AS-BUILT REPORT FOR RAU-WIDE CAPPING

Pulp and Tissue Mill Remedial Action Unit
Georgia-Pacific West Site
Bellingham, Washington
Volume 2: RAU-Wide Capping

Prepared for: Port of Bellingham

Project No. 140298-001-15 • February 28, 2017 Final

Aspect CONSULTING

earth + water

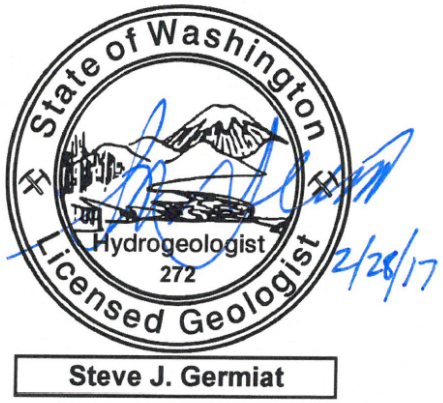
AS-BUILT REPORT FOR RAU-WIDE CAPPING

Pulp and Tissue Mill Remedial Action Unit
Georgia-Pacific West Site
Bellingham, Washington

Volume 2: RAU-Wide Capping

Prepared for: Port of Bellingham

Project No. 140298-001-15 • February 28, 2017 Final



Matthew von der Ahe, LG
Senior Staff Geologist
mvonderahe@aspectconsulting.com

Steve Germiat, LHG
Principal Hydrogeologist
sgermiat@aspectconsulting.com

V:\140298 POB GP West Pulp & Tissue RAU Cleanup\Deliverables\Capping As-Built Report\As-Built Rept for RAU-Wide Capping_Final.docx

Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

This report describes the completion of environmental capping for the entire Pulp and Tissue Mill (PTM) Remedial Action Unit (RAU) of the Georgia-Pacific West Site (Site) (Figure 1[1]). The RAU-wide capping is a component of the final cleanup action selected by the Washington State Department of Ecology (Ecology) for the PTM RAU that is being conducted by the Port of Bellingham (Port) in accordance with the terms of Consent Decree No. 142027008 (Decree) between the Port and Ecology. This report is volume 2 of deliverable number B.11 in the Consent Decree Schedule of Deliverables.

Based on the evaluation of RAU remedial alternatives relative to Model Toxics Control Act (MTCA) criteria in the *Feasibility Study* (FS; Aspect, 2014b), Ecology's Cleanup Action Plan (CAP; Ecology, 2014) for the RAU selected a final cleanup action consisting of four elements:

1. Soil removal from the Bunker C subarea, which is completed as described in Aspect (2016b);
2. RAU-wide capping, the completion of which is documented in this report;
3. Monitored natural attenuation (MNA) of groundwater, which is underway in accordance with the MNA Compliance Monitoring Plan (Aspect, 2015); and
4. Institutional controls in the form of environmental restrictive covenants on properties within the RAU. In accordance with the Consent Decree, the Port has recorded with Whatcom County a pair of environmental covenants, which together, encompass the entire RAU.

2 RAU-Wide Capping Goals and General Methods

The primary objective of the RAU-wide capping action was to protect human health and the environment by preventing direct contact with, and erosion of, contaminated soils present throughout the entire RAU. Because the cap must function in place as the RAU property is redeveloped, a second objective for the capping project was to address physical hazards (voids, highly uneven surfaces, steep slopes, etc.) in the final capped condition. For example, observed subsurface utility vaults that were open or poorly secured with inadequate covers were filled or otherwise secured to eliminate physical hazards to foot and vehicular traffic. Finally, to reduce erosion of contaminated soil and provide long-term protection, a final objective was to achieve passive drainage of stormwater from the final capped surface to the

[1] For consistency with prior environmental documents, directions within the RAU are referenced in this report to Project North, which is 45 degrees west of True North, as depicted on the figures. The Whatcom Waterway is aligned east-west relative to Project North.

existing stormwater infrastructure within the RAU, in compliance with the Port's existing National Pollutant Discharge Elimination System (NPDES) permit for the Aerated Stabilization Basin (ASB).

During the capping project, major regrading occurred only in the eastern portion of the RAU, where topographically higher knolls composed of soil were excavated to lower their elevation. Immediately west of that, that excavated contaminated soil and other soil and select debris generated by the project were placed as fill to raise grade. The area where fill was placed was termed the "above-grade fill area" for purposes of the project (Figure 2).

The CAP provided flexibility in how the RAU-wide cap was constructed, subject to performance standards that achieve isolation of the underlying contaminated soil. Specifically, the CAP stated that the cap could consist of a combination of existing and new competent pavements and building slabs/foundations ("hard cap") and imported soil or crushed rock ("soil cap"). Hard caps must be a minimum 3 inches thick and soil caps must be a minimum 2 feet thick. Where a soil cap is used on top of exposed contaminated soil, a separation geotextile must be placed under it to visually distinguish the imported soil capping material from the underlying contaminated soil, should the cap be penetrated during future redevelopment activities. In addition to capping of contaminated soils by these methods, the CPS also required that crushed recycled concrete aggregate (RCA) or brick (from structure demolition) exposed at the surface within the RAU be covered by minimum 6 inches of imported soil or crushed rock.

The Port's Construction Plans and Specifications for the RAU-wide capping project (CPS; Port, 2016) provided requirements for the Port's selected construction to complete these RAU-wide capping in accordance with the above-stated goals. The draft CPS were submitted to Ecology for review prior to the Port putting them out for a publicly advertised, competitive bid process. The cleanup contractor, selected by the Port through that competitive bid process, was RAM Construction General Contractors, Inc. (RAM), of Bellingham, Washington (Contractor).

3 Construction Preparation

3.1 Remedial Action Management Plan

The project CPS provided the Contractor flexibility in planning and executing the capping to meet the defined capping performance standards under supervision of Aspect Consulting (Aspect) and Anchor QEA, under subcontract to Aspect, in the role of the project Engineer as defined by the CPS. The Engineer conducted oversight and compliance monitoring of the capping construction in accordance with the Ecology-approved Compliance Monitoring Plan for RAU-Wide Capping (Aspect, 2016a).

As required by the CPS, prior to mobilization, the Contractor prepared and submitted for Engineer approval a Remedial Action Management Plan (RAMP) that proposed their construction means and methods for completing the capping in compliance with the CPS. The Contractor's RAMP was also submitted to Ecology before the start of construction.

The RAMP included the following:

- A Stormwater Pollution Prevention Plan (SWPPP) addressing erosion, sedimentation, and stormwater controls during construction (the final SWPPP was also submitted to the City of Bellingham for review before the start of construction);
- A Water Management Plan detailing pre-treatment of water generated from the project area if a pre-treatment system was required by the Engineer based on conditions encountered (alternate bid item that was not exercised);
- A Spill Prevention, Control, and Countermeasures (SPCC) Plan addressing environmental protections (e.g., controlling and preventing spills of hazardous materials);
- An Earthwork Control Plan detailing the excavation, placement, grading, and compaction of contaminated materials, the elimination of physical hazards by means of filling subsurface voids, and the placement, grading, and compaction of imported cap materials; and
- A Waste Management Plan describing procedures to load, transport, and dispose of or recycle off-Site waste materials that were not reused within the RAU.

4 Construction Activities and Oversight

The capping project included the following primary construction activities:

- Mobilization and site preparation, including clearing and grubbing, temporary removal or relocation of utilities as needed, and establishment of temporary erosion and sediment controls (TESC);
- Removal of structures and obstructions, including fences, poles, railings, retaining walls, etc. that interfered with capping completion;
- Removal from broad areas of the RAU a surficial layer of loose contaminated soil mixed with debris (termed "veneer") and segregation of suitable soil and debris within the veneer for placement within the above-grade fill area;
- Soil excavation and removal of subsurface structures as needed for grading purposes in the eastern portion of the RAU, including segregation of suitable soil and debris removed for placement within the above-grade fill area;
- Elimination of physical safety hazards by filling subsurface structures (e.g., vaults) and, in specific locations, securing openings of large structures (not filled) with steel plates surrounded by ecology blocks;
- Placement of contaminated materials (excavated soil and veneer) for subgrade fill to be subsequently capped with import soil;

- Crushing of usable concrete generated by structure removal or excavation, placing it as subgrade fill, and covering it with 6 inches of import crushed rock;
- Grading of on-site crushed RCA and brick for subgrade fill and covering it with 6 inches of import crushed rock;
- Establishment of systems as needed to direct stormwater within the Project Site to the Port's ASB pump station via the existing stormwater conveyance system;
- Loading and off-Site disposal of materials generated during construction that are unsuitable for placement under the cap (e.g., vegetation, metal, wood, and materials [e.g. sludge] removed from subsurface structures);
- Establishment of the design subgrade using global positioning system (GPS) methods;
- Placement of permeable separation geotextile between contaminated soil and the import soil cap; and
- Placement and compaction of capping materials, replacement of utilities as needed, and construction of new stormwater conveyance infrastructure for one location near the northeast corner of the RAU.

These activities are briefly described in the following subsections.

4.1 Mobilization and Site Preparation

Prior to Contractor mobilization, the Engineer oversaw the decommissioning of 14 monitoring wells in the RAU that would be disturbed by capping construction, in accordance with the requirements of Chapter 173-160 Washington Administrative Code (WAC). The decommissioning, and the replacement of those wells that are to be monitored as part of the groundwater MNA monitoring program (Aspect, 2015), are reported separately for documentation of the groundwater MNA program.

On June 20, 2016, the Contractor began mobilization of construction equipment and materials and began to prepare the Project Site for the cleanup action. As part of this, the Contractor installed TESC best management practices (BMPs) including silt fences, temporary curbs, and storm drain inlet protection to prevent runoff of sediment-laden or contaminated water from the Project Site, in accordance with the approved SWPPP. A water truck was also used throughout construction as needed to limit dust generation from surfaces where activities were occurring (esp. haul routes).

Before construction began, the Contractor surveyed the pre-construction grade of the above-grade fill area, and, in consultation with Engineer, staked the cut-and-fill measurements required to achieve the design subgrade surface. In some areas, where Site conditions varied from what was shown on the plans, the Contractor consulted with the Engineer and with the Port to adjust the design subgrade.

During mobilization, the Contractor constructed a stockpile area on an intact concrete slab west of the Board Mill building. Within that area, discrete stockpile areas for five separate material types were established: vegetation; metal debris; general non-metal debris (wood, fiberglass, plastic, etc.); non-granular soil (i.e., silt and muck); and grossly contaminated material. The stockpile areas for vegetation, metal debris, and non-metal debris were

delineated with cones and flagging to identify their limits. The stockpile areas for non-granular soil and for grossly contaminated material were delineated with ecology blocks, were surrounded on 3 sides by temporary curbing, and were underlined with 10-mil plastic sheeting.

During construction, no grossly contaminated material was encountered or generated, and that stockpile area was not used. The Contractor covered the material in the non-granular soil stockpile with 10-mil-thick plastic sheeting when that stockpile pile was not in use. The little rainwater that accumulated within the non-granular soil stockpile area was absorbed by the soil. Water that ran off the stockpile areas was captured by catch basins internal to the stockpile area slab. From the catch basins, stormwater was conveyed by the pre-existing Site stormwater system to the dockside pump station (Figure 2) and then to the ASB.

4.2 Removal of Aboveground Features

In accordance with the CPS, the Contractor removed aboveground features across the RAU to meet a variety of objectives that include: to facilitate construction of the cap, to maximize cap functionality, to eliminate potential safety hazards, and to manage stormwater drainage for the new capped condition.

The aboveground features removed included landscape features[2], previously decommissioned water system appurtenances (e.g., valves and hydrants), and selected timber utility poles in areas of the RAU that required earthwork or grading. These removed features were either recycled offsite or disposed of at an approved offsite Subtitle D landfill. One of the notable items removed by the Contractor was a 23,000-pound cast iron Yankee dryer drum that was retired from service at the former Georgia-Pacific pulp and tissue mill and served as a site historical artifact. This artifact was temporarily relocated elsewhere onsite and will likely be displayed, whether onsite or elsewhere, as a historical artifact of the former mill.

4.3 Site Utility Modifications

Modifications to onsite utilities were necessary to construct the cap, particularly in areas where excavation was required. Utilities modified included portions of previously decommissioned water service, portions of active water service, portions of previously decommissioned stormwater and sewer services, a portion of an active natural gas service, and portions of active electrical services.

As described in the previous section, previously decommissioned aboveground water service appurtenances (e.g., valves and hydrants) were removed so as to minimize penetrations of the cap; these features were blinded (or capped) on the service line at or just below the cap subgrade as required by the CPS. Portions of an active water service main were modified to ensure functionality of the water service following grading and capping of the site; this work was completed by the City of Bellingham and by the Contractor.

Portions of the active stormwater and former process sewer systems were modified to abandon select elements in-place below the cap, to secure subsurface physical hazards (see

[2] Landscape items removed in preparation of the cap construction included timber retaining walls, flagpoles, site artifacts, stairways, handrails, guardrails, fencing, and other miscellany.

following section for greater detail), and to simplify the remaining functional onsite stormwater system, which was generally oversized and outmoded following the closure and decommissioning of the former mill. Modifications generally involved plugging pipes and/or backfilling the structures with approved fill prior to constructing the cap. In the northeast portion of the RAU, two new catch basins with new subsurface conveyance piping were constructed in an area of the cap that required grading for the cap construction. One of the new catch basins replaced an existing catch basin that was in disrepair; the other new catch basin and piping were required to manage stormwater within the existing system.

Prior to the start of construction, the Port worked with the local natural gas utility owner (Cascade Natural Gas) to remove a previously decommissioned aboveground service line; the aboveground portion of the service line was removed, the service main was capped below grade, and a permanent gas line marker was installed. This work was required to facilitate the construction of the cap.

Aboveground active utility poles with electrical lines were relocated by the utility owner Puget Sound Energy. These utility poles and electrical lines were removed and relocated to maintain electrical service and to facilitate construction of the cap that required excavation or fill in those areas.

4.4 Securing Subsurface Physical Hazards

The cap covers areas previously occupied by a variety of structures and activities during the former mill's many decades of operations. The cap covers former building or structure foundations, decommissioned utilities, roadways, and rail spurs that were largely decommissioned in the past decade. These remnant features, left unmitigated, posed a potential hazard to not only the performance and stability of the cap, but also to the public during the interim period between the completion of the cap and redevelopment of the RAU.

Approximately 120 subsurface vaults, utilidors, drainage structures, conduit banks, and other similar subgrade structures were identified in the CPS as potential physical hazards (pose risks of cap settlement or risks to physical safety) or potential uncontrolled conduits for stormwater, to be mitigated. However, during the course of the cap construction, numerous additional such structures and other subsurface voids were identified and mitigated. In total, about 175 subsurface structures and voids were addressed during this capping project using a variety of solutions such as structure removal, backfilling, plugging pipes or conduits, and securing covers on structures.

As required by the CPS and directed by the Engineer, the Contractor filled the structures with clean, permeable import soil where the Engineer determined that stormwater infiltration is possible and desirable, or with controlled density fill (CDF) where the Engineer determined stormwater infiltration is not practical or desirable.

The Contractor secured the tops on select structures necessary to maintain stormwater drainage functionality where the cap was constructed above the structure and raising the structure to the finished grade of the cap was not feasible. Similarly, select structure tops were secured in areas beyond the cap to mitigate safety hazards or where backfilling the structure was not feasible or cost-effective. Table 1 tabulates and Figure 4 illustrates the pertinent information regarding each of the subsurface structures addressed during the project as potential physical hazard or uncontrolled stormwater conduit.

4.5 Construction Water Management

During the design phase, it was anticipated that stormwater and groundwater would need to be managed to complete the work. During the construction phase, groundwater was not encountered so construction dewatering was not required.

Stormwater was managed by the Contractor during the course of the work in accordance with the National Pollutant Discharge Elimination System (NPDES) permits, which included coverage under the NPDES Construction Stormwater General Permit (CSGP)[3] and the Port's NPDES Waste Discharge Permit for the property[4]. Stormwater was collected and conveyed using the existing stormwater system to the system's dockside pump station that is operated by the Port to convey stormwater to the system's ASB, which functions as a detention basin.

As one of the pre-construction submittal requirements (and a requirement of the CSGP), the Contractor developed a stormwater pollution prevention plan (SWPPP) as a component of the RAMP. The Contractor monitored stormwater conditions and managed stormwater in accordance with the SWPPP throughout the Project.

Stormwater was not discharged to the Whatcom Waterway, nor to Bellingham Bay during the Project. There were no stormwater compliance issues during the course of the Project.

4.6 Soil and Debris Management

The CPS specified that only Site-derived granular soil, concrete, brick, and asphalt with particle sizes generally less than or equal to 4 inches in the largest dimension constituted fill suitable for placement within the above-grade fill area; these materials were collectively termed Site-Derived Fill. All other material generated during the capping construction was designated as unsuitable materials. Unsuitable materials were divided into metal, which was recycled, and non-metal, which was disposed of at a Subtitle D landfill in accordance with the CPS and the approved Waste Management Plan. The following subsections describe the activities generating materials managed during the capping project.

4.6.1 Excavation and Segregation of Soil and Debris

During the capping project, excavation to lower grade was generally limited to the areas of the two knolls on the east end of the RAU, southwest of the Granary Building (that approximate cut area is depicted on Figure 2). Several full-sized conifer trees and other vegetation was growing on the knolls, and the Contractor removed the vegetation as part of clearing and grubbing to allow excavation. When excavating to achieve the designed subgrade (elevation 14.75 feet MLLW) within the knolls area, the Contractor encountered and removed portions of below-grade utility structures and building foundation elements of various sizes and materials. Minor excavation was also conducted for cap grading purposes along the eastern edge of the Laurel Street right-of-way.

The Contractor segregated the materials removed for grading purposes into materials suitable for placement within the above-grade fill area (concrete, asphalt, brick, and granular soil), and material unsuitable for placement (mostly wood and metal debris). The oversized

[3] CSGP No. WAR303857 effective March 30, 2016 and terminated December 5, 2016.
[4] NDPES Permit No. WA0001091 issued December 17, 2014 and modified on November 12, 2015.

concrete, asphalt, and brick debris was reduced in size (crushed) prior to placement within the above-grade fill area. Disposition of unsuitable materials generated is described in Section 4.9.

Throughout the excavation work, the Engineer monitored the excavated or otherwise removed materials for visual and olfactory evidence of grossly contaminated materials, but none were encountered. In fact, no grossly contaminated materials, and no suspect asbestos-containing materials, were encountered at any point during the capping project.

4.6.2 Veneer Removal

A thin, uneven surficial layer of mixed debris, soil, and small amounts of vegetation covered a substantial percentage of the paved areas of the RAU (termed "veneer" in the CPS). Except in areas that were to be capped by import soil, the Contractor removed the veneer to expose the underlying surface. The Contractor removed most of the veneer with loaders, sweepers, and excavators, but a minority of the veneer had to be removed with hand tools.

The Contractor segregated the materials in the removed veneer into material that was suitable for placement in the above-grade fill area, or unsuitable for placement. The unsuitable material was managed for off-Site disposal or recycling. The majority of the veneer removed met the requirements for Site-derived fill, and therefore was placed in the above-grade fill area with no further processing.

4.6.3 Soil and Debris Removed from Subsurface Structures

During the process of stormwater and sewer system utility modifications (see Section 4.3) and securing subsurface physical hazards (see Section 4.4), the Contractor removed debris and soil from some subsurface structures as necessary to maintain stormwater functionality and to ensure that structures requiring backfill did not contain voids that could affect the performance of the cap. As required by the CPS, the Contractor managed the soil and debris removed as stormwater solids, which were stockpiled, characterized and profiled for disposal, and hauled offsite to an approved Subtitle D landfill.

4.6.4 Placement and Grading of Site-Derived Fill

The Contractor placed the excavated soil, veneer, and suitable debris (collectively, Site-derived fill) within the above-grade fill area located in the eastern portion of the RAU (Figure 2). In the southern portion of the above-grade fill area, the Contractor regraded the Port's stockpiles of crushed RCA and crushed brick to create a continuous, approximately flat subgrade at elevation about 16.25 feet MLLW. Immediately to the north of the graded RCA and brick, the Contractor placed the soil and veneer removed during the Project, graded to create a continuous, flat subgrade at elevation of 14.75 feet MLLW. The Engineer and Contractor frequently checked the subgrade elevation against stakes, with Contractor's "roamer" GPS system, and with GPS systems in Contractor's dozers and grader. In conformance with the CPS, the Contractor placed the material in lifts of 12 inches or less and compacted the material between lifts to achieve a dense and unyielding condition. As the

Contractor was placing the material, the Engineer[5] performed spot checks of the compaction of the material.

In areas where the import soil cap was constructed on top of contaminated soil/veneer material (whether placed as fill or in-place soil on the excavated knolls), the Contractor placed a high-visibility (orange), permeable, non-woven separation geotextile[6] on the subgrade surface beneath the base of the soil cap to provide a visual indication for future excavation activities penetrating the soil cap.

As part of project close-out, the Contractor provided the Engineer with elevation maps of the top of the placed subgrade and the top of the import soil cap. Appendix D includes a topographic map for the final capped grade based on survey data provided by the Contractor.

4.7 Placement of Environmental Cap

As stated in Section 2, the RAU-wide cap includes a combination of hard caps, composed of a minimum 3 inches of competent concrete pavement, asphalt pavement, or building foundations, and soil caps composed of a minimum 2 feet of imported soil or crushed rock. Figure 2 depicts the as-built RAU-wide cap, denoting the pre-existing and newly constructed surfaces constituting the cap. Areas of crushed concrete/brick that were covered by 6 inches of crushed rock are also denoted.

In areas where veneer was removed, once the underlying surfaces were exposed, the Engineer determined if the surfaces met the cap performance standards (competent hard cap of adequate thickness). If the exposed surfaces were not suitable to meet the cap performance standards, the Engineer directed the Contractor to construct a new cap. The new cap either consisted of a 3-inch-thick asphalt overlay, with or without a leveling base course of crushed rock; or, where a paved surface was not desirable, a new 2-foot-thick soil cap. Throughout cap construction, the grading created by paving was discussed in the field with the Port to ensure that suitable accessibility and surface drainage was maintained.

As depicted on Figure 2, outside of the above-grade fill area, the RAU-wide cap is almost exclusively comprised of hard caps—a combination of pre-existing competent concrete building slabs, concrete pavement, and asphalt pavement; and new asphalt pavement constructed during the capping project.

The soil/veneer within the above-grade fill, and the exposed soil within the footprints of the excavated knolls east of the above-grade fill, are the only areas capped with 2 feet of imported material during this Project. These import cap materials in the eastern portion of the RAU create a broad, flat surface, capped with permeable crushed rock that facilitates infiltration of stormwater. In addition, imported ballast placed prior to this Project constitutes the cap in four areas (Figure 2): along the eastern shoreline of the Log Pond, in the footprint of the former Clarifier (capped as part of Whatcom Waterway Phase 1 cleanup), in the

[5] Quantitative compaction testing conducted by Materials Testing and Consulting Inc. (MTC), under subcontract to Aspect.
[6] Conforming to the requirements for a nonwoven separation geotextile in Section 9-33 (Table 3) of the WSDOT Standard Specifications.

footprint of the former Bunker C tank (2011 soil cleanup; Aspect, 2012), and in the footprint of the former Steam Plant (2016 soil cleanup; Aspect, 2016b).

4.7.1 Soil Cap Placement

As directed by the Engineer, the Contractor covered all areas of exposed soil—both in-place soil exposed on the knolls and soil placed as Site-derived fill—with a separation geotextile, and then covered the geotextile with the 2-foot-thick cap of imported soil required by the CAP. Specifically, the 2-foot-thick soil cap consisted of 18 inches of gravel borrow[7] overlain by 6 inches of permeable ballast[8] (crushed rock lacking fines). The surface elevation of the capped above-grade fill area is generally 16.75 feet MLLW. Where the soil cap is adjacent to an area of existing suitable paved surface and the top of the cap is above existing grade, the cap was tapered to existing grade at a slope of no steeper than 3H:1V (horizontal:vertical).

Along the southeastern edge of the above-grade fill area, the Contractor built a gravity block (ecology block) wall approximately 600 feet long and 4 feet high to retain the edge of the cap just inside the RAU boundary. The Contractor constructed a vehicle access road between the block wall and the fence at the property boundary (Figure 2). The Contractor also built a 300-foot long, 2-foot-high gravity block retaining wall surrounding the two Tile Tanks, which are being maintained for future redevelopment.

As required by the CPS, a minimum 6 inches of permeable ballast was also placed on top of crushed RCA or brick, whether the material was already in place or was regraded by the Contractor. A thin layer of permeable ballast was also placed in areas between the above-grade fill area and Laurel Street for grading and drainage purposes, in consultation with the Port (Figure 2).

The Contractor constructed a 6-inch extruded asphalt concrete curb around the perimeter of the placed permeable ballast to contain and reduce its raveling; however, where the top of ballast could be matched to an adjacent pavement grade, a curb was not constructed (Figure 2).

The imported borrow and ballast materials placed during the project were virgin aggregate from a Washington State Department of Transportation (WSDOT)-approved source and did not contain recycled materials.

4.7.2 Paved Cap Placement

The Contractor prepared and paved those areas of the RAU where the Engineer directed that the capping material will be asphalt pavement rather than import soil. Subject to determination that the existing pavement could accommodate an asphalt overlay pavement, a 3-inch asphalt overlay was on top of the existing pavement to meet CAP requirements. Where the existing surface was too degraded or uneven to accommodate an asphalt overlay, the Contractor placed and compacted a base course of imported crushed rock for leveling,

[7] As per WSDOT Standard Specifications Section 9-03.14(1).
[8] The permeable ballast meets the requirements of the Washington State Department of Transportation (WSDOT) Standard Specifications Section 9-03.9(2), but with a slightly modified gradation (100% passing 1.25 inches); refer to the CPS.

then placed and compacted at least 3 inches of asphalt-treated base, in conformance with the CPS.

Along the eastern edge of Laurel Street right-of-way, the existing surface was covered by RCA and was at an elevation several inches higher than adjacent competent hard cap. In this area, the Contractor excavated the RCA to 7 inches below the elevation of the adjacent hard cap to allow the placement of 4 inches of base course and 3 inches of asphalt-treated base and still match grade with the adjacent competent hard cap.

Everywhere the Contractor placed new asphalt pavement, it was graded to match surrounding grades so that stormwater drainage occurs. Where the edges of a new section of pavement were above surrounding grade, the new pavement edge was tapered to maintain a drivable surface.

The soil and debris materials generated by preparing surfaces for paving were managed and placed as Site-derived fill in the above-grade fill area or properly disposed off-Site, as described above.

4.8 Site Stormwater System in the Post-Cap Condition

As described in previous sections, the post-cap condition at the RAU simplified the functional stormwater system, which was generally oversized and outmoded following closure of the mill. A number of activities during the course of the Project simplified the stormwater system, including, but not limited to: grading, promoting onsite infiltration, decommissioning of portions of the stormwater system that were no longer functional, constructing asphalt-paved cap areas that reduce ponding, and replacement of select portions of the stormwater system.

Onsite infiltration was promoted by perforating or breaking up some impervious existing surfaces prior to their capping with import soil. The CPS identified an area of a few hundred square yards where the soil cap would cover an asphalt-paved surface that was in disrepair. This area was also observed to be topographically low and impervious to infiltration, and thus stormwater runoff ponded there in the pre-construction condition. To mitigate this condition, the Engineer directed the Contractor to perforate pavement in this area to promote infiltration and to minimize accumulation of water that could potentially reduce the geotechnical stability of the cap. Pavement perforation was also conducted at Engineer direction in several smaller areas where localized ponding was observed, which are depicted on Figure 2. The perforation involved breaking existing paved surfaces into pieces of less than 12 inches in any dimension and leaving the broken material in place as a subgrade for the cap.

The post-cap functional stormwater system within the RAU remains a gravity flow system that collects at the system's dockside pump station. The dockside pump station was not modified as part of the Project, and it continues to convey stormwater from the entire GP West Site to the ASB. The stormwater system continues to be managed by the Port in accordance with the NPDES Wastewater Discharge Permit.

Following completion of capping construction in late September 2016, the cap and RAU have been observed during and after a few intense or prolonged rainfall events. In general, there is an overall reduction of onsite ponding compared to what occurred prior to the cap

construction. There remain limited areas where stormwater runoff continues to pond during and following heavy precipitation events. Those areas are:

- The north end of Laurel Street, where there are currently no functional catch basins. The City's planned Laurel Street and Granary Avenue improvements project will address drainage in this area.
- Northwest of the Board Mill, west of Laurel Street. The paving was perforated here to facilitate infiltration before RCA and ballast were placed, but the ponding persists.
- North of the Chipper. The new asphalt pavement placed in this area was successfully graded to reduce the ponding size, but limited ponding persists.
- The southeast corner of the RAU at a topographically low point. The paving below the cap here was perforated to facilitate infiltration, and ponding in this area has been observed to be temporary following heavy rainfall events.

4.9 Off-Site Disposal of Removed Materials

In accordance with the CPS, the Contractor transported off-Site and properly recycled or disposed of materials generated during the Project that were unsuitable for placement onsite as Site-derived fill. The unsuitable materials recycled were limited to metals. Unsuitable materials landfilled included but were not limited to wood and other organics, fiberglass, plastic, and all solids removed during cleaning or decommissioning of subsurface vaults and basins.

The Contractor recycled the metals at the Scrap-it recycling facility in Ferndale, Washington. The non-metal materials, including all material removed from subsurface structures, were disposed of at Republic Services' Roosevelt Regional (Subtitle D) landfill located in Roosevelt, Washington.

In total, 56 tons of metals generated from the project were recycled, and 110 tons of unsuitable non-metal materials were landfilled. Appendix A includes Republic Services' Certificates of Disposal for the collective quantity of unsuitable non-metal materials disposed at their Roosevelt Subtitle D Landfill, Scrap-it's receipt for recycling of the metals, and a tabulation of the scale tickets for the individual loads of metals recycled and non-metals disposed of.

5 RAU-Wide Capping Results

The RAU-wide capping completed between June and September 2016, with associated environmental covenant(s) requiring inspection and maintenance of the cap to ensure its long-term integrity, will achieve protection for unrestricted direct contact with, and erosion of, soil throughout the Pulp and Tissue Mill RAU of the Georgia-Pacific West Site, in accordance with the CAP, Chapter 173-340-440 WAC, and Revised Code of Washington (RCW) 64.70. For reference, Appendix B includes a tabulation of the final quantities expended for each bid item in the contract, and Appendix C includes selected photographs taken during execution of the capping project.

In combination with the completed Bunker C subarea soil removal (Aspect, 2016a), the CAP's soil cleanup action objectives for the entire RAU have now been met. Long-term integrity of the RAU-wide cap will be achieved by implementation of the Cap Inspection and Maintenance Plan for the RAU, as required by the Consent Decree. Future disturbance of the cap is also subject to the requirements of the Contaminated Materials Management Plan for the RAU (Aspect, 2014a), which is Exhibit E to the Consent Decree. The environmental covenant(s) and the Cap Inspection and Maintenance Plan will be submitted as drafts (Consent Decree deliverable C.1) for Ecology review at or before the time that this Capping As-Built Report is submitted to Ecology in its final version.

6 References

Aspect Consulting, LLC (Aspect), 2012, Bunker C Tank Interim Action Report, Georgia-Pacific West Site, Bellingham, Washington, February 24, 2012.

Aspect Consulting, LLC (Aspect), 2014a, Contaminated Materials Management Plan, Pulp and Tissue Mill Remedial Action Unit, G-P West Site, Bellingham, Washington, June 19, 2014.

Aspect Consulting, LLC (Aspect), 2014b, Feasibility Study, Pulp/Tissue Mill Remedial Action Unit, Vol. 2a of RI/FS, Georgia-Pacific West Site, Bellingham, Washington, October 27, 2014.

Aspect Consulting, LLC (Aspect), 2015, Compliance Monitoring Plan for Groundwater Monitored Natural Attenuation, Pulp and Tissue Mill RAU, Georgia-Pacific West Site, Bellingham, Washington, July 7, 2015.

Aspect Consulting, LLC (Aspect), 2016a, Compliance Monitoring Plan, Cleanup of Pulp and Tissue Mill Remedial Action Unit, Georgia-Pacific West Site, Bellingham, Volume 2: RAU-Wide Capping, Washington, March 7, 2016

Aspect Consulting, LLC (Aspect), 2016b, As-Built Report for Bunker C Soil Removal, Pulp and Tissue Mill Remedial Action Unit, Georgia-Pacific West Site, Bellingham, Washington, April 11, 2016.

Port of Bellingham (Port), 2016, Bid Solicitation (includes Construction Plans and Specifications) for GP West Capping Project, Bellingham, Washington, April 14, 2016. Includes Addendum No. 1 (April 11, 2016) and Addendum No. 2 (April 15, 2016).

Washington State Department of Ecology (Ecology), 2014, Cleanup Action Plan, Pulp/Tissue Mill Remedial Action Unit, Georgia-Pacific West Site, Bellingham, Washington, Exhibit B to Consent Decree No. 14207008, October 30, 2014.

7 Limitations

Work for this project was performed for the Port of Bellingham (Client), and this report was 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. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

TABLE

Table 1 - Details Regarding Subsurface Structures Addressed

PROJECT NO. 140298-001-15 Port of Bellingham

Structure ID	Latitude	Longitude	Structure Type	Status
CB01	48.748544	-122.484296	Catch Basin	Structure filled, inlet and outlet pipes blocked
CB02	48.748577	-122.484246	Catch Basin	Structure filled, inlet and outlet pipes blocked
CB03	48.748677	-122.483862	Catch Basin	Structure filled, inlet and outlet pipes blocked
CB04	48.748758	-122.483976	Catch Basin	Structure filled, inlet and outlet pipes blocked
CB05	48.748839	-122.483792	Catch Basin	Structure filled, inlet and outlet pipes blocked
CB06	48.749007	-122.484180	Catch Basin	Structure filled, inlet and outlet pipes blocked
CB07	48.749736	-122.483121	Catch Basin	Structure filled, inlet and outlet pipes not blocked
CB08	48.751006	-122.483525	Catch Basin	Structure covered with steel sheet
CB09	48.748096	-122.484410	Catch Basin	Structure filled, inlet and outlet pipes not blocked
CB10	48.749672	-122.486586	Catch Basin	Structure covered with steel sheet
CB14	48.751027	-122.484132	Catch Basin	Structure filled, inlet and outlet pipes not blocked
CB27	48.749193	-122.487698	Catch Basin	Structure filled, inlet and outlet pipes not blocked
CB29	48.749678	-122.486523	Catch Basin	Structure covered with steel sheet
CB30	48.749858	-122.486255	Catch Basin	Structure covered with steel sheet
CB32	48.749983	-122.484738	Catch Basin	Structure covered with steel sheet
CB33	48.750047	-122.485970	Catch Basin	Structure covered with steel sheet
CB34	48.750298	-122.485588	Catch Basin	Structure covered with steel sheet
FA-001	48.749792	-122.487086	Other	Structure filled, inlet and outlet pipes blocked
FA-002	48.749684	-122.487142	Other	Structure filled, inlet and outlet pipes blocked
FA-003	48.749621	-122.487205	Floor Drain	Structure filled, inlet and outlet pipes blocked
FA-004	48.749557	-122.487308	Floor Drain	Structure filled, inlet and outlet pipes blocked
FA-007	48.749655	-122.487126	Catch Basin	Structure filled, inlet and outlet pipes blocked
FA-008	48.749790	-122.484972	Floor Drain	Structure filled, inlet and outlet pipes not blocked
FA-009	48.749447	-122.484826	Vault	Structure filled, inlet and outlet pipes not blocked
FA-010	48.749267	-122.485030	Vault	Structure filled, inlet and outlet pipes not blocked
FA-014	48.748694	-122.484484	Other	Structure filled, inlet and outlet pipes not blocked
FA-015	48.748458	-122.487394	Manhole	Structure filled, inlet and outlet pipes not blocked
FA-016	48.748486	-122.487221	Manhole	Structure filled, inlet and outlet pipes blocked
FA-018	48.748518	-122.487137	Manhole	Structure filled, inlet and outlet pipes not blocked
FA-019	48.748446	-122.485440	Manhole	Structure filled, inlet and outlet pipes blocked
FA-020	48.748443	-122.485327	Utilidor	Structure filled, inlet and outlet pipes not blocked
FA-021	48.748335	-122.484943	Other	Structure filled, inlet and outlet pipes not blocked
FA-024	48.747991	-122.484410	Vault	Structure filled, inlet and outlet pipes not blocked
FA-025	48.748096	-122.488136	Other	Structure filled, inlet and outlet pipes not blocked
FA-027	48.748219	-122.487371	Vault	Structure filled, inlet and outlet pipes blocked
FA-028	48.748357	-122.486927	Other	Structure filled, inlet and outlet pipes not blocked
FA-031a	48.747928	-122.486060	Manhole	Structure covered with steel sheet
FA-031b	48.747916	-122.486042	Other	Structure filled, inlet and outlet pipes blocked
FA-032	48.747878	-122.486043	Manhole	Structure covered with steel sheet
FA-037	48.749011	-122.484825	Vault	Structure filled, inlet and outlet pipes not blocked
FA-040	48.747981	-122.486509	Slot Drain	Structure filled, inlet and outlet pipes blocked
FA-041	48.748224	-122.484906	Catch Basin	Structure filled, inlet and outlet pipes not blocked
FA-042	48.749340	-122.486692	Other	Structure filled, inlet and outlet pipes not blocked
FA-043	48.749400	-122.487542	Floor Drain	Structure filled, inlet and outlet pipes blocked
FA-045	48.749753	-122.487151	Vault	Structure filled, inlet and outlet pipes blocked
FA-046	48.749391	-122.486121	Floor Drain	Structure filled, inlet and outlet pipes blocked
FA-047	48.749846	-122.486935	Floor Drain	Structure filled, inlet and outlet pipes blocked
FA-047	48.749306	-122.484909	Other	Structure filled, inlet and outlet pipes not blocked
FA-051	48.747860	-122.486705	Other	Structure filled, inlet and outlet pipes blocked
FA-052	48.750136	-122.486713	Catch Basin	Structure covered with steel sheet

Table 1 - Details Regarding Subsurface Structures Addressed

PROJECT NO. 140298-001-15 Port of Bellingham

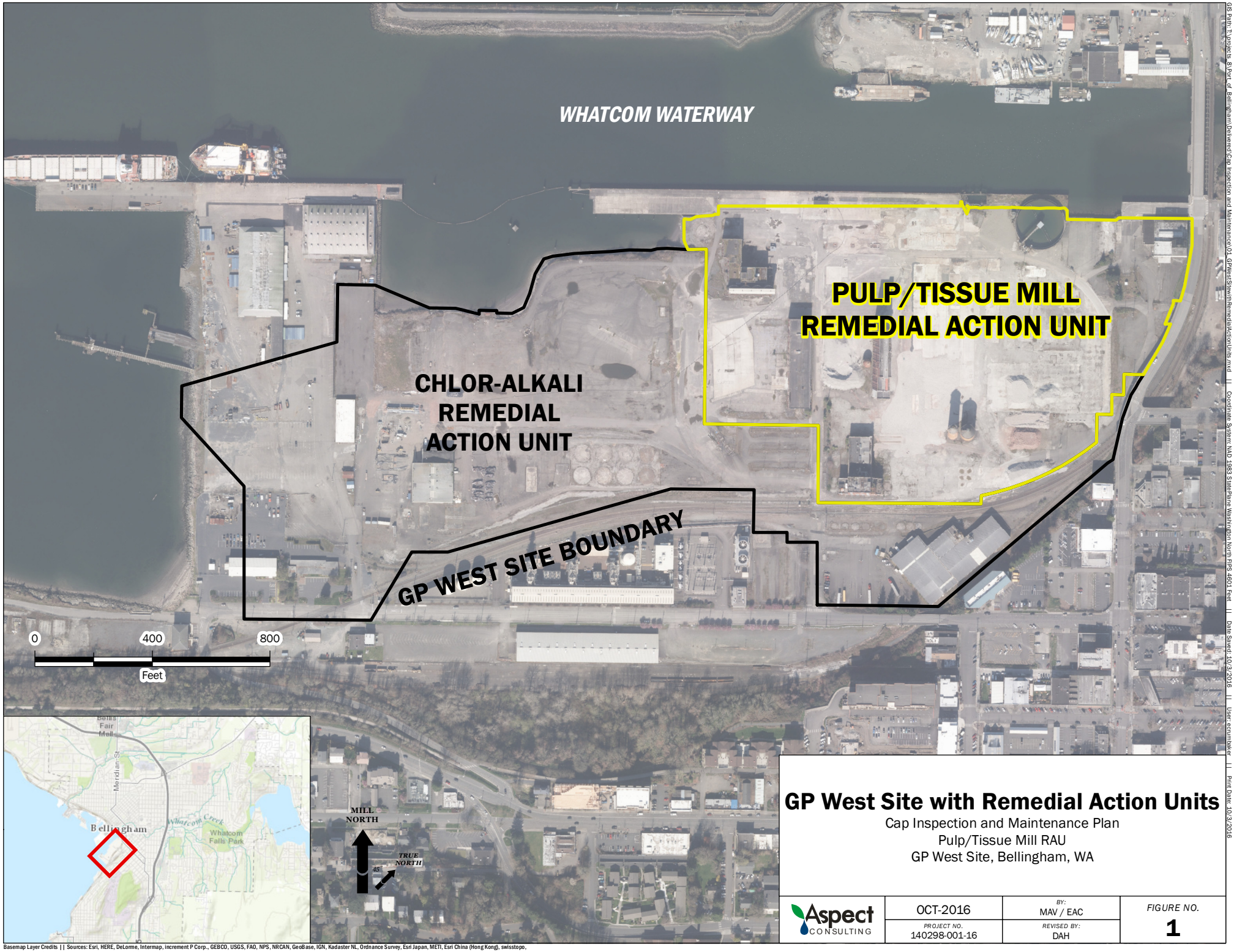
Structure ID	Latitude	Longitude	Structure Type	Status
FA-053	48.749331	-122.487645	Vault	Structure covered with steel sheet
FA-054	48.749300	-122.487641	Other	Structure filled, inlet and outlet pipes blocked
FA-056	48.748645	-122.487762	Manhole	Structure covered with steel sheet
FA-057	48.748612	-122.487819	Vault	Structure covered with steel sheet
FA-058	48.748563	-122.487722	Manhole	Structure filled, inlet and outlet pipes not blocked
FA-060	48.748677	-122.486932	Manhole	Structure filled, inlet and outlet pipes blocked
FA-061	48.748690	-122.486911	Manhole	Structure filled, inlet and outlet pipes not blocked
FA-063	48.750797	-122.483552	Catch Basin	Structure filled, inlet and outlet pipes blocked
FA-066	48.749877	-122.486379	Other	Structure filled, inlet and outlet pipes not blocked
FA-067	48.749852	-122.486571	Other	Structure filled, inlet and outlet pipes not blocked
FA-069	48.749934	-122.486205	Vault	Structure filled, inlet and outlet pipes not blocked
FA-070	48.747675	-122.484773	Vault	Structure covered with steel sheet
FD01	48.747816	-122.486351	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD02	48.749824	-122.485030	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD03	48.749971	-122.485246	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD05	48.750264	-122.483750	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD07	48.750376	-122.483928	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD08	48.748810	-122.484717	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD09	48.748969	-122.484410	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD10	48.750189	-122.483634	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD11	48.750398	-122.483885	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD12	48.749866	-122.485084	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD13	48.749902	-122.485158	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD14	48.749939	-122.485214	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD15	48.749995	-122.485307	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD16	48.750106	-122.483887	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD17	48.750113	-122.483521	Floor Drain	Structure filled, inlet and outlet pipes blocked
FD18	48.750339	-122.483871	Floor Drain	Structure filled, inlet and outlet pipes blocked
MH01	48.749421	-122.484563	Manhole	Structure filled, inlet and outlet pipes blocked
MH02	48.749864	-122.484918	Manhole	Structure filled, inlet and outlet pipes blocked
MH03	48.749510	-122.486614	Manhole	Structure covered with steel sheet
MH04	48.747662	-122.484719	Manhole	Structure covered with steel sheet
MH06	48.748023	-122.484145	Manhole	Structure filled, inlet and outlet pipes not blocked
MH09	48.750572	-122.485826	Manhole	Structure filled, inlet and outlet pipes blocked
MH10	48.751076	-122.484128	Manhole	Structure filled, inlet and outlet pipes blocked
SD01	48.748561	-122.487112	Slot Drain	Structure filled, inlet and outlet pipes blocked
SD02	48.749665	-122.486587	Slot Drain	Structure filled, inlet and outlet pipes blocked
SD03	48.747901	-122.484320	Slot Drain	Structure filled, inlet and outlet pipes not blocked
SD04	48.748014	-122.484127	Slot Drain	Structure filled, inlet and outlet pipes not blocked
ST	48.749715	-122.486657	Vault	Structure covered with steel sheet
UT01	48.747584	-122.484853	Utilidor	Structure covered with steel sheet
UT02a	48.749173	-122.487412	Utilidor	Structure covered with steel sheet
UT02b	48.749241	-122.487318	Utilidor	Structure covered with steel sheet
UT02c	48.749362	-122.487142	Utilidor	Structure covered with steel sheet
UT02d	48.749509	-122.486930	Utilidor	Structure covered with steel sheet
UT3	48.750503	-122.485595	Utilidor	Structure filled, inlet and outlet pipes blocked
V01	48.749788	-122.483167	Vault	Structure covered with steel sheet
V02	48.749603	-122.486470	Vault	Structure filled, inlet and outlet pipes not blocked
V03	48.749796	-122.484990	Vault	Structure filled, inlet and outlet pipes blocked
V04	48.748953	-122.484441	Vault	Structure filled, inlet and outlet pipes not blocked

Table 1 - Details Regarding Subsurface Structures Addressed

PROJECT NO. 140298-001-15 Port of Bellingham

Structure ID	Latitude	Longitude	Structure Type	Status
V05	48.748700	-122.487278	Vault	Structure filled, inlet and outlet pipes not blocked
V06	48.749065	-122.484182	Vault	Structure filled, inlet and outlet pipes blocked
V07	48.749231	-122.484032	Vault	Structure filled, inlet and outlet pipes not blocked
V08	48.749244	-122.485946	Vault	Structure filled, inlet and outlet pipes blocked
V09	48.749831	-122.486851	Vault	Structure filled, inlet and outlet pipes not blocked
V10	48.749944	-122.486951	Vault	Structure filled, inlet and outlet pipes not blocked
V11	48.750218	-122.483093	Vault	Structure filled, inlet and outlet pipes blocked
V12	48.750377	-122.486389	Vault	Structure filled, inlet and outlet pipes not blocked
V13	48.750823	-122.484359	Vault	Structure filled, inlet and outlet pipes not blocked
V15	48.749202	-122.487061	Vault	Structure covered with steel sheet
V16	48.750147	-122.484991	Vault	Structure filled, inlet and outlet pipes blocked
V17	48.750360	-122.485321	Vault	Structure filled, inlet and outlet pipes blocked
V18	48.749076	-122.484204	Vault	Structure filled, inlet and outlet pipes blocked
V19	48.748811	-122.485243	Vault	Structure filled, inlet and outlet pipes blocked
V20	48.748975	-122.485492	Vault	Structure filled, inlet and outlet pipes blocked
V21	48.749125	-122.485688	Vault	Structure filled, inlet and outlet pipes blocked
V22	48.749254	-122.486029	Vault	Structure filled, inlet and outlet pipes not blocked
V24	48.749395	-122.486101	Vault	Structure filled, inlet and outlet pipes blocked
V25	48.749539	-122.486323	Vault	Structure filled, inlet and outlet pipes blocked
V26	48.750360	-122.484026	Vault	Structure filled, inlet and outlet pipes not blocked
V27	48.749018	-122.484325	Vault	Structure filled, inlet and outlet pipes not blocked
V29	48.749881	-122.486762	Vault	Structure filled, inlet and outlet pipes not blocked
V30	48.750004	-122.486904	Vault	Structure covered with steel sheet
V33	48.748182	-122.485143	Vault	Structure covered with steel sheet
V38	48.749465	-122.487462	Vault	Structure covered with steel sheet
V39	48.749815	-122.485494	Vault	Structure filled, inlet and outlet pipes not blocked
V44a	48.748970	-122.484294	Vault	Structure filled, inlet and outlet pipes not blocked
V45	48.750367	-122.484169	Vault	Structure covered with steel sheet

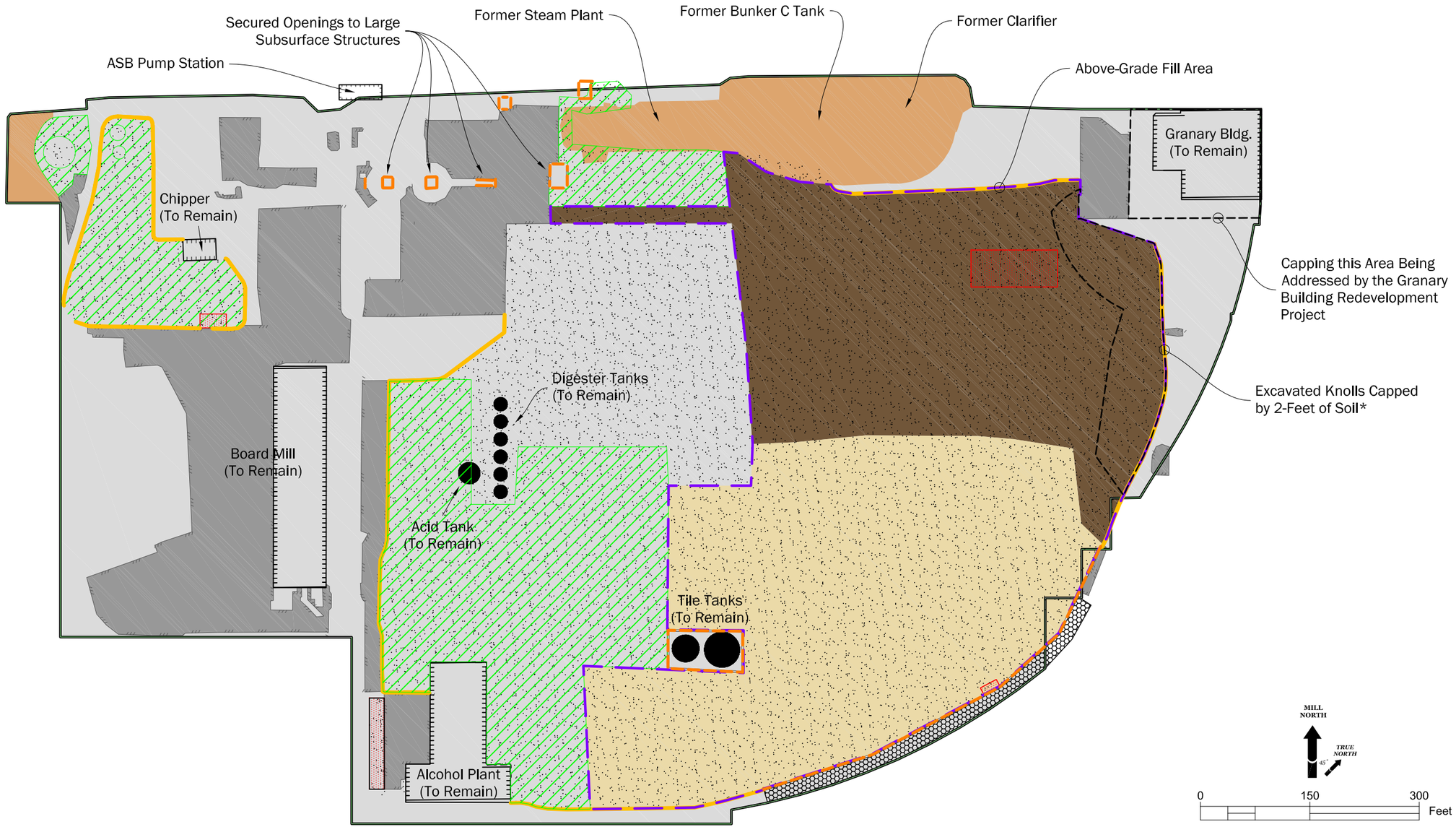
FIGURES



GP West Site with Remedial Action Units

Cap Inspection and Maintenance Plan
Pulp/Tissue Mill RAU
GP West Site, Bellingham, WA

Aspect CONSULTING	OCT-2016	BY: MAV / EAC	FIGURE NO. 1
	PROJECT NO. 140298-001-16	REVISED BY: DAH	



Sources for As-Built Cap Condtions: RAM Construction and Wilson Engineering

Materials Capped or Covered

- Soil/Veneer Site-Derived Fill Capped by 2 Feet of Soil*
- Owner-Provided Fill Covered by 6 Inches of Ballast
- Preexisting Recycled Concrete Aggregate Covered by 6 Inches of Ballast
- Preexisting Competent Hard Cap Covered by 6 Inches of Ballast (Grading/Drainage Purposes)
- Preexisting Surface Perforated to Facilitate Infiltration

Cap or Cover Materials

- New Asphalt Pavement (Hard Cap)
- New Permeable Ballast (Underlain by Gravel Borrow in Soil/Veneer Fill Area)
- Building/Structure to Remain
- Preexisting Competent Hard Cap
- Preexisting Ballast Cap

Other Features

- New Gravity Block Wall
- New Asphalt Curb
- New Crushed Rock Access Road
- Tanks to Remain

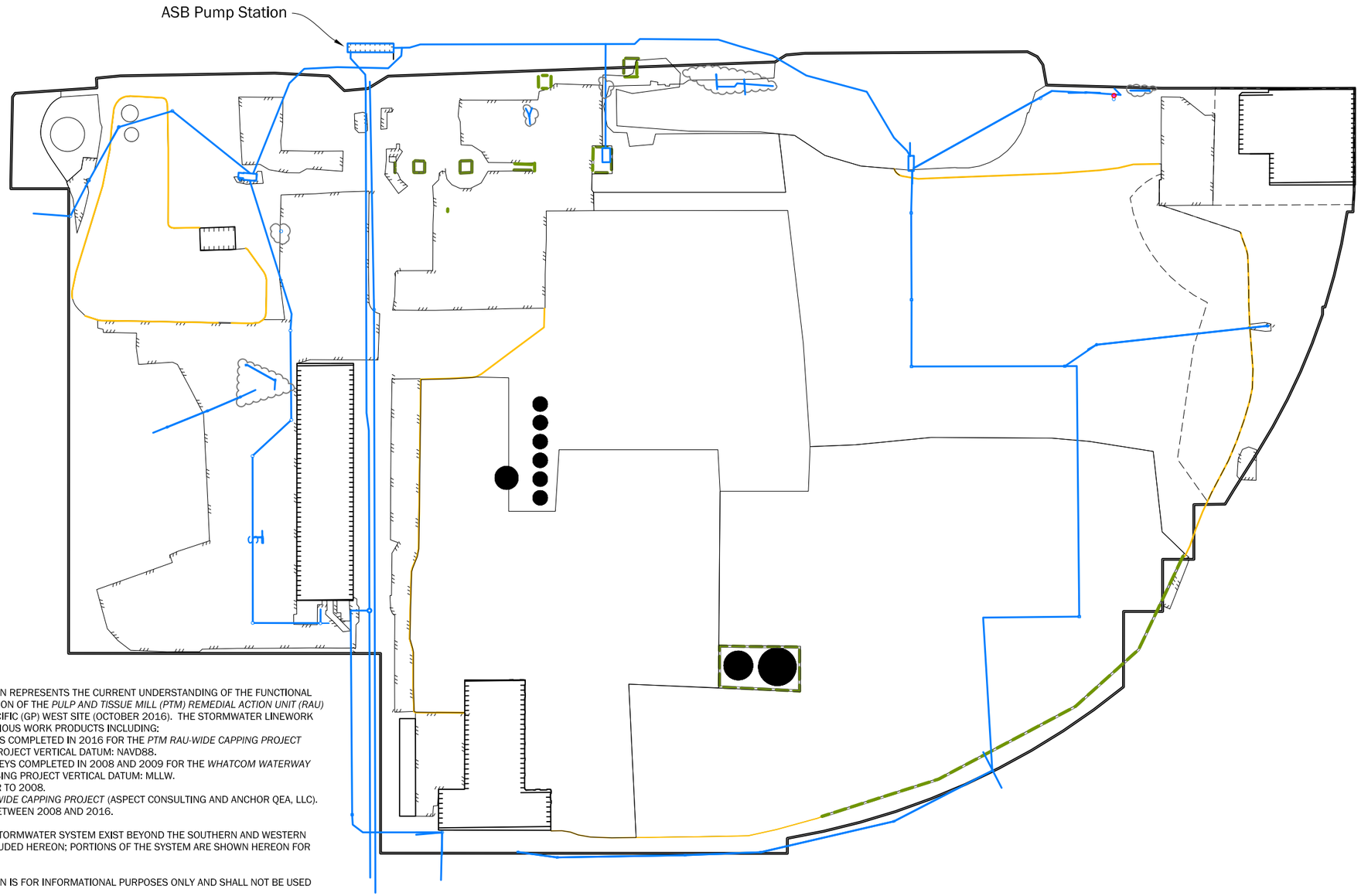
* 6 Inches Permeable Ballast over 18 Inches Gravel Borrow

As-Built Capped Condition for the Pulp and Tissue Mill RAU

PTM RAU Site-Wide Capping As-Built Report
Port of Bellingham
Bellingham, Washington

Aspect Consulting			
	Jan-2017	BY: MAV/ASC	FIGURE NO. 2
	PROJECT NO. 140298 - 015	REVISED BY: SCC/RAP	

CAD Path: Q:\Port of Bellingham\140298 Former GP Mill Property\2016-10 As-Built Report\140298-02 AS-BUILT CAPPED CONDITION.dwg As-Built Capped Condition || Date Saved: Jan 24, 2017 3:13pm || User: scudd



NOTES:

1. THE STORMWATER LINEWORK SHOWN HEREON REPRESENTS THE CURRENT UNDERSTANDING OF THE FUNCTIONAL STORMWATER SYSTEM FOLLOWING COMPLETION OF THE *PULP AND TISSUE MILL (PTM) REMEDIAL ACTION UNIT (RAU) WIDE CAPPING PROJECT* ON THE GEORGIA-PACIFIC (GP) WEST SITE (OCTOBER 2016). THE STORMWATER LINEWORK SHOWN HEREON WAS ASSEMBLED FROM VARIOUS WORK PRODUCTS INCLUDING:
   - A. WILSON ENGINEERING TOPOGRAPHIC SURVEYS COMPLETED IN 2016 FOR THE *PTM RAU-WIDE CAPPING PROJECT* (ASPECT CONSULTING). COMPLETED USING PROJECT VERTICAL DATUM: NAVD88.
   - B. WILSON ENGINEERING TOPOGRAPHICAL SURVEYS COMPLETED IN 2008 AND 2009 FOR THE *WHATCOM WATERWAY PROJECT* (ANCHOR QEA, LLC). COMPLETED USING PROJECT VERTICAL DATUM: MLLW.
   - C. RECORD DRAWINGS DEVELOPED BY GP; PRIOR TO 2008.
   - D. FIELD OBSERVATIONS DURING THE *PTM RAU-WIDE CAPPING PROJECT* (ASPECT CONSULTING AND ANCHOR QEA, LLC).
   - E. FIELD OBSERVATIONS BY ANCHOR QEA, LLC BETWEEN 2008 AND 2016.
2. ADDITIONAL PORTIONS OF THE FUNCTIONAL STORMWATER SYSTEM EXIST BEYOND THE SOUTHERN AND WESTERN LIMITS OF THIS LINEWORK AND ARE NOT INCLUDED HEREON; PORTIONS OF THE SYSTEM ARE SHOWN HEREON FOR THE PTM RAU ONLY.
3. THE STORMWATER LINEWORK SHOWN HEREON IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT BE USED FOR OTHER WORK PRODUCTS.
4. STORMWATER COLLECTED ONSITE IS CONVEYED TO THE ASB PUMP STATION, WHICH PUMPS WATER ACROSS THE WHATCOM WATERWAY INTO THE ASB, IN ACCORDANCE WITH THE PORT'S NPDES WASTE DISCHARGE PERMIT WA0001091.

Blue Linework Depicts the Functional Stormwater System (Catch Basins, Vaults, Piping, etc.).

System Connectivity Unverified

Sources for As-Built Cap Conditions: RAM Construction and Wilson Engineering.

Refer to Figure 2 for explanation of cap elements and other features.

MILL NORTH / TRUE NORTH (45°)

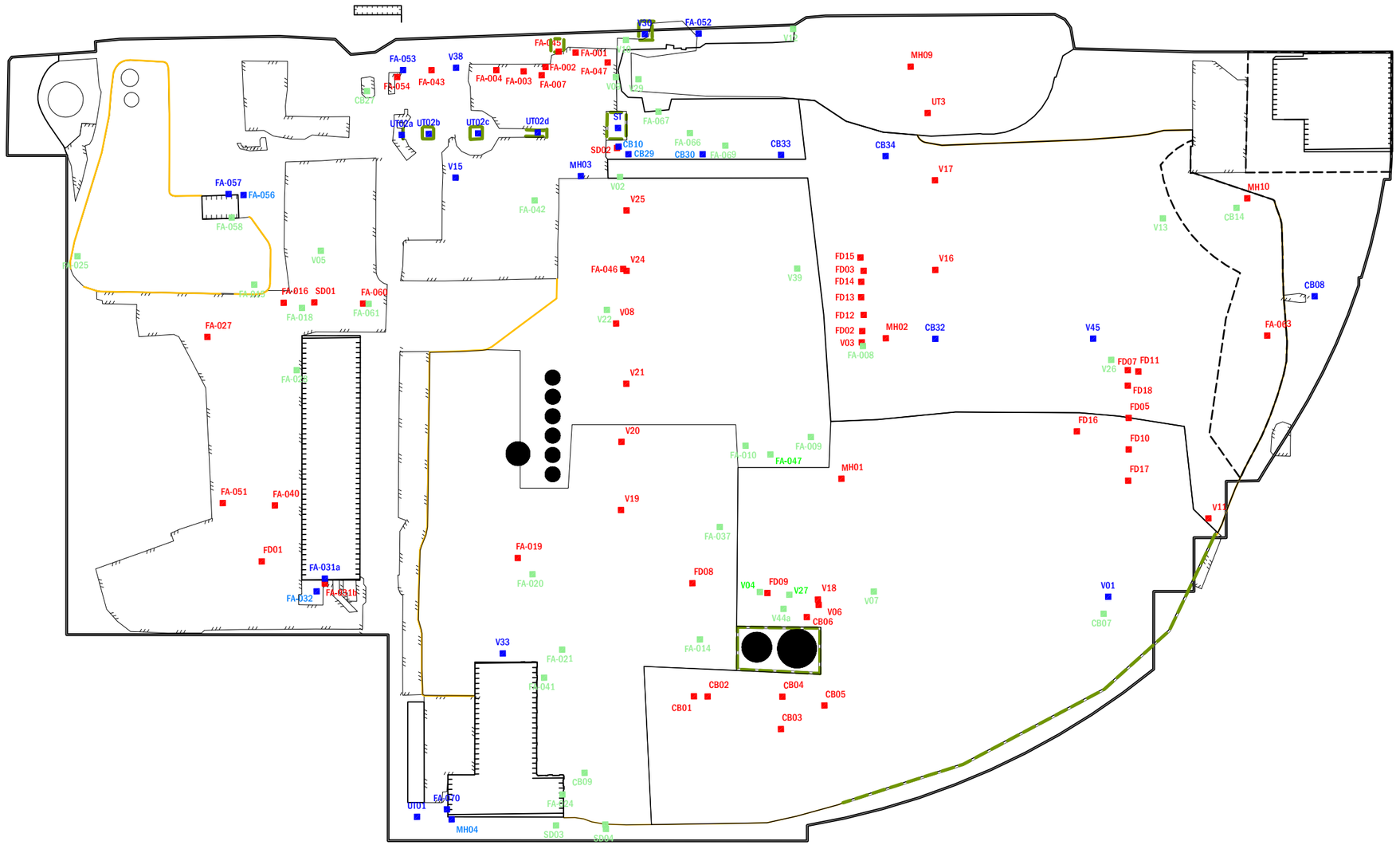
0 150 300 Feet

Functional Stormwater System for the Pulp and Tissue Mill RAU

PTM RAU Site-Wide Capping As-Built Report
Port of Bellingham
Bellingham, Washington

Aspect Consulting	Dec-2016	BY: MAV/ASC	FIGURE NO. 3
	PROJECT NO. 140298 - 015	REVISED BY: SCC/RAP	

CAD Path: Q:\Port of Bellingham\140298 Former GP Mill Property\2016-10 As-Built Report\140298-02 AS-BUILT FOR PTM RAU.dwg As-Built SW Infrastructure || Date Saved: Dec 16, 2016 2:53pm || User: scudd



Subsurface Structure Status

- Filled with Impermeable Material
- Filled with Permeable Material
- Covered with Steel Plate

(Refer to Table 1 for Details)

Sources for As-Built Cap Conditions: RAM Construction and Wilson Engineering.

Refer to Figure 2 for explanation of cap elements and other features.

MILL NORTH

TRUE NORTH

45°

0 150 300 Feet

As-Built Subsurface Structure Status for the Pulp and Tissue Mill RAU

PTM RAU Site-Wide Capping As-Built Report
Port of Bellingham
Bellingham, Washington

Aspect CONSULTING	Dec-2016	BY: MAV/ASC	FIGURE NO. 4
	PROJECT NO. 140298 - 015	REVISED BY: SCC/RAP	

CAD Path: Q:\Port of Bellingham\140298 Former GP Mill Property\2016-10 As-Built Report\140298-02 AS-BUILT FOR PTM RAU.dwg As-Built Subsurface Structure Status || Date Saved: Dec 19, 2016 11:57am || User: scudd

APPENDIX A

Records for Off-Site Soil Recycling and Landfill Disposal

Appendix A
Tabulation of Unsuitable Materials Recycled or Disposed of Off Site
Pulp and Tissue Mill RAU Capping Project

Date	Net Wt (lbs)	Net Wt (tons)	Ticket #
Metals Recycled Off Site (Bid Item A-12)			
09/19/16	24,700	12.35	#1
09/19/16	23,620	11.81	#2
09/19/16	20,060	10.03	#3
09/19/16	24,520	12.26	#4
09/20/16	18,320	9.16	#5
Total Tonnage:		**55.6**	
Non-Metal Materials Disposed of at Subtitle D Landfill (Bid Item A-13)			
11/04/16	52,520	26.26	60249
11/04/16	45,220	22.61	60286
11/04/16	60,140	30.07	60287
10/01/16	62,720	31.36	60288
Total Tonnage:		**110.3**	

REPUBLIC SERVICES

CERTIFICATE OF DESTRUCTION

I, Don Tibbets, of Regional Disposal Company (RSI facility), hereby certify that the entire product described in Section A has been properly and legally disposed of in Roosevelt Regional MSW LF on November 19, 2016 (attach any appropriate documentation).

I understand that due to potential concerns related to such things as health, quality, and loss of goodwill, Port of Bellingham (Company) does not want this product to be distributed to consumers, even through so called "distressed merchandise" channels of trade, and I further certify that these items were destroyed in such a manner that it cannot be sold, and that the company has taken every reasonable step to prevent resale of said items.

Name (print): Don Tibbets

Signature: DTS

Title: General Manager

Date: 12/9/2016

Section A- Products Destroyed (attached additional sheets if needed):

Waste Profile Number (if applicable): 41781617813 / LW-16250

Description of Product	*Quantity or Weight*
Weathered Wood/Creosoted Timber	26.26 Tons

SITE Ferndale/Bellingham 20 or 40 - 48 foot --
WA ROOSEVELT-, CA

CUSTOMER 016134
Ram Construction General Contractors Inc
4290 Pacific Highway
Bellingham, WA 98226
Contract:LW-16250

SITE 21	TICKET # 60249	CELL	
WEIGHMASTER	Sue B.		
DATE/TIME IN	11/19/16 5:48 pm	DATE/TIME OUT	11/19/16 6:05 pm
VEHICLE	5833	CONTAINER	RABU483402
REFERENCE			
BILL OF LADING	DTTX430122		

SCALE IN GROSS WEIGHT 99,180 NET TONS 26.26
SCALE OUT TARE WEIGHT 46,660 NET WEIGHT 52,520

INBOUND
INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
~~28.00~~	~~YD~~	Tracking QTY				
26.26	tn	Creosote Origin:Bellingham 100%				
1.00		CONTAINER/CHASIS RENTAL				

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (07/12)

SIGNATURE _____

REPUBLIC SERVICES

CERTIFICATE OF DESTRUCTION

I, Don Tibbets, of Regional Disposal Company (RSI facility), hereby certify that the entire product described in Section A has been properly and legally disposed of in Roosevelt Regional MSW LF on November 29, 2016 (attach any appropriate documentation).

I understand that due to potential concerns related to such things as health, quality, and loss of goodwill, Port of Bellingham (Company) does not want this product to be distributed to consumers, even through so called "distressed merchandise" channels of trade, and I further certify that these items were destroyed in such a manner that it cannot be sold, and that the company has taken every reasonable step to prevent resale of said items.

Name (print): Don Tibbets

Signature: 

Title: General Manager

Date: 12/9/2016

Section A- Products Destroyed (attached additional sheets if needed):

Waste Profile Number (if applicable): 41781617952 / LW-16255

Description of Product	*Quantity or Weight*
Contaminated Soil & Debris	84.04 Tons

SITE Ferndale/Bellingham 20 or 40 - 48 foot --
WA ROOSEVELT-, CA

CUSTOMER 016134
Ram Construction General Contractors Inc
4290 Pacific Highway
Bellingham, WA 98226
Contract:LW-16255

SITE	TICKET #	CELL
21	60286	

WEIGHMASTER Gail H.

DATE/TIME IN 11/29/16 8:37 am DATE/TIME OUT 11/29/16 8:57 am

VEHICLE 0329 CONTAINER GCEU440078

REFERENCE

BILL OF LADING BNSF231128

SCALE IN GROSS WEIGHT 94,280 NET TONS 22.61 INBOUND
SCALE OUT TARE WEIGHT 49,060 NET WEIGHT 45,220 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
28.00	YD	Tracking QTY				
22.61	tn	Cont Soil Origin:Bellingham 100%				
1.00		CONTAINER/CHASIS RENTAL				

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (07/12)

SIGNATURE _____

SITE
Ferndale/Bellingham 20 or 40 - 48 foot --
WA ROOSEVELT , CA

CUSTOMER
016134
Ram Construction General Contractors Inc
4290 Pacific Highway
Bellingham, WA 98226
Contract:LW-16255

SITE	TICKET #	CELL
21	60287	

WEIGHMASTER Gail H.

DATE/TIME IN 11/29/16 8:49 am DATE/TIME OUT 11/29/16 9:09 am

VEHICLE 6180 CONTAINER GCEU426382

REFERENCE

BILL OF LADING BNSF231128

SCALE IN GROSS WEIGHT 107,600 NET TONS 30.07 INBOUND
SCALE OUT TARE WEIGHT 47,460 NET WEIGHT 60,140 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
28.00	YD	Tracking QTY				
30.07	tn	Cont Soil Origin:Bellingham 100%				
1.00		CONTAINER/CHASIS RENTAL				

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (07/12)

SIGNATURE _____

SITE
Ferndale/Bellingham 20 or 40 - 48 foot --
WA ROOSEVELT , CA

CUSTOMER
016134
Ram Construction General Contractors Inc
4290 Pacific Highway
Bellingham, WA 98226
Contract:LW-16255

SITE	TICKET #	CELL
21	60288	

WEIGHMASTER Gail H.

DATE/TIME IN	DATE/TIME OUT
11/29/16 9:17 am	11/29/16 9:43 an

VEHICLE	CONTAINER
6181	GCEU430538

REFERENCE

BILL OF LADING BNSF231128

SCALE IN GROSS WEIGHT 108,620 NET TONS 31.36 INBOUND
SCALE OUT TARE WEIGHT 45,900 NET WEIGHT 62,720 INVOICE

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
28.00	YD	Tracking QTY				
31.36	tn	Cont Soil Origin:Bellingham 100%				
1.00		CONTAINER/CHASIS RENTAL				

NET AMOUNT
TENDERED
CHANGE
CHECK#

The undersigned individual signing this document on behalf of Customer acknowledges that he or she has read and understands the terms and conditions on the reverse side and that he or she has the authority to sign this document on behalf of the customer.

RS-F042UPR (07/12)

SIGNATURE _____

SCRAP-IT
1526 Slater Rd, PO Box 669
Ferndale, WA 98248
360-734-1112 (Tel)

Purchase Ticket

Ticket # 16303
Issued on 9/23/2016 10:02:56 AM

SELLER	
Ref #	152
Name	Ram Construction
Address	4072 Pacific HWY
City/ST/Zip	Bellingham, WA 98226

MATERIAL	DESCRIPTION	GROSS	TARE	CORR	NET	QTY	UNIT PRICE	NET PRICE
HMS	9/19	59,180	34,660	0	24,520	0		
HMS	9/20	51,400	33,080	0	18,320	0		
HMS	9/19	53,100	33,040	0	20,060	0		
HMS	9/19	57,820	33,120	0	24,700	0		
HMS	9/19	58,340	34,720	0	23,620	0		

Remarks: PORT OF BELLINGHAM GP WEST CAPPING AND PROJECT #1606 55.61 TN

TOTALS	
Cash:	
Check:	
Paid:	

Signature Brian G. Parberry

Hugh,

Scrap its Washington State Recycling Metal Buyer #3334
Scrap Process# 9900
Please use this form as a CERTIFICATE OF DISPOSAL

BG

APPENDIX B

Final Quantities for Contract Bid Items

Appendix B
Final Quantities for Contract Bid Items
Pulp and Tissue Mill RAU Capping Project

Bid Schedule A: Pulp and Tissue Mill Remedial Action Unit Capping

Item No.	Description of Item	Units	Final Quantity
A-01	Mobilization	L.S.	1
A-02A	Water management plan	L.S.	1
A-02B	Temporary erosion and sediment control	L.S.	1
A-03	Project surveying	L.S.	1
A-04	Potential ACM removal	L.S.	0
A-05	Relocate timber utility pole	EACH	0
A-06	Clearing and grubbing	L.S.	1
A-07	Perforate existing pavement	S.Y.	4,307
A-08	Removal of structure and obstruction	TON	715
A-09	Relocate industrial monument	L.S.	1
A-10	Roadway excavation	TON	8,722
A-11	Veneer removal	TON	3,246
A-12	Transport and dispose unsuitable material - metal	TON	56
A-13	Transport and dispose unsuitable material - non-metal	TON	110
A-14	Grossly contaminated material	TON	0
A-15A	Place and grade site-derived fill, owner-provided material	L.S.	1
A-15B	Place and grade site-derived fill, excluding owner-provided	TON	12,683
A-16A	Gravel borrow, contractor-furnished	TON	21,252
A-16B	Gravel borrow, owner-supplied	L.S.	1
A-17	Permeable ballast	TON	29,078
A-18	Gravity block wall	SQ. FT.	2,376
A-19	6-inch asphalt curb	L.F.	0
A-20	Shoring or extra excavation class b	SQ. FT.	0
A-21	Construction geotextile for separation	S.Y.	24,265
A-22	Crushed surfacing base course	TON	3,493
A-23	Asphalt treated base	TON	3,335
A-24	Solid wall pvc storm sewer pipe, 8 in. diam.	L.F.	280
A-25	Catch basin type 1	EACH	2
A-26	Adjust exist. structure to grade	EACH	11
A-27	Adandon exist. structure with suitable fill material	C.F.	9,109
A-28	Adandon exist. structure with cdf	C.F.	567
A-29	Connections to exist. structure	EACH	1
A-30	Secure exist. covering on top of structure	EACH	3
A-31	Secure hog fuel conveyor utilidor	L.S.	1
A-32	Furnish and install 1/2 in. thick new steel plate on top of structure	SQ. FT.	569
A-33	Expose, cut, cap, and isolate water supply	EACH	1
A-34	Remove water appurtenance above subgrade	EACH	29
A-35	Cleaning exist. structures	EACH	31
A-36	Plugging exist. pipe less than 8 in. diam.	EACH	27
A-37	Plugging exist. pipe 8 in. diam to 18 in. diam.	EACH	15
A-38	Plugging exist. pipe greater than 18 in. diam.	EACH	3
A-39	Receipt of Record Dwgs., Reports and Completion of all Punch List Item	L.S.	1

Bid Schedule B: Additional Grading Work for Granary and Central Avenues Area

Item No.	Description of Item	Units	Accrued Quantity
B-01	Removal of structure and obstruction	TON	464
B-02	Roadway excavation	TON	3,333
B-03	Place and grade site-derived fill	TON	3,783
B-04	Crushed surfacing base course	TON	284
B-05	Asphalt treated base	TON	177
B-06	Receipt of Record Dwgs., Reports and Completion of all Punch List Item	L.S.	1
B-16A	Gravel borrow, contractor furnished	TON	96

Notes:

S.Y. = Square Yard. SQ. FT. = Square Foot. C.F. = Cubic Feet. L.F. = Linear Feet. L.S. = Lump Sum.

Quantities are rounded to the nearest integer for display in this table.

Additional work was accomplished via separate change order proposals agreed to by the Port.

APPENDIX C

Photographs from Capping Project

Appendix C: Photographs from Pulp & Tissue Mill RAU Capping Project

Photo 1. Clearing and grubbing before excavation of knolls.

Photo 2. Excavation of knolls.

Photo 3. Veneer removal.

Photo 4. Placing removed veneer in above-grade fill area.

Photo 5. Perforating degraded pavement to facilitate infiltration.

Photo 6. Perforated pavement.

Photo 7. Cleaning out subsurface structures.

Photo 8. Re-grading Recycled Concrete Aggregate.

Photo 9. Constructing gravity block wall along southeast edge of above-grade fill area.

Photo 10. Separation geotextile placed over graded and compacted soil/veneer site-derived fill. Gravel borrow to be placed over geotextile.

Photo 11. Grading of gravel borrow over separation geotextile.

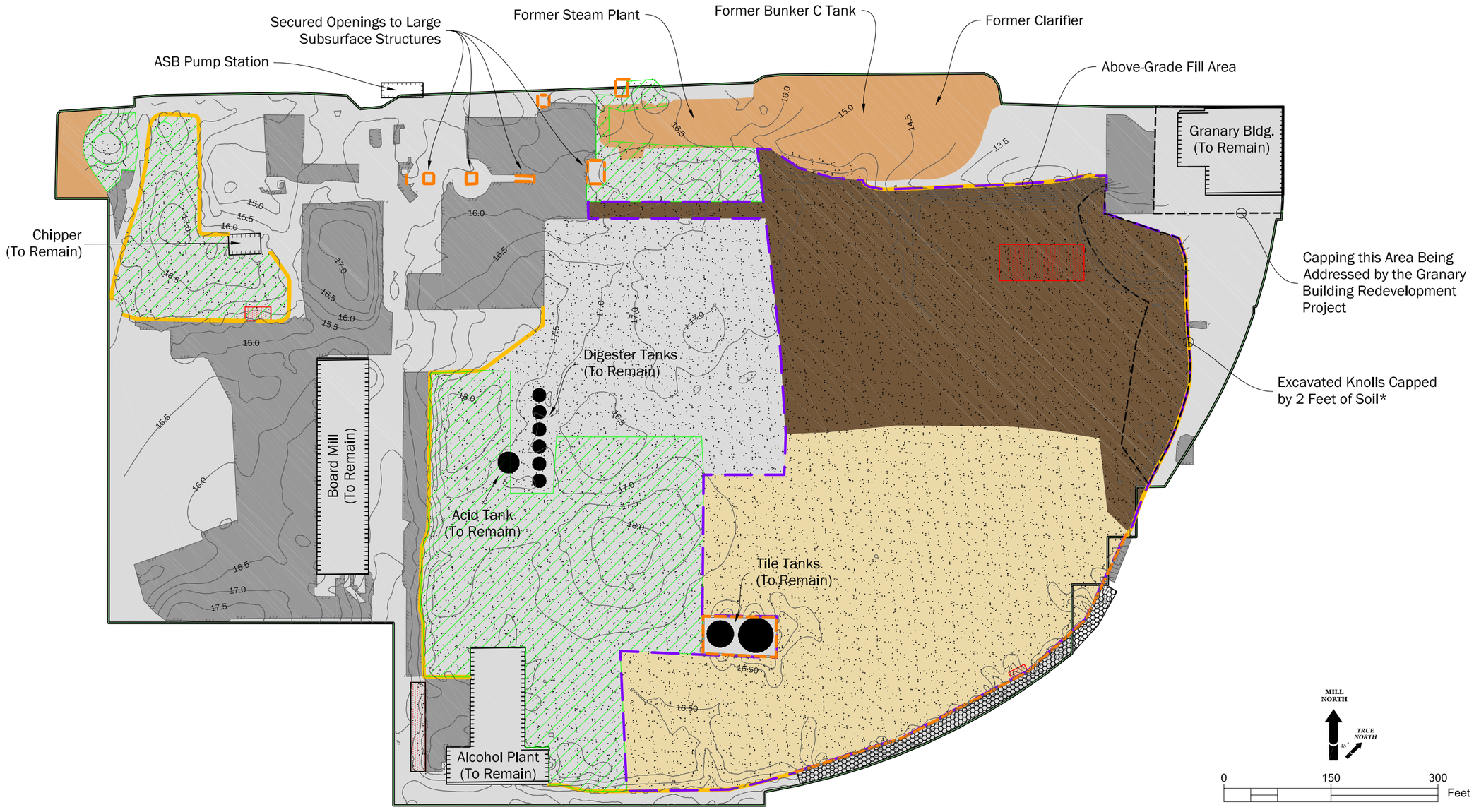
Photo 12. Placing permeable ballast.

Photo 13. Constructing asphalt pavement hard cap.

Photo 14. The completed cap, looking mill-west from Chestnut Avenue.

APPENDIX D

As-Built Final Grade for the Pulp and Tissue Mill RAU



Source for Final Grade Elevations: RAM Construction

Materials Capped or Covered

- Soil/Veneer Site-Derived Fill Capped by 2 Feet of Soil*
- Owner-Provided Fill Covered by 6 Inches of Ballast
- Preexisting Recycled Concrete Aggregate Covered by 6 Inches of Ballast
- Preexisting Competent Hard Cap Covered by 6 Inches of Ballast (Grading/Drainage Purposes)
- Preexisting Surface Perforated to Facilitate Infiltration

Cap or Cover Materials

- New Asphalt Pavement (Hard Cap)
- New Permeable Ballast (Underlain by Gravel Borrow in Soil/Veneer Fill Area)
- Building/Structure to Remain
- Preexisting Competent Hard Cap
- Preexisting Ballast Cap

Other Features

- New Gravity Block Wall
- New Asphalt Curb
- New Crushed Rock Access Road
- Tanks to Remain

* 6 Inches Permeable Ballast over 18 Inches Gravel Borrow

As-Built Final Grade for the Pulp and Tissue Mill RAU

PTM RAU Site-Wide Capping As-Built Report
Port of Bellingham
Bellingham, Washington

Aspect Consulting

Mar-2017	BY: MAV/ASC	FIGURE NO. D-1
PROJECT NO. 140298 - 015	REVISED BY: SCC/RAP	

CAD Path: Q:\Port of Bellingham\140298 Former GP Mill Property\2017-03 As-Built Report RAU-Wide Capping\140298-02 AS-BUILT CAPPED CONDITION WITH CONTOURS.dwg As-Built Capped Condition || Date Saved: Mar 06, 2017 2:56pm || User: scudd