and into the Lower Sand – similar to the construction methodology for the Lower Sand monitoring wells installed for the RI in Fall 2009 (as per Aspect, 2009). The required number and location (spacing)

of depressurization wells will be determined by the contractor, based upon site-specific hydrogeologic data.

Groundwater pumped during dewatering (including depressurization) will be pre-treated to reduce settleable solids and remove potential separate-phase petroleum, and then discharged to the ASB in accordance with the Port's NPDES permit for the facility.

3.6 Stockpile Management

When temporary stockpiling of excavated soil is required, the stockpiled soil will be placed in bermed, lined stockpile areas. The stockpiles will be covered with visqueen when not in use. Drainage water from the stockpiles will be pre-treated to reduce settleable solids and remove potential separate-phase petroleum, then discharged to the Port's on-Site pump station for conveyance to the ASB. Stockpiles of soil that are judged to be contaminated based on field screening or other information will not require sampling and analysis prior to load-out for off-site disposal.

3.7 Overburden Segregation, Sampling and Disposition

In the course of excavating within the Bunker C Tank IA area, visual and olfactory field screening may indicate that some excavated soil may be below the vertical remediation level of 3,100 mg/kg TPH. Soils excavated from this IA area[4] will be segregated based on an assessment of field screening results and geotechnical suitability for use as excavation backfill. Granular soils with low silt, organic, and debris content are considered geotechnically suitable as IA excavation backfill. Soils determined from field screening to be potentially below the remediation level are termed "overburden", and will be segregated and stockpiled; the overburden will be further segregated into geotechnically suitable versus geotechnically unsuitable. Overburden stockpiles will be sampled and chemically analyzed for the purpose of designation testing (below the remediation level or not).

Stockpiles of overburden soil will not exceed 100 cubic yards in size for the purpose of designation testing for disposition. Three discrete soil samples will be collected from each overburden stockpile, consistent with Ecology guidance (Ecology, 1995). The overburden stockpile designation samples will be submitted for laboratory analysis of diesel- and oil-range TPH. Sampling and chemical analysis will be conducted in accordance with the Sampling and Analysis Plan and Quality Assurance Project Plan included in the Site RI/FS Work Plan (Aspect, 2009).

Overburden stockpiles with one or more soil samples containing a TPH concentration (sum of diesel- and oil-range concentrations) above the 3,100 mg/kg TPH soil remediation level will be properly disposed of off-Site. Stockpiles of geotechnically suitable overburden with all three sample results below the remediation level will be retained for backfilling the IA excavation. Stockpiles of geotechnically unsuitable overburden with all three sample results below the remediation level will be properly disposed of off-Site.

[4] Overburden soil will not be generated from the excavations within the Caustic Plume IA area.

3.8 Off-Site Disposal

The Cell Building demolition waste and contaminated soil from the IA areas will be disposed of at permitted off-Site facilities in accordance with applicable state and federal requirements. Geotechnically unsuitable overburden soil from the Bunker C Tank IA area will be disposed of at an appropriate off-Site facility in accordance with applicable state and federal requirements. Trucks hauling contaminated materials from the Site will remain covered from leaving the Site until they off-load at the designated facility.

3.9 Compliance Monitoring

In accordance with WAC 173-340-410, compliance monitoring for a cleanup action includes the following elements:

- **Protection monitoring** confirms that human health and the environment are adequately protected during the cleanup action;
- **Performance monitoring** confirms that the cleanup action has attained cleanup levels and/or other performance standards such as permit requirements; and
- **Confirmation monitoring** confirms the long-term effectiveness of the cleanup action once cleanup levels and/or other performance standards have been attained.

For this IA, protection and performance monitoring will be conducted. Confirmation monitoring will be conducted as part of the Site final cleanup action. The protection and performance monitoring programs for the IA are outlined below.

3.9.1 Protection Monitoring

Protection monitoring will be conducted during the IA by requiring that on-Site cleanup workers are appropriately trained in hazardous waste operations and follow applicable health and safety plans prepared specifically for the IA project.

During soil excavation/handling and building demolition activities in the Caustic Plume IA area, mercury vapor monitoring will be conducted by the Port in accordance with an area-specific monitoring plan. Monitoring data will be made available to other Site workers, and Ecology. Nothing in this plan precludes contractors/consultants on-Site from choosing to conduct additional air monitoring.

3.9.2 Performance Monitoring and Over-Excavation

Performance monitoring during the IA will consist of excavation verification soil sampling to determine if IA remediation levels are achieved. When field screening indicates that soils have been removed from a portion of the excavation to meet remediation levels and the deeper excavation IA goal, bottom and sidewall soil samples will be collected for laboratory analysis. Bottom samples will be collected (using the excavator bucket) on a systematic 15-foot grid (one sample per 15-foot by 15-foot square), with a minimum of four bottom samples per IA area, to document that respective soil remediation levels are met at depth – i.e., vertically bounded. Sidewall sampling will be conducted to document that the lateral extent of soil exceeding respective remediation levels has been removed. Sidewall samples will be collected at a horizontal spacing of approximately 15 feet and at 3-foot depth intervals (e.g., 0 to 3 feet, 3 to 6 feet, 6 to 9 feet, etc.) across the full depth of excavation. A minimum of two samples will be

collected from each sidewall (potentially less than 30 feet in length) at each depth interval.

Verification soil samples from the Caustic Plume IA area will be analyzed for total mercury. Verification soil samples from the Bunker C Tank IA area will be analyzed for diesel- and oil-range TPH. Sampling and chemical analyses will be conducted in accordance with the Sampling and Analysis Plan and Quality Assurance Project Plan included in the Site RI/FS Work Plan (Aspect, 2009). It is expected that analyses of verification soil samples will be conducted using on-site mobile laboratory facilities to expedite turnaround of analytical results.

If performance monitoring results indicate that IA remediation levels have not been achieved laterally, the excavation will be expanded to remove the soil represented by the exceeding sample(s), subject to the potential structural integrity limitations identified in Section 4.3 for the Bunker C Tank Area. Soils below 15 feet that exceed remediation levels intended to be protective of groundwater will be removed, subject to the potential structural integrity limitations identified in Section 4.3 for the Bunker C Tank Area.

Where an excavation sidewall sample exceeds the soil remediation level, the approximately 15-foot length of sidewall represented by the sample will be over-excavated up to 2 feet laterally, followed by collection of a new sidewall verification sample in that location. Where an excavation bottom sample exceeds a remediation level, the excavation will be deepened in that area by approximately 1 foot, followed by collection of a new verification sample. However, an excavation will not be extended more than 1 foot into the Tidal Flat Aquitard as determined based on visual observation of material types, nor will it be extended beyond a depth of 15 feet based on an exceedance of a soil vertical remediation level, since they are based on direct contact exposure (refer to Section 2.3).

3.10 Excavation Backfill

Each IA excavation will be backfilled to grade using a combination of stockpiled overburden soil and granular materials (sand/gravel or crushed rock) imported from a known source of uncontaminated fill. Crushed concrete from demolition of the Site Pulp and Tissue Mill, currently stockpiled on-Site, may also be used as backfill above the water table within the Bunker C Tank IA excavation. Concrete will not be used to backfill the Caustic Plume IA excavations considering concrete's alkaline pH which has the potential to facilitate mobility of residual mercury in soil adjacent to the excavations.

Depending on the condition of the excavation bottom prior to backfill, quarry spalls may be required as a base for the granular backfill materials. The granular backfill materials will be placed in lifts and compacted as called for in the construction specifications.

4 Specific Considerations for Interim Action Areas

4.1 Caustic Plume IA Area

The IA for this area includes removal of soils with elevated mercury concentrations that represent a source of mercury to groundwater and air. Specific considerations for removal of contaminated soil in this area are outlined below.

Elemental mercury was observed to depths of approximately 8 feet below existing ground surface at the former Caustic Filter House (CFH), and 10 to 12 feet at the former Mercury Recovery Unit (MRU) (Aspect, 2011). Figure 5 illustrates the anticipated excavation boundaries for the CFH and the MRU, centered by borings CP-MW15 and CP-SB06, respectively.

At each location, the soil excavation will be started at the location of the boring where visible mercury was observed, and will be extended laterally from there to remove soil containing visible mercury and soil mercury concentrations above the 2,100 mg/kg lateral remediation level. The excavations will be extended vertically and will remove soil to a depth of 15 feet that exceeds the 24 mg/kg vertical remediation level. However, the excavations will not be advanced more than 1 foot into the underlying Tidal Flat Aquitard (depth of approximately 15 feet).

Based on the available data, the bottom of each excavation may be 30 to 40 feet in diameter and extend to depths up to 12 feet at CFH and 15 feet at the MRU. For the purposes of this Work Plan, an estimated 400 to 500 tons of mercury-contaminated soil/debris will be removed from the Caustic Plume IA area. These estimates may be refined during remedial design.

The soil excavated from the two elemental mercury locations will, to the extent practical, be immediately loaded and covered for transport to an appropriate off-Site landfill. If the Port chooses to temporarily stockpile the soils from these two excavations prior to loading, the soils will be stockpiled within the Mercury Cell Building. If temporary stockpiles are generated, they will be managed as described in Section 3.6.

Concrete, wood, or other debris removed from the CFH and MRU excavations will also be disposed of off-Site; no debris from these excavations will be recycled or otherwise reused. During drilling within the footprint of the CFH, a 3-foot thick concrete foundation was encountered beneath the asphalt pavement, and shallow concrete was also encountered during drilling around the footprint of the former structure. A 1-foot layer of crushed concrete was observed beneath the asphalt pavement during drilling within the footprint of the MRU (Aspect, 2011). In addition, we understand that structures at the Site were commonly pile-supported, so wood pilings and other wood debris are expected within the excavations.

Based on information developed during remedial design, the Port may choose to conduct in situ stabilization of mercury-contaminated soil prior to its being excavated to reduce leachability of mercury in the soil prior to its land disposal. In addition, the Port may propose to amend backfill in one or both of the Caustic Plume IA excavations with treatment media to conduct passive *in situ* treatment of residual dissolved phase mercury

in the area, through neutralization or other chemical means. This decision would be based on findings from the ongoing Site mercury treatability study (AnchorQEA and Aspect, 2011), The Port would consult with Ecology and develop plans for Ecology review and approval as part of remedial design, prior to implementing in situ stabilization or amending excavation backfill.

4.2 Mercury Cell Building

The IA for this area includes removal of the Mercury Cell Building, the structural materials of which contain mercury concentrations representing a source of mercury to air. To remove the source of mercury to air, the entire Mercury Cell Building (Figure 5) will be demolished and properly disposed of off-Site. The building demolition will occur following completion of contaminated soil excavations at the CFH and MRU locations adjacent to the building. Prior to demolition, a hazardous building material survey of the remaining structure will be completed, and additional sampling and analysis conducted to provide representative characterization of the demolition waste streams. The demolition and disposal will be conducted in accordance with state and federal laws and the substantive requirements of a City demolition permit.

4.3 Bunker C Tank IA Area

The IA for this area includes removal of soils with elevated TPH concentrations that represent a potential source of mobile NAPL. Specific considerations for removal of contaminated soil in this area are outlined below.

Prior to start of soil excavation in the Bunker C Tank IA area (Figure 3), the remaining concrete containment structure around the former Bunker C storage tank, consisting of concrete ecology blocks stacked on top of a concrete footing, will be removed to facilitate soil excavation. Concrete with petroleum staining or odor will be disposed of off-Site with the contaminated soil. Concrete without petroleum staining or odor will be retained on-Site for recycling.

During excavation, visual and olfactory field screening will be used to segregate soils that appear to be below the vertical remediation level from soils that appear to exceed the remediation level, as described in Section 3.7.

It is likely that the former fuel storage tank was pile-supported, so wood pilings and other wood debris is expected within the excavation. If large debris (e.g., timber or concrete) is encountered during excavation, it will be segregated from the excavated soils. Debris with petroleum staining or odor will be disposed of off-Site with the contaminated soil. Concrete without petroleum staining or odor will be retained on-Site for crushing and recycling/reuse.

An important consideration for this IA excavation is proximity to the former GP primary clarifier, a large pile-supported structure located approximately 15 feet northeast of the anticipated Bunker C Tank IA excavation (Figure 6). The future use of the clarifier is currently undetermined and must be maintained intact. Likewise, northwest of the IA excavation is an existing shoreline bulkhead (Figure 6) that will need to be protected should the excavation need to be extended that far.

In order to avoid damaging these existing structures, measures to stabilize the excavation in locations suggested on Figure 6 will be considered for incorporation into the IA design. These measures could include one or more of the following strategies used alone or in combination with one another: shallow tied-back shoring or sheet piles, trench boxes, gravity walls, caissons, ground freezing, and/or specifying flatter slope angles for open cuts. Each of the strategies is subject to constraints that will be considered during design before the final option is (or options are) specified.

In addition, it may be necessary to limit the lateral extent of the excavation sidewall in areas where additional excavation would compromise existing structures. For example, adjacent to the Bunker C excavation, extensive excavation of sidewall soils near the clarifier could expose the pile foundations, which would potentially destabilize or damage the clarifier. Likewise, excavating in close proximity to the shoreline bulkhead could compromise its integrity. In these cases, excavation would be completed to the maximum extent practicable as dictated by structural considerations. Sidewall samples would be collected as described above in Section 3.9.2, and exceedances of remediation levels will be addressed as a component of the final cleanup action (evaluated in FS etc.).

Based on the available data, the bottom of the Bunker C Tank IA excavation is anticipated to be approximately 80 feet in diameter and will extend to an average depth of 15 feet. For the purposes of this Work Plan, it is estimated that up to 8,000 tons of soil/debris will be removed from the Bunker C Tank IA area. This estimate may be refined during remedial design.

5 Permitting and Substantive Requirements

This IA will be conducted under Agreed Order No. 6834, as amended, with Ecology. The amended Agreed Order requires identification of the permits or specific federal, state or local requirements that Ecology has determined are applicable and that are known at the time of entry of the Order. In performing the IA, the Port is exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals, but must still comply with the substantive requirements of such permits or approvals. The amended Agreed Order also requires that the exempt permits or approvals and the applicable substantive requirements of those permits or approvals, as they are known at the time of entry of the Order, be identified.

5.1 Permits and Other Requirements

Permits or specific federal, state or local requirements that are applicable to this IA and that are known at this time are identified as follows:

5.1.1 NPDES Waste Discharge Permit

The Port currently operates the ASB under an individual NPDES Waste Discharge Permit (Permit No. WA-000109-1). Management of Site stormwater and construction-related dewatering water will be routed to the ASB for treatment. The Port will comply with all requirements of the NPDES Waste Discharge permit and any subsequent modifications.

5.1.2 State Environmental Policy Act (SEPA)

Compliance with SEPA, Chapter 43.21C RCW, will be achieved by conducting SEPA review in accordance with applicable regulatory requirements, including WAC 197-11-268, and Ecology guidance as presented in Ecology Policy 130A (Ecology, 2004). SEPA review will be conducted concurrent with public review of the IA. The Port will act as the SEPA lead agency and will coordinate SEPA review. It is planned that public review for the Interim Action Work Plan and associated Agreed Order amendment will be conducted by Ecology concurrently with public review for the SEPA documentation. The Port will coordinate closely with Ecology to ensure that the two public review processes are consistent and concurrent.

Aside from the Ecology-administered NPDES Permit, no other federal permits will be required because the IA will be limited to the upland portion of the Site and not include any in-water work. Additionally, no historic or cultural resources are anticipated to be present within the IA area that would be subject to protection under local, state, or federal laws. Based on the cultural resources evaluation conducted for the Waterfront District Redevelopment Project EIS (Port of Bellingham, 2010), the potential for Native American archeological materials to be present in the IA area is medium to low. The Port, as the SEPA lead agency will address historic and cultural resource impacts through SEPA.

5.2 Permit Exemptions and Applicable Substantive Requirements

The following state and local requirements have been identified as applicable but procedurally exempt to this IA:

- Shoreline Management Act (SMA), RCW 90.58; City of Bellingham Shoreline Permit;
- Major Grading Permit; City of Bellingham Grading Ordinance, BMC 16.70;
- Critical Areas Permit; City of Bellingham Critical Areas Ordinance, BMC 16.55;
- City of Bellingham Stormwater Requirements, BMC 15.42; and
- City of Bellingham Deconstruction/Demolition Permit.

The applicable substantive requirements of these permits or approvals, as they are known at the time of entry of the Order, are identified below, along with the manner in which the IA will meet these substantive requirements for these laws and regulations is addressed in the following sections. Substantive requirements may be further identified in subsequent deliverables, and their approval shall reflect Ecology's determination on what substantive requirements apply.

5.2.1 Shoreline Management Act; City of Bellingham Shoreline Permit

The Shoreline Management Act is implemented through the City of Bellingham Shoreline Management Master Program (SMP). To comply with the SMP, the project must have no unreasonable adverse effects on the environment or other uses, no

interference with public use of public shorelines, compatibility with surroundings, and no contradiction of purpose and intent of SMP designation. The Department of Ecology has determined that the IA meets the conditions of the Urban Maritime shoreline designation and is consistent with the SMP.

5.2.2 Major Grading Permit

Pursuant to the City of Bellingham Grading Ordinance (BMC 16.70), a Major Grading Permit is required from the City for grading projects that involve more than 500 cubic yards of grading. The City grading ordinance identifies a number of standards and requirements for obtaining a grading permit. The City standards and requirements will be integrated into the construction plans and specification for the IA to ensure that the IA complies with the substantive requirements of the City grading ordinance. Those substantive requirements include: staking and flagging property corners and lines when near adjacent property, location and protection of potential underground hazards, proper vehicle access point to prevent transport of soil off-site, erosion control, work hours and methods compatible with weather conditions and surrounding property uses, prevention of damage or nuisance, maintaining a safe and stable work site, compliance with noise ordinances and zoning provisions, development of a traffic plan when utilizing City streets and written permission for grading from legal property owner.

5.2.3 Critical Areas

City of Bellingham critical area substantive requirements are applied to activities taking place on shorelines through shoreline permitting. The Interim Action will occur on land designated as a "seismic" hazard area by BMC 16.55 Critical Areas. The substantive requirements include an assessment or characterization of the hazard areas by a licensed professional, which will be conducted in consultation with City of Bellingham.

5.2.4 Stormwater Requirements

Pursuant to the City of Bellingham Stormwater Management (BMC 15.42), the IA must meet the requirements of a City Stormwater Permit. The substantive requirements include preparation of a stormwater site plan, preparation of a construction stormwater pollution prevention plan, source control of pollution, preservation of natural drainage systems and outfalls, on-site stormwater management, runoff treatment, flow control, and system operations and maintenance.

5.2.5 Deconstruction/Demolition Permit

As a component of the Interim Action, demolition of the Mercury Cell Building must meet the substantive requirements of a City of Bellingham Deconstruction/Demolition permit. The substantive requirements include coordination with private utilities that may have interrupted service, notification to the Northwest Clean Air Agency, and coordination with Bellingham Fire Department regarding hazardous materials and underground storage tanks. Because the building is less than 50 years old, coordination with the Washington State Department of Archaeology and Historic Preservation is not required.

5.3 Other Laws and Regulations

The activities to be performed as part of the proposed IA are not regulated under the Washington Clean Air Act (Chapter 70.94 RCW and WAC 173-400-100), and the IA is

not expected to create conditions that would significantly affect the ambient air quality or to cause any exceedance of applicable air quality standards.

6 Reporting

Upon completion of the IA work, a draft Interim Action Report, describing the methods and outcome of the IA, will be prepared and submitted to Ecology for review and comment. Following final Ecology approval of the Interim Action Report, the methods and results of the IA will also be incorporated into the Site-wide draft RI/FS. The data collected during the IA will be uploaded to Ecology's EIM database along with the other RI/FS data, in accordance with the Agreed Order.

7 Schedule

The Port will conduct the interim action in a two-phased construction approach: the petroleum-contaminated soil removal in the Bunker C Tank area in Fall 2011, and removal of mercury-contaminated soil in the Caustic Plume area and the Mercury Cell Building in Spring 2012. Due to the unique characteristics of the individual subareas, this approach allows adequate time for remedial design of the mercury-contaminated soil removal, and limits soil excavation in the most challenging wet season conditions. The schedule for the IA is as follows:

- By August 5, 2011, the Port conducts remedial design and submits to Ecology for review and approval the following documents for the Bunker C Tank area soil removal:
  - Construction plans and specifications detailing the cleanup construction for this area;
  - Construction management plan, which outlines the tasks, including performance monitoring, to be performed by the Port during construction to ensure that the interim action objectives for this area are met; and
  - Site-specific health and safety plan including protection monitoring requirements.
- IA construction in the Bunker C Tank area is to be initiated by mid-October 2011, with a 1-month construction period anticipated; construction shall be complete by end of November 2011;
- By December 31, 2011, the Port conducts remedial design and submits to Ecology for review and approval the following documents for the Caustic Plume area soil removal and Mercury Cell Building Removal:
  - Construction plans and specifications detailing the cleanup construction for these areas;

  - Construction management plan, which outlines the tasks, including performance monitoring, to be performed by the Port during construction to ensure that the interim action objectives for these areas are met; and
  - Site-specific health and safety plan including protection monitoring requirements.
- IA construction in the Caustic Plume area and Mercury Cell Building is to be initiated by mid-March 2012, with a 1-month construction period anticipated; construction shall be complete by end of April 2011; and
- The Port shall prepare, for Ecology review and approval, a draft Interim Action Report by May 2012. The Port shall incorporate Ecology comments and produce the final Interim Action Report by June 30, 2012.

The Port will subsequently integrate the IA information into the revised draft Remedial Investigation (RI) report being prepared under the Agreed Order, which will then be submitted for Ecology review.

8 Integration with Final Cleanup Action

The permanent source removal achieved through the IA is designed to be consistent with, and not preclude, alternatives for the Site final cleanup action as required under WAC 173-340-430(3)(b). Source control is the first and most important step for controlling potential migration of contaminants, and preventing contaminant migration to on-Site and off-Site receptors will be a key requirement for the final cleanup action. The IA will be assessed for integration into the final Site cleanup action, which will be completed following finalization of the Site RI/FS and Ecology's issuance of a Cleanup Action Plan.

By permanently removing contaminated soil and building materials from the Site, the IA will also support, not preclude, the Port's planned future Site redevelopment. The IA areas will be restored to their current condition, with no change in Site use as a component of the IA.

9 References

Anchor Environmental, 2008, Former Chlor-Alkali Cell Building Pre-Demolition Sampling, Results of Building Materials Mercury Testing, January 14, 2008.

AnchorQEA and Aspect, 2011, Treatability Work Plan, GP West Site, Bellingham, Washington, January 2011.

Aspect, 2009, RI/FS Work Plan, Georgia-Pacific West Site, Bellingham, Washington, September 10, 2009.

Aspect, 2010, Addendum 2 to RI/FS Work Plan, GP West Site, Bellingham, Washington, November 9, 2010.

Aspect, 2011, Interim Action Pre-Design Investigation Report, GP West Site, Bellingham, Washington, April 28, 2011.

Ecology, 1995, Guidance for Remediation of Petroleum Contaminated Soils, Ecology Publication No. 91-30, November 1995.

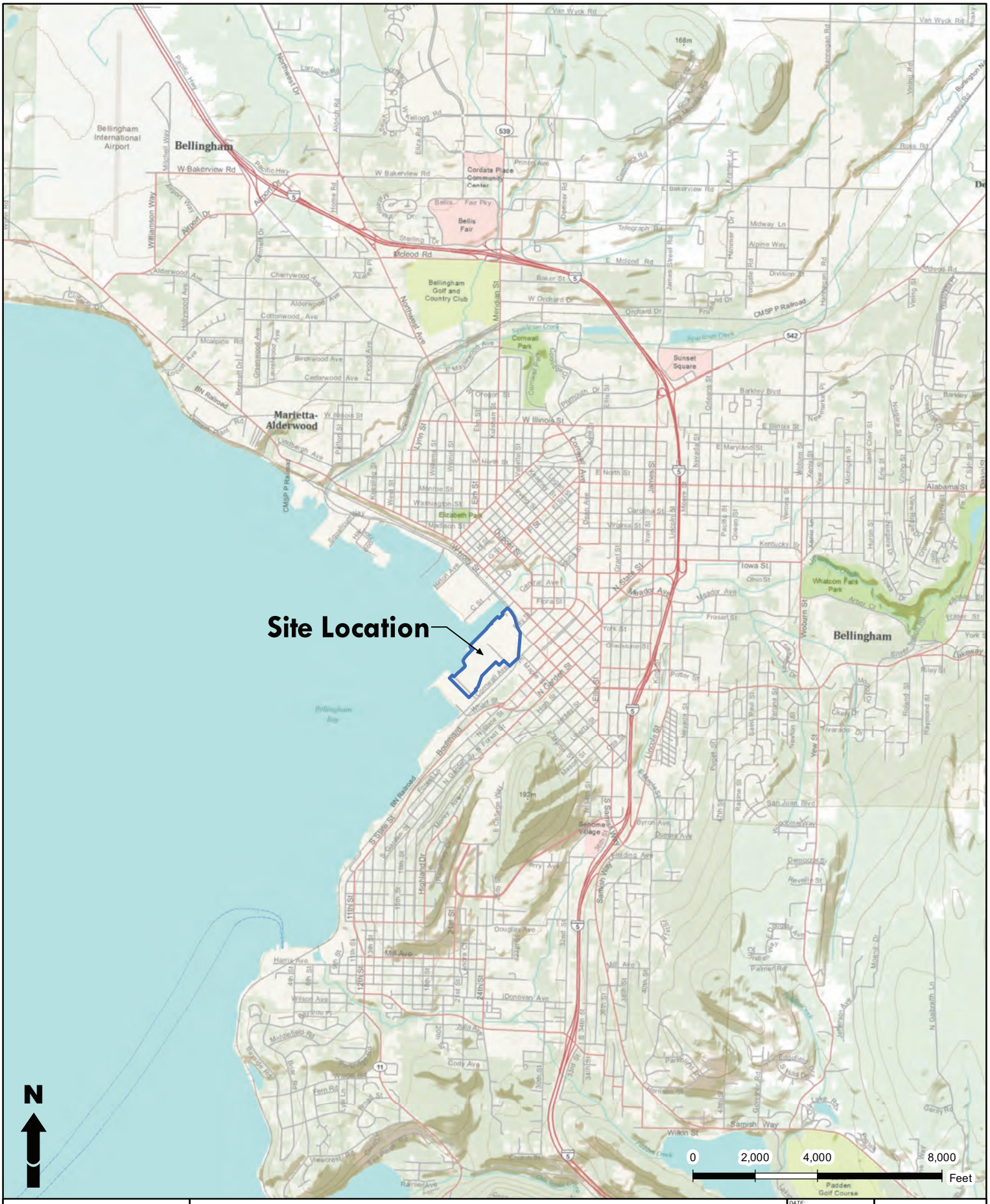
Ecology, 2004, Toxics Cleanup Program Policy 130A, Coordination of SEPA and MTCA, Revised July 28, 2004.

Foster Wheeler, 2000. Chlor/Alkali Facility Demolition Completion Report, Georgia-Pacific Bellingham Site, December 2000.

Port of Bellingham, 2010, The Waterfront District Final Environmental Impact Statement, July 2010.

Limitations

Work for this project was performed and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the specific application to the referenced property. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.



Aspect CONSULTING

Vicinity Map

Interim Action Work Plan
GP West Site - Bellingham, WA

DATE: Apr 2011	PROJECT NO. 070188
DESIGNED BY: SJG	
DRAWN BY: PPW	FIGURE NO. 1
REVISED BY: ---	

Path: T:\projects_8\Port_of_Bellingham\Delivered\IA_Workplan\01 VicinityMap.mxd

Whatcom Waterway

STATE-OWNED LAND
MANAGED BY DNR

Inner Harbor Line

Chlor-Alkali Area

PORT OF BELLINGHAM

Pulp Mill

Tissue Mill

BNSF

PORT

BNSF

PUGET SOUND ENERGY

CITY

COUNTY

BNSF

CITY

PORT

PORT

BNSF

CITY

BNSF

PORT

PORT

0 112.5 225 450 675 900 Feet

Property Boundaries from ALTA Survey (David Evans and Assoc., 2004) and City of Bellingham GIS Tax Parcel Database

Inner Harbor Line

Site Boundary

MILL NORTH

TRUE NORTH

45°

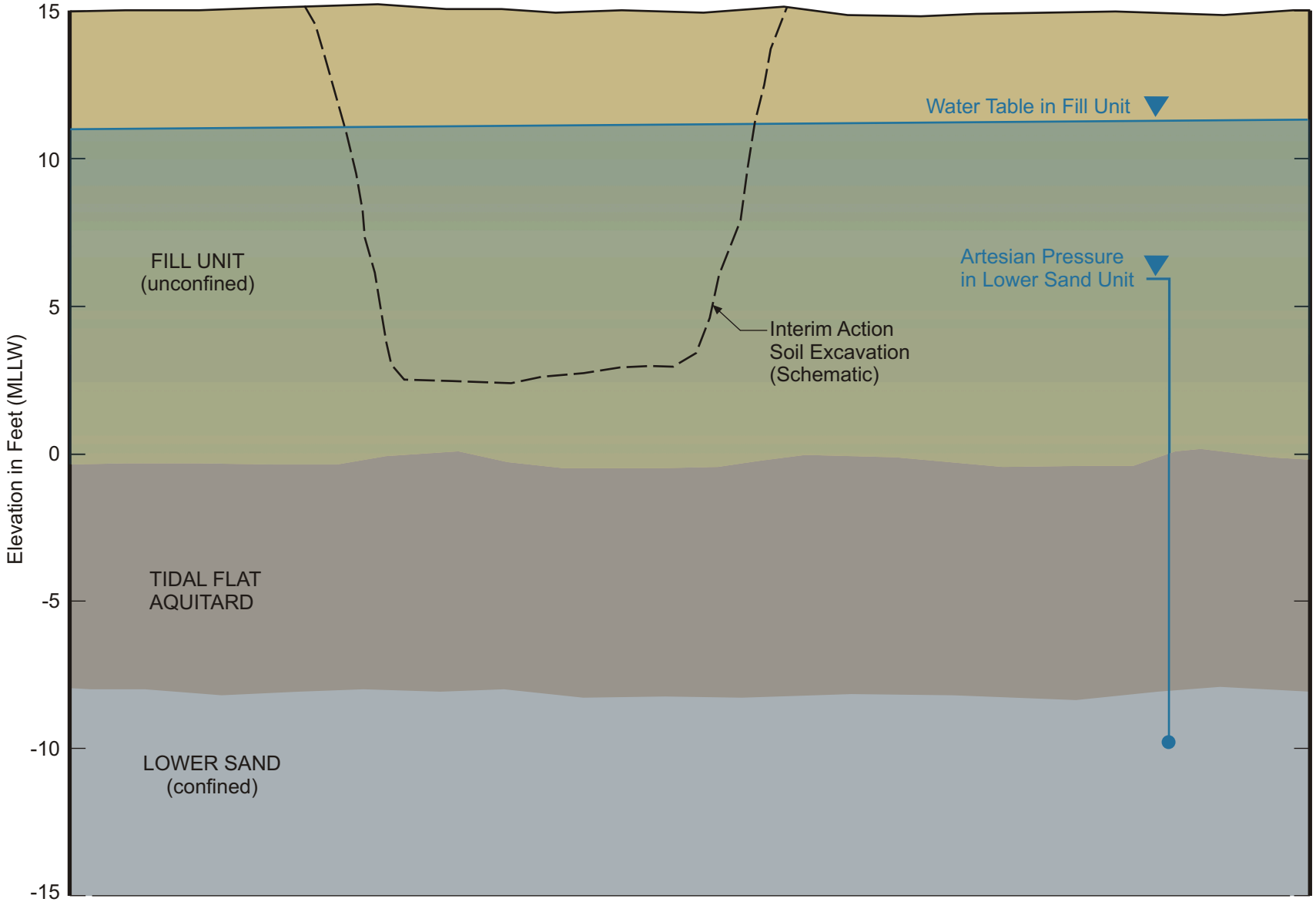
Aspect CONSULTING

Site Boundary and Adjacent Properties

Interim Action Work Plan
GP West Site - Bellingham, WA

DATE: Apr 2011	PROJECT NO. 070188
DESIGNED BY: SJG	
DRAWN BY: PPW	FIGURE NO. 2
REVISED BY: PPW	

Path: T:\projects_8\Port_of_Bellingham\Delivered\IA_Workplan\02 SiteBoundary_and_AdjacentProps.mxd



Horizontal Scale in Feet

0 20 40

0 5 10

Vertical Scale in Feet

Vertical Exaggeration x 4

Aspect CONSULTING

Subsurface Cross Section Depicting Hydrogeologic Conditions Relevant to Interim Action

Interim Action Work Plan, GP West Site - Bellingham, WA

DATE: April 2011	PROJECT NO. 070188-001-11
DESIGNED BY: SG	
DRAWN BY: EG	FIGURE NO. 3
REVISED BY: -	

Whatcom Waterway

Bunker C Tank Subarea

Bunker C Tank Interim Action Area

Caustic Plume Subarea

Caustic Plume Interim Action Areas

Mercury Cell Building

CORNWALL AVENUE

"ENCOGEN NW" 160 MW CO-GENERATION PLANT

Interim Action Soil Excavation Bottom Outline

Mercury Cell Building Demolition

RI/FS Site Subareas

Site Boundary

0 100 200 400 600 800 Feet

MILL NORTH

TRUE NORTH

45°

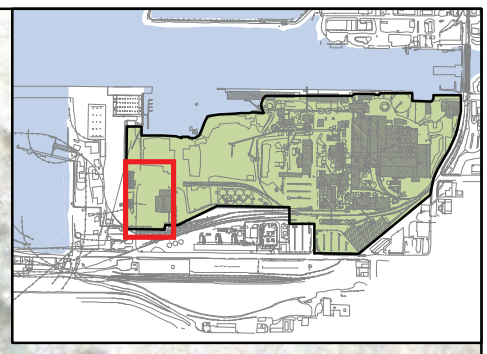
Aspect CONSULTING

Interim Action Areas within Site Subareas

Interim Action Work Plan
GP West Site - Bellingham, WA

DATE: Apr 2011	PROJECT NO. 070188
DESIGNED BY: SJG	
DRAWN BY: PPW	FIGURE NO. 4
REVISED BY: - - -	

Path: T:\projects_8\Port_of_Bellingham\Delivered\IA_Workplan\04 IA Areas.mxd



SITE-2
SITE-7
SITE-8
ESB-15S
SITE-1
EMW-14S
EMW-15S
LAW-5
STB-13
STB-04
LAW-4
CP-VP02
STB-16
STB-03
MERCURY RECLAIM STORAGE TANK
CP-SB02
PORT MAINTENANCE BUILDING
EMW-2S
COLLECTION TANK
SURGE STORAGE TANK
STB-14
CP-SB04
CP-VP09
STB-21
CP-SB05
REMERC
CP-SB22
BT-X
BT-XI
BT-XII
CP-SB14
BT-VIII
BT-IX
BT-V
BT-I
BT-II
CP-SB17
CP-SB06
MERCURY RECOVERY
CP-SB15
CP-VP10
STB-20
CP-VP01
STB-10
CP-MW04
BRINE SLUDGE PIT
CP-SB16
CP-SB07
SUMP
CP-SB09
BRINE SLUDGE TANK
SATURATORS
HA-16
CP-MW06
CP-MW06V
CP-SB08
SHOP
CP-VP03
GP Sewer SS
STB-22
CP-SB10
CP-VP08
CLARIFIER
EHA-1
STB-09
CHLORINE PLANT
CELL BUILDING
AMW-02
TRUCK LOADING
CP-MW14
CP-AA01
CP-VP07
AS-02
EHA-5
50% CAUSTIC
EHA-3
CB-EW
CP-SB11
HA-2
HA-3
CP-SB18
FILTERED BRINE
SULFURIC ACID
STB-08
EMW-19S
EHA-4
HA-4
CP-VP06
CAUSTIC FILTER HOUSE
CP-SB19
CP-VP05
HA-5
HA-10
CP-MW15
CELL BUILDING
HA-9
HA-12
HA-6
CP-SB20
HA-14
HA-7
HA-15
50% CAUSTIC
ATW-A4
CP-SB12
CP-VP04
MOTOR CONTROL BUILDING
CHLORATE
STB-24
ELECTR SUBSTA
AS-01
TANKS
STB-25
AMW-03
CHLORINE STORAGE
D1
SW-SB01
SODIUM CHLORATE TANK
SULFURIC ACID TANK
EMW-1S
RAIL LOADING AREA FOR CAUSTIC
STB-23
STB-05
0
20
40
80
120
160
Feet

CP-SB08 Exploration Location

Interim Action Soil Excavation Bottom Outline

Mercury Cell Building Demolition

MILL NORTH
TRUE NORTH
45°

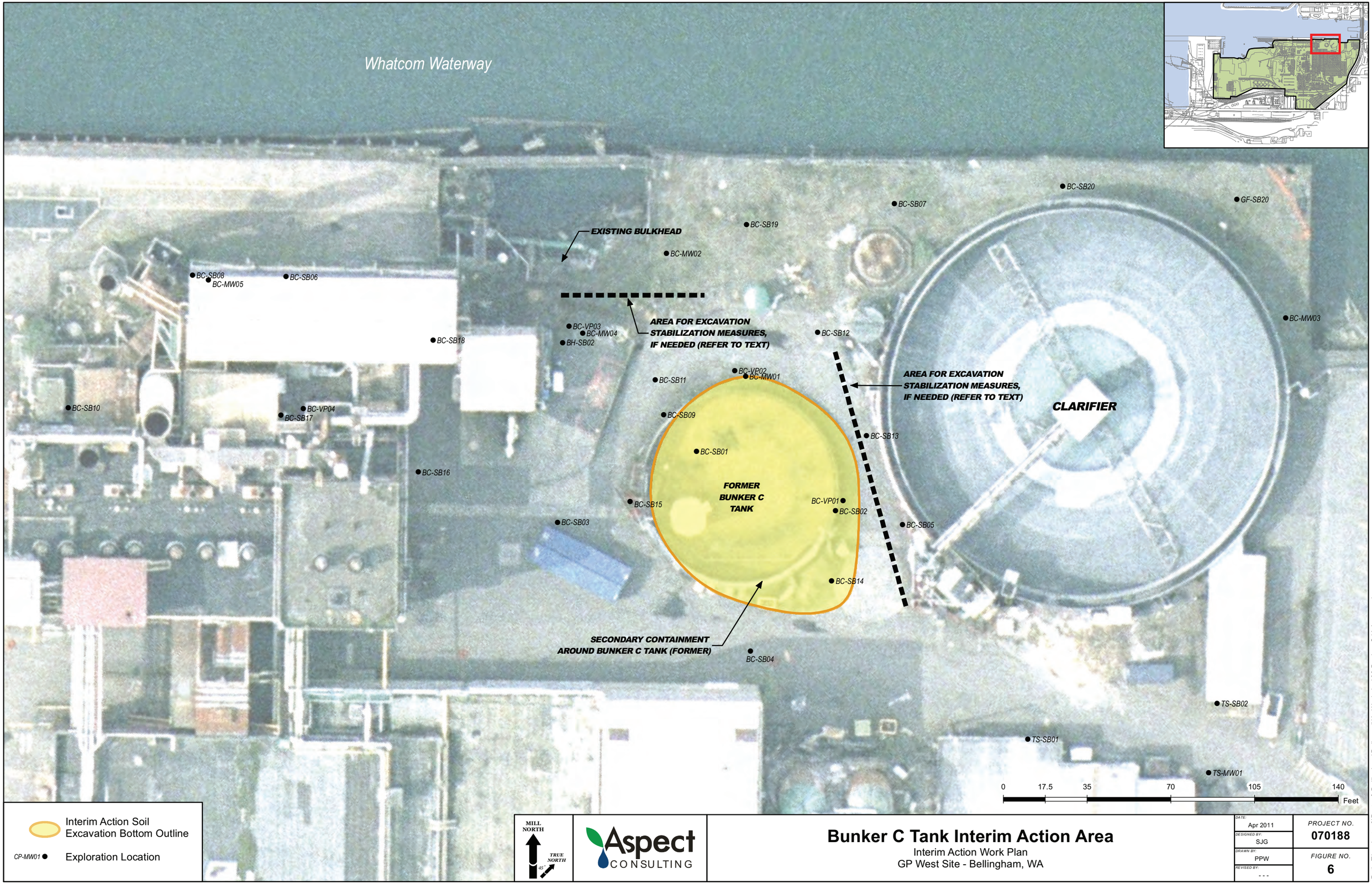
Aspect CONSULTING

Caustic Plume Interim Action Area and Cell Building

Interim Action Work Plan
GP West Site - Bellingham, WA

DATE: Apr 2011	PROJECT NO. 070188
DESIGNED BY: SJG	
DRAWN BY: PPW	FIGURE NO. 5
REVISED BY: ---	

Path: T:\projects_8\Port_of_Bellingham\Delivered\IA_Workplan\05 Caustic Plume and Cell Building IA Area.mxd



Aspect CONSULTING

Bunker C Tank Interim Action Area

Interim Action Work Plan
GP West Site - Bellingham, WA

DATE: Apr 2011	PROJECT NO. 070188
DESIGNED BY: SJG	
DRAWN BY: PPW	FIGURE NO. 6
REVISED BY: ---	

Path: T:\projects_8\Port_of_Bellingham\Delivered\IA_Workplan\06 Bunker-C IA Area.mxd