Oregon Department of Environmental Quality

Site Management Plan for the Former St. Helens Fiberboard Facility

1645 Railroad Avenue
St. Helens, Oregon
ECSI #91

Approved by Oregon Department of Environmental Quality August 1, 2018
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Abbreviations and Acronyms

AOC	area of contamination
AWI	Armstrong World Industries
BA	Biological Assessment
bgs	below ground surface
COC	contaminant of concern
CWA	Clean Water Act
cy	cubic yard
DEQ	Oregon Department of Environmental Quality
DGI	data gaps investigation
DOT	U. S. Department of Transportation
DSL	Oregon Department of State Lands
ECSI	Environmental Cleanup Site Information
EES	Easement and Equitable Servitude
EH&S	Environmental, Health and Safety
EPA	U. S. Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
FS	feasibility study
ft	foot/feet
GPS	Global Positioning System
HAZWOPER	hazardous waste operations and emergency response
HHRA	Human Health Risk Assessment
HSP	health and safety plan
IDP	inadvertent discovery plan
IDW	investigation-derived waste
ISM	Incremental Sample Method
Kaiser	Kaiser Gypsum Company, Inc.
mg/kg	milligram per kilogram
mg/L	milligram per liter
mil	millimeter
OHW	ordinary high water
OU	Operable Unit
OU1	Upland Operable Unit
OU2	Lowland/In-Water Operable Unit
Owens	Owens Corning Sales, LLC
Parties	Kaiser Gypsum Company, Inc., Armstrong World Industries, and Owens Corning Sales, LLC
PPE	personal protective equipment

QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RG	Remediation Goal
RA	risk assessment
RI	remedial investigation
ROD	record of decision
SAP	sampling and analysis plan
Site	former St. Helens Fiberboard Facility, ECSI 91, located at 1645 Railroad Avenue in St. Helens, Oregon
SLOPES	Standard Local Operating Procedures for Endangered Species
SMP	Site Management Plan
TCLP	toxicity characteristic leaching procedure
TEQ	toxicity equivalence
USACE	U.S. Army Corps of Engineer

1 Introduction

This Site Management Plan (SMP) was prepared for the former St. Helens Fiberboard Facility, located at 1645 Railroad Avenue in St. Helens, Oregon (the Site; see Figure 1). The Site is designated as Environmental Cleanup Site Information (ECSI) No. 91 by the Oregon Department of Environmental Quality (DEQ). This SMP provides information and requirements to identify and properly manage contaminated soil and sediment that may be encountered during excavation or other earthwork activities at the Site. Specifically, this SMP applies to work conducted in both the upland (Upland Operable Unit [OU], OU1) and lowland/in-water (Lowland/In-Water OU, OU2) portions of the Site. Upland OU1 is defined as the developed portion of the Site as shown on Figure 1 and described in Columbia County Survey No. 6504 (originally filed in January 2018 as survey No. 6327 and revised and filed with Columbia County April 4, 2019). Lowland/In-water OU2 includes over 100 acres of submerged and submersible wetland, intertidal areas, and in-water areas adjacent to the Upland OU, also shown on Figure 1.

Provisions of this SMP regarding earthwork and excavation are in accordance with the final remedy selected by DEQ for Upland OU1. This SMP also applies to any earthwork and excavation that may be conducted within the Lowland/In-Water OU2,

The portion of the Upland OU where contamination is known or suspected to remain in the soil is depicted in Figure 2 and is referenced as the "Restricted Area." Restricted areas may also be designated by DEQ in the future within OU2, which includes both terrestrial and wetland areas as shown on Figure 3. This SMP provides requirements for soil management, monitoring, and maintaining the existing cap areas and any future proposed capped areas within (1) the Upland OU1 Restricted Area; (2) low use areas within the Upland OU1 Restricted Area referenced as "Limited Access Areas" that do not require a cap under current land uses; and 3) areas within Lowland/In-Water OU2 where future sediment caps may be installed or where restricted areas may be designated. Lastly, this SMP details procedures for maintaining security for the Site, which includes periodic inspection and maintenance of the existing perimeter security system, or a comparable perimeter security approved in advance by DEQ.

Historic operations at the Site have resulted in the release of hazardous substances in the OU1 Restricted Area and in areas of OU2. Extensive environmental investigations have been performed to characterize the nature and extent of contamination within OU1 as part of the remedial investigation (RI) at the Site. The Upland RI Report (GSI, 2013) was prepared on behalf of the Kaiser Gypsum Company, Inc. (Kaiser), AWI, and Owens Corning Sales, LLC (Owens) (collectively referred to as the "Parties") pursuant to the August 2010 Order on Consent (No. LQSR-NWR-10-05) between the Parties and DEQ (DEQ, 2010). After notice and public comment on the proposed remedy for OU1, DEQ issued its record of decision (ROD) on June 14, 2018, selecting the final remedy for the Upland OU (DEQ, 2018). The Upland Remedy was implemented in two phases (Phase 1 and Phase 2) during the summer and fall of 2018 and 2019, which is summarized in the *Upland Operable Unit Remedial Action, Construction Completion/Final Closeout Report* (GSI, 2020). Multiple investigations within OU2 also were completed, including sampling and analysis of soil, sediment, and aquatic organisms. Draft RI and risk assessment (RA) documents for OU2 were given conditional approval by the DEQ, contingent upon additional information needed to address DEQ comments and proceed with a feasibility study (FS). DEQ is currently completing a data gaps investigation (DGI) within OU2 to support development of an FS and, ultimately, a selected remedy.

This SMP is intended to satisfy the requirements listed in the 2018 ROD for Upland OU1 regarding soil management, cap monitoring and maintenance, and procedures to ensure Site security. Until a specific remedy and ROD for Lowland/In-Water OU2 has been selected by DEQ, any activities allowed by DEQ within

OU2 are subject not only to the same provisions as those outlined in this SMP for OU1 but will also carry additional restrictions and limitations as outlined in this SMP.

The Site owner may not occupy or allow other parties to occupy or use the Property for any purpose except in full compliance with all conditions and restrictions set forth in this SMP. As required by the 2018 ROD for Upland OU 1, an Easement and Equitable Servitude (EES) has been recorded in the county real property records that established the requirements for this SMP, as well as restrictions on land use and groundwater use. A Lowland EES will be recorded in the county real property records to establish restrictions on land use for Lowland/In-Water OU2. Lowland/In-water OU2 shall not be developed, modified, or regularly occupied until DEQ issues the ROD and DEQ has determined that use of OU2 will not impact the protectiveness and efficacy of remedial action. This SMP has been updated to reflect the site management requirements under both EES. The EES are provided in this document as Attachment 1. Except as provided in this SMP or otherwise approved in writing by DEQ, the Site owner may not conduct or allow operations or conditions on the Property or use of the Property in any way that might penetrate the existing and installed caps or to jeopardize the caps' protective function as an engineering control that prevents exposure to contaminated soil, including without limitation any excavation, drilling, scraping, or uncontrolled erosion. The Site owner shall inspect and maintain existing caps in accordance with cap monitoring and maintenance terms included in this SMP approved by DEQ.

DEQ approved the original SMP on August 1, 2018. A revision to the SMP was approved by DEQ in November 2019, following completion of the Upland OU1 remedy. This September 2021 version of the SMP provides further discussion of the requirements and restrictions pertinent to Lowland/In-Water OU2. This SMP may be modified once DEQ has selected a final remedy for OU2.

1.1 Purpose of Site Management Plan

Proper management of contaminated soil in the OU1 Restricted Area and contaminated soils and sediment in future restricted areas of OU2 is necessary to ensure the safety of workers, the general public, and the environment. It is also needed to verify that soil/sediment is handled, transported, and placed appropriately. This SMP provides guidance for future Site activities during which human contact with contaminated soil and/or sediment may occur. It also provides guidance for maintaining and monitoring existing and proposed capped areas within the Upland OU Restricted Area and future areas within the Lowland/In-Water OU to ensure security throughout the Site. The following procedures and minimum requirements are set forth in this document:

- Procedures for the management of potentially contaminated soil and/or sediment that may be encountered during construction, excavation, or other general earthwork;
- Procedures for the management of unanticipated gross contamination[1] and anticipated anthropogenic waste debris[2] should any be encountered during excavation activities;
- Measures to control the off-Site migration of contaminated soil via erosion, vehicle tracking, and stormwater during earthwork activities;

[1] *Unanticipated gross contamination* is defined in this SMP as any unanticipated soil or contaminated media that is or contains oily soil or a non-aqueous phase liquid, contains a strong petroleum or chemical odor, or appears to have an oily sheen. This also includes the contents of any buried drum.

[2] *Anticipated anthropogenic waste debris*, such as perlite and other raw materials, weathered fiberboard, metal scrap, concrete rubble, wood debris, and other building materials known to be present within the Upland OU and possibly in other areas within the Lowland/In-Water OU do NOT qualify as unanticipated gross contamination.

- Minimum health and safety requirements for workers who may disturb contaminated soil and/or sediment and, therefore, come into contact with it;
- Procedures and frequency for conducting cap inspections;
- Procedures for conducting cap repair;
- Procedures and frequency for inspecting perimeter fencing and signage;
- Procedures for maintaining or repairing condition of fencing and signage; and
- Notification, reporting, and recordkeeping requirements.

1.2 Upland Operable Unit Restricted Area Soil Contamination

Concentrations of contaminants of interest were evaluated during the Upland RI and in a baseline Human Health Risk Assessment (HHRA) to determine health risks under exposure scenarios for current and future workers (Arcadis, 2014). Based on this evaluation, arsenic and dioxin/furan toxic equivalents (TEQ) were identified as contaminants of concern (COCs) in OU1 Restricted Area soils and were used as the basis of the remedy presented in the June 2018 ROD. As part of the implementation of the OU1 remedy, hot spot soils were removed and some surface soils within the Restricted Area were regraded prior to placement of an engineered cap. To understand concentrations of COCs left below capped areas, eight post-grading sample areas encompassing the regraded soils were sampled via multi-point (10-15 increment) composite sampling and analyzed for arsenic and dioxin/furan TEQ prior to cap placement. Figures 4 through 7 present current concentrations of arsenic and dioxin/furan TEQ within Upland OU1 soils. Figures depicting surface and near-surface soil concentrations include both the concentrations in the 0- to 1-foot (ft) soil interval below ground surface (bgs) in areas without a protective cap (see Figures 4a and 6a) and, in capped areas, for the 0- to 1-ft soil interval beneath the protective cap (see Figures 4b and 6b). Concentrations of arsenic and dioxin/furan TEQ for individual discrete sample locations as well as for the Incremental Sample Method (ISM) and multi-point composite samples are presented in Table 1. Additional descriptions of the nature and extent of arsenic and dioxin/furan TEQ prior to the Upland Remedial Action are presented in the Upland RI Report (GSI, 2013).

In this document, “contaminated soil” is defined as soil that contains COCs at concentrations greater than Remediation Goals (RGs) established in the OU1 ROD and summarized below. Specifically, RGs for arsenic and dioxin/furan TEQ were developed for the hypothetical Site worker and construction worker exposure scenarios. These RGs serve as the basis for remedial action measures completed within OU1. Table 2 presents a summary of the RGs. A more detailed description of the exposure parameters and assumptions used to develop these RGs is presented in the Upland FS (Apex, 2016). Future RGs for OU2 will be determined by the DEQ as part of the FS evaluation and will be included in a final remedy for OU2.

Table 2. Contaminants of Concern Concentration Levels Requiring Remedial Action Measures

Contaminant of Concern	Remediation Goal
Site Worker (0- to 1-ft exposure depth)	
Arsenic (mg/kg)	13
Dioxin/Furan TEQ (ng/kg)	69
Construction Worker (1- to 5-ft exposure depth)	
Arsenic (mg/kg)	58
Dioxin/Furan TEQ (ng/kg)	440

Notes

ft = foot/feet mg/kg = milligrams per kilogram

ng/kg = nanogram per kilogram TEQ = toxicity equivalence

2 Requirements for Earthwork

2.1 Applicability

This SMP applies to any activities that disturb contaminated soil in Upland OU1 Restricted Areas or any work within Lowland/In-Water OU2, including but not limited to any excavation, grading, digging, boring, sampling, installation or repair of buried utility lines, or road repairs below the gravel road base (collectively called "earthwork"). It should be noted that requirements for earthwork within OU1 may include construction or stormwater permits.

Earthwork within wetlands, as depicted in Figure 3, and areas below ordinary high water (OHW) within OU2 is restricted and would require permitting and notification conditions for work in wetlands, in-water work, and work below the OHW mark. Earthwork in wetlands or below OHW may need to comply with Section 10 of the Rivers and Harbors Act and the Clean Water Act (CWA), which are under the jurisdiction of the U.S. Army Corps of Engineers (USACE). A Section 401 Water Quality Certification is required for any activity that results in a discharge to waters of the United States. Oregon's Removal-Fill Law also requires a permit to remove or fill material in wetlands or waterways from the Oregon Department of State Lands (DSL). This permit is broadly referred to as the "Removal-Fill Permit." In addition, an access agreement or lease from the DSL may be required to conduct work in submerged or submersible lands.

The City of St. Helens requires a Sensitive Lands Permit for any development activity proposed within, or partially within, the regulatory floodplain as defined on the current Flood Insurance Rate Maps.

Due to the potential presence of federally threatened fish and wildlife species within or downstream of either the OU1 Restricted Area or OU2, an Endangered Species Act (ESA) consultation may be required to address the potential impacts on listed species and their habitat. Depending upon the proposed project action and the potential for species impacts, the project may be able to use a programmatic consultation vehicle, such as the Standard Local Operating Procedures for Endangered Species (SLOPES). If the project action does not fit one of the categories covered by SLOPES, a Biological Assessment (BA) or similar documentation may be needed to meet ESA requirements.

In addition to the permits required for work within areas of OU2, cultural and archaeological resources will need to be monitored in accordance with the Inadvertent Discovery Plan (IDP), included in Attachment 2. This plan requires that a competent cultural resource professional monitor activity during excavation and/or construction.

2.2 Preparatory Actions

Before commencing any earthwork in the OU1 Restricted Area or the adjacent OU2, the responsible construction manager will notify the facility Environmental, Health and Safety (EH&S) contact. The EH&S contact and the construction manager will review the plans for the proposed project to determine whether it will involve earthwork within the Upland OU1 Restricted Area or the Lowland/In-Water OU2 and, therefore, be subject to this SMP. If the project will include earthwork within one or both of these OUs, the project planning will incorporate requirements of this SMP. An updated contact sheet with roles and responsibilities is included in this document as Table 3. As contacts and/or roles and responsibilities change, updated sheets are required to be provided to DEQ to supplement the most recent version of this SMP.

As discussed in Section 2.1, earthwork within OU2 may require one or more permits from the USACE, DSL, and City of St. Helens if work is to be completed within wetlands or below OHW. Additionally, any earth-disturbing work within OU2 will require monitoring for cultural and archaeological resources in accordance with the IDP.

3 Soil Management Procedures

The following procedures apply to earthwork within the Upland OU1 Restricted Area and in terrestrial areas of Lowland/In-Water OU2, as shown in Figure 3. Special sediment management procedures will be required for work within wetlands or in areas below OHW within the Lowland/In-Water OU and are discussed in Section 4.

3.1 Protective Cap

Portions of the OU1 Restricted Area currently are capped by buildings, concrete, asphalt pavement, or gravel cover as shown on Figure 8. These surfaces provide a protective cap over potentially contaminated soil. Construction or repair activities that do not fully penetrate the protective cap or disturb soil beneath the bottom of building floors, asphalt or concrete pavement, or gravel cover are not within the definition of earthwork and will not require soil management activities as described in Section 3.2. Cuttings or corings through building floors or concrete pavement where there is no substantial disturbance of the soil below, where there is no significant risk of soil tracking, and where the surface is fully restored (e.g., cuttings or corings to provide support to new equipment within a building) are not within the definition of earthwork and will not require soil management activities as described in Section 3.2. Such activities do not require special handling or health and safety requirements outside of standard construction and health and safety protocols. However, if activities penetrate or remove portions of the protective cap, the cap must be restored to the original cap thickness, or the thickness specified in this SMP for the type of cap.

3.2 Potentially Contaminated Soil

Potentially contaminated soil within the OU1 Restricted Area and in terrestrial areas within OU2 shall be managed in accordance with the procedures and requirements of this SMP, except as otherwise approved in writing by DEQ.

3.2.1 Excavation and Handling

Soils excavated from the OU1 Restricted Area or from terrestrial areas within OU2 will be assumed to be contaminated unless analytical testing conducted in accordance with this SMP demonstrates otherwise. Sampling and analytical testing of excavated soil in OU1 is not required unless the excavated soil will be removed from the Restricted Area for use as fill elsewhere within OU1 or will be disposed of off-site. Soil that is excavated within a designated Restricted Area and used as fill within that Restricted Area is not considered to be generated as a solid waste and is not subject to requirements for management of hazardous waste.[3] Potentially contaminated soils excavated from the OU1 Restricted Area may be managed in the following ways as described in more detail in this SMP:

[3] The Internal Management Directive (DEQ, 2015) states: "The DEQ Cleanup Program employs EPA's Area of Contamination Policy for on-site remedial action involving consolidation and containment of contaminated soil that may contain RCRA (Resource Conservation and Recovery Act) hazardous waste constituents. Under this policy, EPA has not defined this contaminated media as solid waste provided the party undertaking the cleanup is a federal or state agency and/or a private party performing or under DEQ formal agreement or order."
The National Contingency Plan, 55 Federal Register (FR) 8758-8760, March 8, 1990, states that "…placement does not occur when a waste is consolidated within an AOC [area of contamination], when it is treated in situ, or when it is left in place." EPA clarified in its AOC policy that movement of contaminated soils within an AOC does not constitute a new act of treatment, storage or disposal and does not trigger RCRA land disposal restrictions or minimum technology requirements (EPA, 1996a).

- **Placed in temporary stockpiles within the Restricted Areas –** Soil may be temporarily stored in stockpiles within the Restricted Area in compliance with Section 3.2.2.
- **Replacement in original excavation –** Soil may be placed back in the original excavation from which it came without analytical testing requirements subject to the requirements of Section 3.2.3.
- **Placement in new location in the Restricted Area –** Soil may be placed in a new location within the Restricted Area without analytical testing subject to the requirements of Section 3.2.4.
- **Placement in Upland Area outside of Restricted Area –** If sampling and analytical testing shows that concentrations of arsenic and dioxin/furan TEQ are below Site Worker RGs, soil may be placed anywhere in the Upland Area, including outside of the Restricted Area as described in Section 3.2.4.
- **Off-site Disposal –** Contaminated soil taken off the Site must be characterized as described in Section 3.2.6 and disposed of at an authorized disposal facility based on that characterization.

If excavated soil is not returned to the original excavation, DEQ will be notified, and the excavation will be backfilled with soil from within the Upland OU Restricted Area, clean soil or other clean fill material.[4] A complete list of soil management notification and approval procedures is outlined in Table 4.

Soils removed from terrestrial areas of OU2 are subject to the same management criteria for soils removed from the Upland OU1 Restricted Area. However, excavations within terrestrial areas of OU2 cannot be backfilled with soil from the Upland OU and must be backfilled with clean fill or soil originating from the excavation following analytical testing and DEQ notification. Investigation-derived waste (IDW) generated from OU2 sampling and characterization activities may be temporarily staged in designated OU1 areas prior to characterization in accordance with Section 5.

3.2.2 Temporary Storage of Excavated Soil

Stockpiled soil from the OU1 Restricted Area and the terrestrial areas of OU2 will be handled in a manner that minimizes erosion, contact with stormwater runoff, dust generation, and human contact. Stockpiles of soil removed will be placed within the OU1 Restricted Areas and on an impermeable liner (i.e., impervious plastic sheeting with minimum 10-mil thickness), and the existing ground surface will be cleared of debris and objects that have the potential to puncture the liner. A berm will be constructed around the stockpiles from hay bales, clean soil, or an equivalent material, and the bottom liner will extend up and over the perimeter berm. The stockpile will be covered with impermeable plastic sheeting (10-mil minimum thickness) and secured with sandbags or tires and rope, or equivalent as necessary, at the end of each workday to prevent soil transport. Stockpile covers and sheeting will be inspected regularly to ensure that they have not been punctured and lost functionality.

Stockpiled soil will be stockpiled (consistent with these requirements) or hauled off-site and properly disposed of at a permitted facility as soon as practicable. Unanticipated gross contamination as well as anticipated anthropogenic waste debris shall be stockpiled separately from other soil and characterized as described in Section 3.2.6. Areas beneath the stockpile bottom liner will be visually inspected after stockpile

[4] Clean fill material is soil or rock with concentrations of hazardous substances below the levels established for "clean backfill" as defined in DEQ's *Internal Management Directive: Clean Fill Determinations* (DEQ, 2014) or as otherwise approved by DEQ for use at the Site as described in Section 6 and Table 4. Clean fill can be obtained from local quarries, landscape supply or other vendors that can certify that the fill meets Oregon DEQ's guidance for clean fill. If a clean fill determination cannot be achieved by commercially available import sources within 30 miles of the Site, the Site owner will work with DEQ to select suitable import material on a case-by-case basis.

removal to ensure that stockpile soil does not remain behind. Any remaining soil will be removed and managed in accordance with the SMP.

Temporary storage of soil excavated from terrestrial areas of OU2 will follow the same requirements for temporary storage of excavated soil in the Upland OU. Management of IDW generated during soil excavation and temporary storage activities should be managed as described in Section 5.

3.2.3 Replacement in Original Excavation

Soil excavated from within the OU1 Restricted Area may be returned to the original excavation without analytical testing or notifying DEQ. If soil is excavated from a portion of the Restricted Area with a protective cap (e.g., a paved area), the cap must be repaired consistent with the pre-excavation cap. If soil is excavated from a portion of the Restricted Area without a protective cap (i.e., a limited access area), soil may be returned to the original excavation without additional capping requirements. However, sufficient erosion control measures must be implemented to stabilize exposed soils from the backfilled excavation. Exposed soils may be stabilized through the use of temporary seeding and mulching, erosion control blankets or mats, silt fences or wattles, or similar appropriate measures.

Soil from terrestrial areas of OU2 cannot be returned to the original excavation without analytical testing. After appropriate analytical testing, returning this soil back to its original location will be followed by erosion control procedures identified in the previous paragraph.

3.2.4 Placement in New Location

All soil originating from the OU1 Restricted Area and soil originating from terrestrial areas of OU2 will be assumed to contain concentrations of arsenic and dioxin/furans above RGs unless sampling and analysis demonstrate otherwise. Soil excavated from the OU1 Restricted Area that is not returned to its original excavation may be placed in a new location within the Restricted Area without analytical testing, provided that the new location is in an area that is already capped, and the cap is replaced or in a location where a new cap will be added.

The protective cap must meet cap requirements as outlined in Section 8. If a new cap is installed, Figure 8 must be revised to show the newly capped area(s) and attached to this plan as an addendum.

Soils excavated from the Restricted Area may be placed anywhere in OU1 with or without a cap if sampling and analysis consistent with Section 3.2.6 demonstrates that concentrations of arsenic and dioxin/furan TEQ are below RGs. However, sufficient erosion control and stabilization measures consistent with those listed in Section 3.2.3 must be implemented to prevent migration of soils to Lowland/In-Water OU2.

Placement of potentially contaminated soils in new locations will be documented as described in Section 10.

Soils excavated from terrestrial areas within OU2 may not be placed in a new location without characterization and approval by DEQ.

3.2.5 Off-site Disposal

All excavated soil from the OU1 Restricted Area that cannot be reused or placed back on the Site must be characterized as set forth in Section 3.2.6 and must be disposed of properly at a permitted facility. Likewise, soil excavated from the terrestrial areas within OU2 that cannot be reused or exceed analytical testing requirements must be characterized as set forth in Section 3.2.6 and properly disposed of at a permitted facility. Soil to be disposed offsite will be managed as a solid waste, and as a hazardous waste, if applicable,

based on characterization, in compliance with all applicable federal, state, or local laws. The disposal facility will be approved by DEQ in advance of disposal.

3.2.6 Characterization of Soil and Waste

Soil from the Upland OU, from terrestrial areas of Lowland/In-water OU, and waste material to be disposed of off-site must be adequately characterized for disposal prior to removal from the Site to ensure compliance with federal and state law and the requirements of the receiving facility. Similarly, soil excavated from the Restricted Area that may be moved and left uncapped must be adequately characterized and shown to contain concentrations of COCs below RGs prior to placement. Soils placed without a cap must be stabilized with appropriate erosion control methods described in Section 3.2.3. This section provides sampling methods and characterization procedures to ensure safe and sufficient handling, placement, and disposal of soil and waste materials removed from the Restricted Area.

3.2.6.1 Collecting Soil Samples

All soil sampling activities will require a written sampling and analysis plan (SAP) to be prepared for, and approved by, the DEQ prior to conducting sampling activities.

Soil from OU1 or from terrestrial areas of OU2 that are being considered for off-site disposal, placement outside the Restricted Area, or placement on Site without capping must be adequately characterized prior to transfer. For stockpiled soils, composite sampling will be employed to best characterize contaminant concentrations and waste characteristics. Samples will be obtained directly from the excavated soil stockpiles, and sampling methods will be generally consistent with U.S. Environmental Protection Agency's (EPA's) guidance for systematic composite sampling for RCRA waste sampling (EPA, 2002a) and sampling design for environmental data collection (EPA 2002b). Composite samples will be collected from each stockpile at a sampling frequency of approximately one composite sample per 100 cubic yards (cy) of soil (i.e., the decision unit). Decision units from which composite samples are collected will be smaller if stockpiles are less than 100 cy.

In order to generate a representative composite sample, subsamples or aliquots of equal volume will be collected from the stockpile at a frequency in accordance with the requirements of the disposal facility. At a minimum, five aliquots should be obtained from each soil decision unit and compiled into a composite sample. A standard stainless-steel hand auger or trowel may be used to collect the subsamples from various depths within the stockpile. The sampler will collect all aliquots from a depth of greater than 1 ft below the pile surface and ensure that aliquots are of equal volume. As a general guideline, the decision unit, whether the entire stockpile or a portion of a stockpile, may be divided into quadrants with one aliquot collected from each quadrant and a fifth sample collected from the center of the pile. The sampler should sample varied depths of the pile, including a shallow depth, a middle depth, and an aliquot collected from near the bottom of the pile. Two aliquots will be collected from randomly selected depths.

Soils may be characterized in a similar manner, in-situ, prior to excavation. Similar to stockpile sampling, in-situ decision units may be divided into four quadrants for the purpose of systematic composite sampling. Decision units should be 100 cy or less, and subsamples should be collected from varied depths and locations of the decision unit. For example, a planned excavation measuring 30 ft x 30 ft x 3 ft deep (i.e., 100 cy of in-situ soil) would be divided into four 15 ft x 15 ft x 3 ft deep quadrants. An aliquot would be collected from each quadrant and from the middle of the planned excavation using a stainless-steel hand auger or other suitable boring equipment as described in EPA guidance (EPA, 2002a). Aliquots would be collected from depths of 1 ft bgs for shallow soils, 2 ft bgs, and 3 ft bgs near the bottom of the planned excavation. Two aliquot depths would be chosen at random.

Aliquots will be composited using a clean stainless-steel bowl and spoon. Rocks and other non-soil debris such as sticks and vegetation will be removed from the sample, and soils will be thoroughly mixed. A sufficient volume of the composited sample will be transferred to laboratory-provided containers and sealed. Samples will be shipped to an accredited analytical laboratory with all necessary labeling, preservation, and chain of custody procedures in place. All sampling equipment will be thoroughly decontaminated after sample collection and compositing. Specific analytical methods used for waste characterization will be developed in coordination with the waste disposal facility to ensure that they meet the facility's criteria. For samples being considered for on-site transfer, analysis of arsenic and dioxin/furans will be completed.

Systematic composite samples compiled from multiple aliquots collected throughout the soil decision units are assumed to achieve data quality objectives for precision, accuracy, representativeness, comparability, and completeness. Variability between stockpiles and in-situ soil decision units will also be captured through this approach. Sample results and laboratory quality assurance and quality control (QA/QC) data will be validated before handling procedures are determined for any soil.

3.2.6.2 Determination of Hazardous Waste Characteristics

Soils within the Upland OU Restricted Area do not contain listed hazardous waste. However, some soils from the Upland OU Restricted Area have the potential to exhibit the toxicity characteristic for arsenic or mercury. Soils within the terrestrial areas of OU2 likely would not be considered listed hazardous waste; however, like soils within the Upland OU Restricted Area, they may contain concentrations of arsenic and/or mercury that exhibit toxicity characteristics.

If soils contain concentrations of these metals (expressed in milligrams per kilogram [mg/kg]) less than 20 times the applicable toxicity characteristic leaching procedure (TCLP) regulatory level (expressed in milligrams per liter [mg/L]), the soils do not have the potential to exceed the hazardous waste toxicity criteria. If soils contain total arsenic or total mercury concentrations in excess of 20 times the hazardous waste toxicity threshold level (i.e., if arsenic or mercury concentrations exceed 100 mg/kg or 4 mg/kg, respectively), the samples will be analyzed using the TCLP procedure. If soils are determined to have characteristics of hazardous waste and they are removed from the Restricted Area, they must be handled as hazardous waste in compliance with the Oregon hazardous waste management rules. Any disposal facility receiving characteristic hazardous waste from the site will be provided TCLP and dioxin/furan analytical data.

3.2.6.3 Characterization of Gross Contamination or Unidentified Waste

Any unknown wastes (e.g., contents of buried drums) or soils with visual signs of gross contamination as defined in Section 1.1 (e.g., oily or non-aqueous soaking, petroleum odor, or sheen) that is to be excavated will be characterized consistent with requirements for soils to be disposed of off-site. Wastes or gross contamination will be sampled in place (i.e., within the hole) or separated, containerized in U.S. Department of Transportation (DOT)-approved 55-gallon drums or roll off boxes, and sampled.

Similar to soil stockpiles and soil decision units, unknown waste and gross contamination may also be characterized by composite sampling. Guidance for sampling specific RCRA wastes such as that found in drums, sacks, tanks, and debris is readily available (EPA, 2002a). In general, collecting multiple aliquots of the waste material and compiling into a single composite sample will be adequate for the purpose of waste characterization. Procedures and equipment for obtaining and analyzing representative samples for performing hazardous waste determinations are presented in the EPA document *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, (SW-846)* (EPA, 2014). A representative sample would be expected to reflect the concentration of the area/volume to be excavated and managed as a whole

(DEQ, 2012). Waste samples will be collected with a clean sampling apparatus (e.g., stainless steel spoon, trowel, concentric tube thief, etc.) and compiled in a clean, stainless-steel bowl with a clean, stainless-steel spoon. Samples will be shipped to an accredited analytical laboratory to be analyzed for COCs and, if exceeding the 20 times the hazardous waste toxicity concentration, TCLP procedures. Waste materials and unknown contamination will be left in the excavation or appropriately containerized until sampling results are obtained.

3.2.7 Anticipated Anthropogenic Waste Debris Management

Concrete rubble, wood, metal, and other debris is expected to be encountered during excavation activities and will be segregated, to the extent practicable, from the soil. If encountered debris does not exhibit any signs of gross or unidentified waste, it may be left in place or disposed of offsite without characterization. To the extent possible, soil will be removed from the segregated debris by manual brushing. Soil will be brushed off into the excavation, prior to disposal.

4 Sediment Management Procedures

Special sediment management procedures apply to earthwork conducted in wetlands or in areas below OHW within OU2 and are discussed in this section.

4.1 Potentially Contaminated Sediment

Potentially contaminated sediment the Lowland/In-Water OU shall be managed in accordance with the procedures and requirements of this SMP, except as otherwise approved in writing by DEQ.

4.1.1 Excavation and Handling

In general sediment to be excavated from wetlands or below OHW within OU2, with the exception of IDW, must be characterized in situ before excavation. Additionally, sediment cannot be returned to the excavation without analytical testing and approval by DEQ.

As discussed previously in Sections 2.1 and 2.2, one or more permits will be required from the USACE, DSL, and/or City of St. Helens prior to excavating sediment from wetlands or from areas below OHW within OU2.

4.1.2 Temporary Storage of Excavated Sediment

As approved by DEQ, sediments excavated from wetlands or below OHW within OU2 may be temporarily stockpiled within designated areas of OU1 for the purpose of waste disposal characterization (if required by disposal facility) and dewatering, although in-situ characterization may first be required as outlined in Section 4.1.6. DEQ must be notified and approve temporary staging of these materials. Designation of areas for temporary staging of materials will be coordinated with and approved by the property owner.

Temporary sediment storage will include measures to contain and direct seepage from the stockpile through a pre-filter and into an aboveground holding tank or container. Sediment should be transported to a lined storage area within the OU1 Restricted Area, and any water generated during settling should be directed through a DEQ-approved pre-filter (e.g., gravel and biofilter bags) to remove total suspended solids before being collected and discharged via a sump to an aboveground holding tank. The sediment storage area should be lined with 12-mil reinforced polyethylene sheeting to prevent seepage into the underlying soil and hay bale berms should surround the temporary storage area. The sediment pile will be sloped to allow at least one foot of freeboard edge near the edge of the soil pile. In the event of sustained rainfall, the temporary storage area will be covered with polyethylene sheeting to prevent rainwater infiltration. Dust control measures will be utilized as necessary at the temporary on-site storage area.

If unanticipated gross contamination is encountered during excavation of soils and sediments in OU2, these materials must be sampled and managed in accordance with procedures outlined in Section 4.1.6.3.

4.1.3 Replacement in Original Excavation

Sediment excavated from wetlands or areas below OHW within the OU2 cannot be returned to the original excavation without analytical testing and prior approval by DEQ.

4.1.4 Placement in New Location

No sediment excavated from wetlands or areas below OHW within OU2 may be moved to a new location on the Site without analytical testing and prior approval by DEQ.

4.1.5 Off-site Disposal

All sediment excavated from wetlands and areas below OHW within Lowland/In-Water OU2 that does not have approval by DEQ for reuse must be disposed of appropriately at a permitted facility and must be characterized as set forth in Section 4.2.6, or in the case of stockpiled sediments, Section 3.2.6. Sediment to be disposed offsite will be managed as a solid waste, and as a hazardous waste if applicable based on characterization, in compliance with all applicable federal, state, or local laws. The disposal facility will be approved by DEQ in advance of disposal.

4.1.6 Characterization of Sediment

Sediment in wetlands and in areas below OHW within Lowland/In-Water OU2 must also be adequately characterized for disposal prior to removal.

4.1.6.1 Collecting Sediment Samples

Sediment from wetlands or areas below OHW within OU2 must be adequately characterized prior to transfer (see sections 4.1.3 and 4.1.4). All sediment sampling will require a written SAP to be prepared for, and approved by, the DEQ prior to conducting sampling activities.

The SAP will provide details on sediment sampling protocols for sampling conducted on foot or over water which may require the use of a specialized sampling boat and equipment and field personnel with experience conducting the work. All sampling methodologies, procedures, sample locations and depth intervals, schedules, analyses, and documentation must be clearly described within the SAP, and approved by the DEQ prior to implementation.

Sample locations, including any composited sub-sample locations, will be measured with a handheld Global Positioning System (GPS) unit with real time kinematic abilities and capable of sub-foot accuracy. Horizontal coordinates will be measured directly in North American Datum 1983 in international feet and elevations will be measured in North America Vertical Datum of 1988.

4.1.6.2 Determination of Hazardous Waste Characteristics

Sediment in wetlands and in areas below OHW within Lowland/In-Water OU2 would not be considered hazardous waste. However, some sediment may have the potential to exhibit the toxicity characteristic for arsenic or mercury. If sediment contains concentrations of these metals (expressed in mg/kg) less than 20 times the applicable TCLP regulatory level (expressed in mg/L), the sediment does not have the potential to exceed the hazardous waste toxicity criteria. If sediment contains total arsenic or total mercury concentrations in excess of 20 times the hazardous waste toxicity threshold level (i.e., if arsenic or mercury concentrations exceed 100 mg/kg or 4 mg/kg, respectively), the samples will be analyzed using the TCLP procedure. If sediment is determined to have characteristics of hazardous waste it must be handled as hazardous waste in compliance with the Oregon hazardous waste management rules. Any disposal facility receiving characteristic hazardous waste from the site will be provided TCLP and dioxin/furan analytical data.

4.1.6.3 Characterization of Gross Contamination or Unidentified Waste

Any unknown wastes (e.g., contents of buried drums) or sediment with visual signs of gross contamination as defined in Section 1.1 (e.g., oily or non-aqueous soaking, petroleum odor, or sheen) that is to be excavated will be characterized consistent with requirements for sediment to be disposed of off-site. Wastes

or gross contamination will be sampled in place, and results received and evaluated before developing a sediment removal plan.

Procedures and equipment for obtaining and analyzing representative samples for performing hazardous waste determinations are presented in the EPA document *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, (SW-846)* (EPA, 2014). A representative sample would be expected to reflect the concentration of the area/volume to be excavated and managed as a whole (DEQ, 2012). Waste samples will be collected with a clean sampling apparatus and compiled in a clean, stainless-steel bowl with a clean, stainless-steel spoon. Samples will be shipped to an accredited analytical laboratory to be analyzed for COCs (See Section 5.4.1) and, if exceeding the 20 times the hazardous waste toxicity concentration, TCLP procedures. Waste materials and unknown contamination will be left in the excavation or appropriately containerized until sampling results are obtained.

4.1.7 Anticipated Anthropogenic Waste Debris Management

Concrete rubble, wood, metal, and other debris may be encountered during sediment excavation activities and will be segregated, to the extent practicable, from the sediment. Debris encountered cannot be left in place and must be removed for appropriate disposal as solid waste.

5 Investigation-Derived Waste Management and Disposal

Characterization through sampling and analysis is required prior to excavating, handling, stockpiling (for upland soils), and/or disposal of soil and/or sediment on the Site. During Site characterization activities, excess soil, sediment, water (either from the use of sampling equipment or from saturated material), and other solid waste, such as sampling equipment and personal protective equipment (PPE), may be generated. This section provides requirements for management of excess soil and/or sediment, water, and PPE and similar waste generated during characterization programs.

5.1 Management of Excess Sediment and Soil

During sampling, excess sediment and soil collected on foot will be returned to its point of origin. During over or in-water work, any excess water or surface sediments remaining on the vessel after onboard processing will be returned to the surface waters near the collection site. Excess sediment that may remain after transport and processing at an OU1 storage area will be containerized for offsite transport and disposal. If oily or other obviously contaminated media are generated during sampling, the materials will be retained, to the extent practicable, in 55-gallon drums designated (and labeled) for investigation-derived waste (IDW) management. Soil and sediment remaining from field activities such as subsurface sample coring, hand auger borings, or over water work, should be contained in drums that will be temporarily stored on the site in a secure location for testing and offsite disposal. An inventory of stored IDW will be maintained and kept current.

Representative samples will be collected as needed to obtain disposal approval from a DEQ-permitted landfill. A hazardous waste determination will be performed using the available data to evaluate the proper disposal method of drums.

5.2 Management of Liquid Wastes

5.2.1 Groundwater and Other Site Water

Groundwater generated during field activities will be contained in DOT-approved 55-gallon drums and stored onsite. Representative samples will be collected, if needed, to obtain potential disposal approval and coordination with a local waste management company. A hazardous waste determination will be performed using analytical data from groundwater testing.

Fluids, such as distilled water and decontamination solutions containing Alconox, will be held in sealed drums temporarily stored in a secure location in the uplands for testing and off-site disposal.

5.2.2 Mud-Rotary Drilling Waste

Mud-rotary drilling may be used during geotechnical investigations at the Site. The mud-rotary technique involves a mud tub that continuously circulates a bentonite-grout slurry through the drill rods, exiting the drill bit, and returning upward through an annulus.

Drilling slurry and cuttings produced during mud-rotary drilling will be collected and stored in DOT-approved 55-gallon drums, labeled, and stored onsite in a secure upland location approved by the property owner pending receipt of the water sampling results and appropriate disposal. Drummed slurry and cuttings will be appropriately managed and properly disposed of within 90-days based on sampling results.

5.3 Management of Debris and Anthropogenic Waste

All disposable materials used in sample collection and processing, such as paper towels, aluminum foil, masks, and gloves, will be placed in heavyweight garbage bags or other appropriate containers. Disposable supplies will be placed in a normal refuse container for disposal at a solid waste landfill.

Limited amounts of unanticipated gross contamination and anticipated anthropogenic waste debris may be encountered during sampling activities. Waste materials discovered will be left in place or appropriately containerized until sampling results are obtained and appropriate disposal decisions were made with DEQ approval. Concrete rubble, wood, metal, and other debris are likely to be encountered, and these wastes will be segregated to the extent practicable. These materials will be disposed off-site with other non-hazardous debris.

5.4 Waste Testing and Off-Site Disposal

After soil, sediment, debris, or liquid wastes have been containerized in drums, the drums will be inventoried and labeled to include the project name, container number, description of contents, generation date, and contact information. Wastes will be tested to confirm that they meet the requirements to be managed as nonhazardous waste.

5.4.1 Testing and Disposal of Solid Wastes

Soil and sediment data will be compared to a concentration 20 times the RCRA toxicity criteria to determine whether samples should be analyzed using the TCLP (EPA 1311/6020A). Based on this screening, samples of the drummed bulk solids will be sampled and analyzed using TCLP for metals concentrations to determine if the IDW would be considered a characteristic waste under RCRA.

Samples of bulk waste soil and sediment will also be tested for the following site COCs:

- Arsenic and mercury (EPA 6020A)
- Polycyclic aromatic hydrocarbons (EPA 8270D)
- Polychlorinated dibenzo(p)dioxin and furans (EPA 1613B)

After sample results are available, arrangements will be made with the drilling subcontractor for timely and proper IDW handling and disposal at an appropriately permitted solid waste disposal facility according to DEQ solid waste rules. A waste profile will be prepared, and formal acceptance will be obtained at selected, DEQ-approved landfills prior to disposal of soil or wastes. The landowner will be provided with the information provided to the disposal facility and documentation of the acceptance of the waste prior to disposal. Bills of lading will be maintained documenting the tare and gross weight, date, and truck number for each load.

The facility likely to accept excess soils and sediments derived from manual sampling or over-land work is the Cowlitz County Landfill in Longview, Washington.

5.4.2 Testing and Disposal of Liquid Wastes

Samples of bulk liquid waste will be tested for arsenic and possibly other COCs, dependent upon how and where the liquid was generated, and the requested sampling from the accepting disposal facility.

Depending on the results of testing, liquid wastewater will be disposed of at an appropriate wastewater facility or discharged into a vegetated area on site.

6 Discovery of Unanticipated Gross Contamination

If excavation or construction activities encounter unknown wastes (e.g., buried drums) or gross contamination (e.g., oily soil, strong petroleum or chemical odor, oily sheen) the personnel will:

- Cease all excavation activities in the area where the unknown wastes or gross contamination has been encountered or discovered and take appropriate measures in compliance with all applicable environmental laws to protect site workers and to stop or minimize the immediate spread or release of any contamination.
- Immediately notify the facility's EH&S contact. If the EH&S contact concurs that the encountered material represents an unknown waste or gross contamination, he or she will notify the DEQ Cleanup Program Project Manager for the Site.
- If the unknown wastes or gross contamination is to be excavated, sampling is required to characterize the nature of contamination (e.g., oily soil vs metal scrap and rubble). Excavated soils or waste with apparent gross contamination or unidentified waste must be characterized and disposed of offsite in accordance with Section 3.2.6.3.
- Pending laboratory analyses results and based on direction from the facility's EH&S contact, excavation activities may be re-sequenced and/or continued after DEQ notification as long as the excavated soil is appropriately managed (i.e., placed in drums or appropriately secured containers). The facility is not required to chase suspected contamination into the subsurface, and excavation may be suspended in the area where gross contamination is encountered if excavation activities are not necessary, and the suspect material is left in situ. DEQ will be notified if any gross contamination is encountered and to be left in place.

Notification and approval procedures for soil management and discovery of unanticipated contamination are outlined in Table 4.

7 Site Controls

The following procedures and controls are required to limit environmental impacts and reduce potential exposures of site workers to potentially contaminated materials during soil management activities.

7.1 Worker Health and Safety

Exposure to contaminants can occur during any earthwork within the Restricted Area and in areas of Lowland/In-Water OU2. Therefore, personnel engaged in earthwork activities shall be made aware of the potential for encountering contaminated media. Each contractor engaged in earthwork is responsible for the safety of their respective workers and must develop and implement a Site-specific health and safety plan (HSP) designed to assure compliance with all applicable worker protection regulatory requirements, including 29 Code of Federal Regulations 1910. 120, the hazardous waste operations and emergency response (HAZWOPER) rule promulgated by the Occupational Safety and Health Administration.

A contractor's HSP should include the following key information:

- Current standard HAZWOPER certification for any worker that will be performing earthwork at the Site;
- Use of PPE and appropriate PPE protocols to limit direct exposure to media;
- Personal hygiene and decontamination procedures;
- Medical surveillance;
- Hazard communication and Site control; and
- Record keeping and reporting.

7.2 Access Restriction

The Site perimeter must continue to be monitored to ensure the public is limited in its ability to access or is deterred from accessing the Site. All public access in all areas of the Site should be restricted either through maintenance of existing fencing and signage or periodic monitoring and removal of unauthorized personnel, including in areas along the shoreline where the public may access the property by watercraft. Fencing or protective tape demarcation will be maintained around excavation areas in the Restricted Area or areas in the Lowland/In-Water OU in order to restrict access of personnel who are not HAZWOPER certified.

8 Upland Cap Long-Term Monitoring and Maintenance

As specified in the Consent Judgment, long-term performance monitoring and maintenance objectives for the Upland OU1 Remedy include: (1) monitoring and maintaining the cap; (2) monitoring the effectiveness of the remedy in limiting contaminant migration through stormwater; and (3) periodically evaluating the effectiveness of the remedy, including institutional controls, to ensure remedial action objectives continue to be achieved. This section details how long-term cap monitoring and maintenance objectives are achieved in this SMP.

The upland cap prevents exposure to upland occupational workers. Figure 8 shows the area where capping material has been placed as required by the ROD. The required cap areas were constructed from sufficiently thick imported materials specified in Table 5 or an appropriately engineered concrete pavement (asphalt or Portland cement). A combination of these capping types and materials may be used to cover any future areas requiring capping. The specific type of cap will be determined by the Site owner to be compatible with current and future operations or land use expectations.

Table 5. Capping Materials Suitable for Upland Cap

Acceptable Capping Materials for the Upland Cap	Thickness of Material[1]
Clean[2] Imported Soils and Fill	12 inches
Gravel or Crushed Rock (e.g., 0.75 inches or 1.5 inches minus)	12 inches
Pavement	4 inches of asphalt pavement or Portland cement atop 6 inches of gravel or crushed rock

Notes

[1] In specified locations, DEQ has approved thinner capping requirements, such as in transition intervals where cap is graded, to meet existing infrastructure. Transition intervals and associated cap thicknesses will be documented in the Construction Completion Report following completion of the Upland Remedy.

[2] Clean fill material is soil with concentrations of hazardous substances below the levels established for "clean backfill" as defined in DEQ's *Internal Management Directive: Clean Fill Determinations* (DEQ, 2014). Clean fill can be obtained from local quarries or other vendors that can certify that the fill meets Oregon DEQ's guidance for clean fill. If a clean fill determination cannot be achieved by commercially available import sources within 30 miles of the Site, the Site owner will work with DEQ to select suitable import material on a case-by-case basis.

DEQ = Oregon Department of Environmental Quality

Site = former Armstrong World Industries, Inc. (AWI) St. Helens Fiberboard Plant 91, located at 1645 Railroad Avenue in St. Helens, Oregon

As part of the Upland Remedy, a demarcation layer (e.g., woven or non-woven geotextile fabric) was placed between capping material and the underlying soil to serve as a visual indication that potentially contaminated soil may be encountered below. Locations and specifications of demarcation layers are presented in As-Built drawings in the Upland OU Construction Completion Report (GSI, 2020).

Previously capped areas and areas capped as part of the Upland Remedy are depicted in Figure 8 and include roadways, parking areas, building footprints, and the former aeration lagoon. The capped areas (pavement, gravel, grading features, clean soil fill, buildings) are documented within as-built drawings and figures within the Construction Completion Report (GSI, 2020). This documentation represents baseline conditions that will be used as the basis for comparison during the monitoring and inspection events described below.

Disturbances of the upland cap do not require any special handling or health and safety requirements outside of standard construction health and safety protocols, so long as they do not cause disturbance of the contaminated soils below. If the upland cap is fully breached or penetrated, the owner shall restore the cap to baseline conditions. See Section 6.3 for maintenance and repair requirements.

8.1 Visual Monitoring Performance Criteria

Each visual monitoring event will be compared to the previous event and the baseline conditions to identify physical changes to the upland cap. The performance criteria described in this section are used as a basis for evaluating whether physical changes in the upland cap could reduce the effectiveness and overall performance. Exceedances of the performance criteria described below requires repairs to restore the cap to as-built specifications or baseline condition.

Visual monitoring of the upland cap will apply the following general performance criteria:

- Erosion or cap changes that expose demarcation fabric.
- Gullies, rills, or potholes greater than 6 inches in depth.
- Evidence indicating excessive cap thinning, cracking, or settling.
- Other significant abnormalities or physical changes.

The effectiveness of the upland cap is dependent upon limiting exposure to subsurface soils. Site inspections will monitor cap conditions and integrity over time. Routine visual inspections will be the primary method of determining if maintenance actions or repairs to the upland cap are needed. Cap surfaces will be monitored for damage and maintained by repairing any damage caused by vandals, animals, erosion, or on-site activities.

8.2 Cap Inspection

The inspection will consist of walking a traverse of the entire Upland Area, including exterior and interior areas, to evaluate the entire upland cap surface. Photographs will be taken over various areas of the cap to verify the current condition at any given time. Monitoring and inspections will be performed each spring and fall by qualified personnel (e.g., an Oregon-licensed professional engineer or trained personnel) for the first 3 years after completion of the upland cap. Annual inspections will be conducted by the Site owner or the owner's representative annually thereafter.

During the inspection, any areas of the upland cap that are determined to be compromised or unacceptable (i.e., do not meet the performance criteria) will be noted on an Upland Cap Inspection Form and documented with photographs (see Attachment 3). Recorded observations will describe the issue and the location to allow others to identify, and recheck the areas during subsequent inspections (e.g., plot location on base map, obtain GPS coordinates, and locate area of concern by obtaining measurements from two fixed points). Upon completion of the repair of the unacceptable area, a follow-up confirmatory inspection of the repaired area will be made and documented on the Upland Cap Inspection Form with accompanying photograph(s) of the repaired area(s).

General guidelines for conditions that the inspector will record and photograph as potentially compromising the integrity of the cap include:

- General upland cap surface smoothness and visible deviations from the baseline observations.
- Any breach or other significant damage or deterioration in the gravel cap (e.g., potholes, ruts, erosional changes, areas of exposed demarcation fabric).
- Any breach or other significant damage or deterioration of the pavement surface.
- Localized subsidence (e.g., potholes, puddles) or heaving of the upland cap with a vertical displacement of greater than about 6 inches.
- Erosion in the vegetated/lined swales potentially resulting in damage to the underlying demarcation fabric or liner.
- Evidence of unauthorized excavation.

The inspector is responsible for evaluating the acceptability of the upland cap conditions and the need for additional maintenance or repair. Inspections will be used to determine the need for further analysis and potential repairs, or maintenance as described in the section below. Photographs of all capped areas will be collected during each site investigation and kept on file, regardless of deviations from the baseline cap conditions.

8.3 Maintenance and Repairs

The following activities are required to maintain the integrity of the upland cap:

1. **Upland Cap:** Maintain the upland cap such that the thickness provides a protective barrier (per Table 5).
2. **Pavement or building foundation:** Maintain existing pavement and building foundations such that the integrity of the pavement/foundation is not compromised as a protective barrier for underlying soils. The Site owner or its contractor will implement all appropriate measures under the Site's SMP for any repair or maintenance activities.

Cap repairs will be completed within 90 days of the inspection identifying the need for the repair unless weather or other conditions outside the Site owner's control require a longer period, in which case the repairs will be completed as soon as is practicable.

8.4 Contingency and Emergency Planning and Response

Following potentially catastrophic events, the Site owner will conduct a visual inspection in accordance with Section 8.2. Potentially catastrophic events are defined below:

- Site flooding due to conditions in Scappoose Bay (e.g., 100-year flood), extreme tidal conditions, or a tsunami that results in flooding of the Upland capped area.
- A local (within 20-mile radius of the Site) seismic event in excess of 6.0 on the Richter magnitude scale.
- A regional (within 100-mile radius of the Site) seismic event in excess of 8.0 on the Richter magnitude scale.

If the upland cap has been damaged and the required repair is more significant than adding pavement or gravel to a small area, then the cap will be repaired according to the specifications in Table 5 to restore the protective remedy or another repair will be proposed or developed in consultation with DEQ. The Site owner will secure necessary permits before taking action or starting work.

8.5 Limited Access Areas

Certain areas of the Restricted Area shown on Figure 8 labeled “Limited Access Areas” are not actively used for plant operations. These areas shall not be regularly occupied by employees, contractors, or other personnel. If the Site owner desires to convert all or any portion of these low-use areas to active use or regular occupancy, the affected areas shall either: (1) be further investigated according to plans approved in advance by DEQ; if such investigation shows that contamination in these areas is below RGs set forth in the ROD, such areas may be released for unrestricted use without further remedial action; or (2) be capped in the manner described in the ROD before such change of use occurs. Limited access areas will be monitored along with the upland cap to ensure that they remain low-use areas. These areas will be photographed and documented on the Upland Cap Inspection Form.

8.6 Stormwater Monitoring

Per Section V.B of the Statement of Work in the Consent Judgment, stormwater monitoring will be conducted according to the requirements of the applicable stormwater permit for the Site to evaluate the continued effectiveness of the surface cap in preventing migration of contaminants of concern in stormwater from the Upland OU to Lowland/In-Water OU. Although stormwater monitoring will be handled under the permit, a copy of the Discharge Monitoring Report will be provided to the DEQ Cleanup Program at the time it is submitted to the Water Quality Program.

9 Site Security Controls

Site access and institutional controls (including this SMP), will remain in effect until such time that DEQ determines, in writing, that such controls are no longer necessary. The security of Upland OU1 currently is established by a combination of fencing, signage, and dense blackberry and other vegetation along the bank between OU1 and OU2 and along Old Portland Road. The Site owner will ensure the existing perimeter security system, or a comparable perimeter security system that is approved in advance by DEQ is maintained. The Site owner will post signs at gates and other potential points of entry that will include a statement that earthwork must be conducted in accordance with this SMP.

Security for Lowland/In-Water OU2 includes monitoring areas along the shoreline where the public may access the Site by watercraft. Public access in all areas of the Site should be restricted either through fencing or daily monitoring and removal of unauthorized personnel. Specifically, fencing or protective tape demarcation will be maintained around excavation areas in the Restricted Area, and future-designated areas, in order to restrict access of personnel who are not HAZWOPER certified.

As of the date of this SMP, security personnel staff the entrance gate and patrol the property. If at any point site security is not staffed on a continuous basis for 30 days or more, the Site owner will initiate an inspection program for the existing perimeter security to assess the condition of the fences, signage, and vegetation and identify any potential points of entry into both the Upland and Lowland/In-Water OUs, including any sections of fencing in need of repair, to confirm required signage is present and visible, and secure accessible areas along the shoreline to prevent public access. The inspection program shall include:

- Inspecting condition of perimeter fencing and signage;
- Identifying any changes or repairs to perimeter fencing and signage;
- Documentation of inspections and repairs on Perimeter Security Inspection Forms; and
- Inspecting wetland and in-water areas for signs of unauthorized human presence and securing perimeter to prevent unauthorized access.

Perimeter security system inspections and maintenance are required within 60 days following initiation of the inspection program and on at least an annual basis thereafter.

10 Recordkeeping

The facility will maintain a permanent record in the form of a log (the "SMP Log") of the following types of earthwork performed under this SMP (not to include future remedial actions within the wetlands or below OHW within OU2):

- Any action that fully penetrates a portion of the protective cap and disturbs the underlying soil.
- Relocation of excavated soil within the Restricted Area or soil moved within terrestrial areas of OU2 after the approval of DEQ.
- Discovery of gross contamination or waste.
- Any earthwork involving excavation of more than 10 cy or an area of more than 100 square feet.

Log entries will include the following as applicable to the activity:

- A description of the earthwork
- Date(s) of activity
- Location of earthwork marked on a facility site drawing
- Observations and descriptions of excavated soil
- Volume of excavated soil
- Sample collection procedures and analytical results, if applicable
- Final disposition of excavated soil, debris, gross contamination, or unidentified waste
    - For soil relocated within the Restricted Area and terrestrial areas within OU2, describe the placement location, the depth of placement and how the area was capped. If excavated soil is placed in an area that is not capped as shown on Figure 8, Figure 8 must be revised to show the new capped area and attached to this SMP as an addendum and included in the SMP Log.
    - Documentation of any off-site soil or waste disposal
    - Source of clean fill

For each cap inspection which includes the current Upland cap and any future modifications to the existing capped area and perimeter security inspection, the Site owner will complete a Cap Inspection Form (see Attachment 3) and a Perimeter Security Inspection Form (see Attachment 4).

The Site owner will maintain copies of the completed Upland Cap Inspection Forms and Perimeter Security Inspection Forms pursuant to the recordkeeping requirements in the Consent Judgment. The SMP Log, Upland Cap Inspection Forms, and Perimeter Security Inspection Forms will be kept on file at the Site and provided to DEQ at its request.

11 Reporting Requirements

The facility will adhere to reporting requirements as listed in Table 6 below. These include reporting requirements for updates to this SMP, annual inspection reports, 5-year review reports, and construction progress and completion reports.

Table 6. Reporting Requirements for the Site Management Plan

Reporting Requirements	Frequency	Notification or Approval Procedures
SMP Log Entry for any earthwork as detailed in Section 10	Any of the earthwork procedures detailed in Section 10	DEQ will be notified of all earthwork involving excavation of more than 10 cubic yards or an area greater than 100 square feet performed within the Restricted Area or Lowland/In-water OU typically 48 hours in advance when possible. The SMP Log kept on file at facility and relevant sections will be provided to DEQ following earthwork requiring soil characterization, when gross contamination or waste is observed, or as requested by DEQ.
Upland Cap Inspection Form	Biannually (spring and fall) for first 3 years; annually thereafter	Upland Cap Inspection Forms kept on file at facility and provided to DEQ following inspection completion.
Perimeter Security Form	Within 60 days following initiation of the inspection program and annually thereafter	Perimeter Security Inspection Forms kept on file at facility and provided to DEQ following inspection completion.
Discharge Monitoring Report	Annually by July 31	Courtesy copy submitted to Cleanup Program at time of submittal to Water Quality Program.
Facility Structure Construction Completion Notifications	At completion of all construction phases for significant new buildings or structures	DEQ will be notified after completion of all construction phases for additions of any significant buildings and structures. It will include updates to figures in this report.
Five-Year Review Report	Every 5 years after DEQ Certificate of Completion for Upland OU Remedy	Report submitted after requirements of 5-year review met to assess effectiveness of Upland OU Remedy.
Review and Edit SMP	Minimum every 5 years during 5-year review. More frequently as needed for any of the following triggers: ▪ Demolition or construction of significant building or structure ▪ Any change in primary use of property from industrial	This SMP must be reviewed at a minimum every 5 years during the 5-year review and edited if deemed necessary. More frequent triggers for significant construction/demolition projects or change in primary land use also warrant review and edit. Any revisions to this SMP must be approved by DEQ.

Reporting Requirements	Frequency	Notification or Approval Procedures
Edits to SMP Figures	The figures in this SMP must be edited regularly to reflect accurate COC concentration data as any material new data is obtained with respect to soils in place, as well as cap and demarcation layer locations.	Updated figures must be submitted to DEQ on a regular basis when new data is obtained but do not trigger approval requirements for entire SMP.

Notes

COC = contaminant of concern
DEQ = Oregon Department of Environmental Quality
OU = Operable Unit
SMP = Site Management Plan

12 References

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Tables

Table 1: Arsenic and Dioxin/Furan TEQ Concentrations at Individual Station Locations

StationName[1,2]	Existing Ground Surface Elevation (*ft* NAVD88)	Approximate Sample Depth Below Existing Ground Surface *(ft)*		Arsenic *(mg/kg)*	Dioxin/Furan TEQ[3] *(ng/kg)*
		SampleTop	SampleBottom		
ISM and MULTI-POINT COMPOSITE SAMPLES					
B18QH AREA	variable	0	1	11.6	39.30
B18QH AREA	variable	1	5	13.1	35.00
EAST AREA	variable	2	6	409.0	688.00
EAST CHIP AREA	variable	2	6	28.4	46.90
LAGOON AREA	variable	0	1	11.0	5.89
OFFICE/PARKING AREA	variable	0.25	1	17.7	47.20
OFFICE/PARKING AREA	variable	1	5	19.9	31.90
PGSA 1	variable	1	2	19.0	6.28
PGSA 2	variable	1	2	2.2	3.68
PGSA 3	variable	1	2	38.4	54.80
PGSA 4	variable	1	2	427.0	528.00
PGSA 5	variable	1	2	103.0	183.00
PGSA 6	variable	1	2	48.3	113.00
PGSA 7	variable	1	2	200.0	2340.00
PGSA 8	variable	1	2	12.3	31.40
SA-1	variable	1	2	15.5	25.40
SA-2	variable	1	2	25.9	75.30
SA-3	variable	0	1	7.3	32.00
SA-4	variable	1	2	21.6	32.80
SA-5	variable	0	1	2.4	4.03
TRUCK PARKING/ROAD[4]	variable	0	1	26.9	16.20
TRUCK PARKING/ROAD[4]	variable	1	5	26.5	14.30
WEST ROAD AREA	variable	0.25	1	36.8	70.50
WEST ROAD AREA	variable	1	5	140.0	229.00
DISCRETE SAMPLES					
EA-01	31.6	2	5	5.5	NA
EA-02	29.97	2	6	27.7	NA
EA-03	32.41	2	6	468.0	NA
EA-04	30.46	2	5	33.9	NA
EA-05	32.8	2	6	925.0	NA
EA-06	31.27	2	6	274.0	NA
EA-07	33.41	2	6	1770.0	NA
EA-08	31.91	2	6	986.0	NA
EA-09	26.18	1	2	1060.0	NA
EA-10	34.73	1	4	1320.0	NA
EA-11	33.45	2	5	812.0	NA
EA-12	32.14	2	6	1760.0	NA
EA-13	30.9	2	6	1390.0	NA
EA-14	28.32	2	6	513.0	NA
EA-15	26.89	1	2	217.0	NA
EA-17	34.43	2	5	54.1	NA
EA-19	31.79	2	6	1920.0	NA
EA-20	32.29	2	6	1330.0	NA
EA-21	29.6	2	6	250.0	NA
EA-22	29.29	2	4	80.3	NA
EA-23	29.5	2	4	320.0	NA
EA-24	36	2	4	66.7	NA
EA-25	35.1	2	4.5	169.0	NA
EA-26	34.74	2	6	113.0	NA
EA-27	32.54	3	6	11.0	NA
EA-28	31.97	1	4	344.0	NA
EA-29	32.52	1	4	5.3	NA
EA-30	31.29	1.5	4.5	54.3	NA
EA-31	31.47	2	5	201.0	NA
EA-32	31.5	1	2	132.0	NA
EA-33	35.82	1	4	22.4	NA
EA-34	35.78	1.5	2.5	70.0	NA
EA-35	34.94	3	5	373.0	NA
EA-36	32.97	2	6	24.6	NA
EA-37	33.07	1	4	25.3	NA

Table 1: Arsenic and Dioxin/Furan TEQ Concentrations at Individual Station Locations

StationName[1,2]	Existing Ground Surface Elevation (*ft* NAVD88)	Approximate Sample Depth Below Existing Ground Surface *(ft)*		Arsenic *(mg/kg)*	Dioxin/Furan TEQ[3] *(ng/kg)*
		SampleTop	SampleBottom		
EA-38	33.73	2	5.5	82.5	NA
EA-39	31.83	1	4	12.1	NA
EA-41	37	1	5	74.6	NA
EA-42	36.65	1	4	44.8	NA
EA-43	34.39	2	6	204.0	NA
EA-44	34.2	1.5	5.5	10.9	NA
EA-45	34.4	2	4	6.1	NA
EA-46	34.95	2	5	9.2	NA
EA-47	36.64	2	5	230.0	NA
EA-48	35.36	2	6	39.1	NA
EA-49	34.9	1.5	5.5	55.0	NA
EA-50	35.11	0	1	10.3	NA
EA-50	35.11	1	2	157.0	NA
EBA-1	34.66	2	2	5.1	NA
EBA-1	34.66	3	3	54.3	NA
EBA-2	35.27	2	2	8.9	NA
EBA-2	35.27	3	3	111.0	201.00
ECA-10	31.08	0.25	1	4.1	NA
ECA-11	30.99	0.25	1	3.7	NA
ECA-12	31.48	0.25	1	2.3	NA
ECA-14	31.52	0.25	1	2.0	NA
ECA-16	32.03	0.25	1	2.7	NA
ECA-17	32.51	0.25	1	2.5	NA
ECA-18	31.71	0.25	1	124.0	NA
ECA-22	31.02	1	2	6.0	NA
ECA-24	31.78	0.25	1	5.1	NA
ECA-26	31.83	0.25	1	15.8	NA
ECA-27	31.85	0.5	1.5	29.7	NA
ECA-28	30.86	0.5	1.5	112.0	NA
ECA-29	30.07	0.5	1.5	13.6	NA
FAL-1	29.53	6.25	6.25	383.0	1067.00
FAL-2	28.56	6	6	7.3	7.35
FTS-01	34.1	3.5	3.5	1520.0	1304.00
FTS-02	34.89	3.5	3.5	1060.0	1280.00
FTS-03	34.21	3.5	3.5	1290.0	951.00
FTS-04	31.94	3	3	466.0	1141.00
FTS-05	33.07	5	5	2120.0	2448.00
FTS-06	33.29	5	5	3050.0	1634.00
FTS-07	33.47	5	5	2700.0	2384.00
FTS-08	34.24	2.5	2.5	ND	0.40
FTS-08	34.24	3.5	3.5	52.6	93.70
FTS-08	34.24	4.5	4.5	439.0	228.00
FTS-09	34.65	1.5	1.5	ND	12.10
FTS-09	34.65	2.5	2.5	132.0	379.00
FTS-10	35.36	0.5	0.5	7.6	15.30
FTS-10	35.36	2	2	318.0	541.00
FTS-10	35.36	3	3	189.0	302.00
FTS-10	35.36	4.5	4.5	68.4	11.90
NOF7-1	25.33	4	4	6.2	0.89
NOF7-2	25.35	2	4	31.1	85.50
NOF7-3	25.39	0	1	71.0	105.00
OF7-SS1	27.19	0.5	0.5	135.0	34.30
OF7-SS2	25.87	0.1	0.1	6.4	1.35
PD-01	28.9	0.5	0.5	ND	NA
PD-01	28.9	4.0	4.0	23.6	NA
PD-02	26.19	0.5	0.5	0.6	NA
PD-02	26.19	4	4	47.3	NA
PD-03	26.52	4	4	66.1	NA
PD-04	27.98	0.5	0.5	27.3	NA
PD-04	27.98	4	4	195.0	NA
SHP-1	31.27	4	4	386.0	339.00
SHP-2	33.14	4.5	4.5	70.6	1049.00

Table 1: Arsenic and Dioxin/Furan TEQ Concentrations at Individual Station Locations

StationName[1,2]	Existing Ground Surface Elevation (*ft* NAVD88)	Approximate Sample Depth Below Existing Ground Surface *(ft)*		Arsenic *(mg/kg)*	Dioxin/Furan TEQ[3] *(ng/kg)*
		SampleTop	SampleBottom		
Test Pit Samples Beneath New Warehouse[5]					
TP-01	34.11	1.5	1.5	3.2	NA
TP-01	34.11	2.5	2.5	881.5	NA
TP-01	34.11	4	4	1930.0	NA
TP-02	34.44	1.5	1.5	3.4	NA
TP-02	34.44	2.5	2.5	915.0	NA
TP-02	34.44	4	4	722.0	NA
TP-03	34.16	0.5	0.5	2.7	11.20
TP-03	34.16	1.5	1.5	9.7	4.88
TP-03	34.16	2.5	2.5	62.2	2.69
TP-03	34.16	4	4	732.0	1219.00
TP-04	33.06	0.5	0.5	6.0	8.03
TP-04	33.06	1.5	1.5	11.3	7.86
TP-04	33.06	2.5	2.5	9.5	5.80
TP-04	33.06	4	4	1770.0	2401.00
TP-05	32.49	0.5	0.5	0.8	1.05
TP-05	32.49	1.5	1.5	31.2	64.50
TP-05	32.49	2.5	2.5	44.6	53.20
TP-05	32.49	4	4	37.5	35.00
TP-06	33.24	0.5	0.5	1.7	NA
TP-06	33.24	1.5	1.5	21.2	NA
TP-06	33.24	2.5	2.5	33.4	NA
TP-06	33.24	4.5	4.5	135.0	NA
TP-07	30.86	0.5	0.5	2.1	3.92
TP-07	30.86	1.5	1.5	1.3	1.18
TP-07	30.86	2.5	2.5	3.7	7.30
TP-07	30.86	4.5	4.5	89.7	67.70
TP-08	33.75	0.5	0.5	0.5	NA
TP-08	33.75	1.5	1.5	0.8	NA
TP-08	33.75	2.5	2.5	158.1	NA
TP-08	33.75	4	4	166.0	NA
TP-09	34.76	0.5	0.5	11.7	8.41
TP-09	34.76	1.5	1.5	15.0	16.50
TP-09	34.76	2.5	2.5	1100.6	3454.00
TP-09	34.76	4	4	17.0	40.80
TP-10	31.39	0.5	0.5	1.1	NA
TP-10	31.39	1.5	1.5	1.1	NA
TP-10	31.39	2.5	2.5	15.9	NA
TP-10	31.39	4	4	74.7	NA

Notes:

[1] Subsurface ISM Samples were not collected from the Lagoon Area.

[2] Samples shown in this table include only samples representative of current conditions. Sample results representative of pre-remedial activity conditions are provided in the Upland Remedial Investigation Report (GSI, 2013).

[3] Not all sample locations were analyzed for dioxin/furan TEQ.

[4] Sample depths listed for the Truck Parking Area are for the uncapped portions (limited access areas) of the TPA.

[5] Test Pit Samples were collected prior to construction of the New Warehouse and depth intervals represent depth below concrete foundation of warehouse building.

NA = Not Analyzed

ND = Not Detected

Table 3 – Site Management Plan Contacts & Roles and Responsibilities		
Contact	**Phone**	**Role and Responsibility**
RestorCap, LLC		
Andrew Gregg *(Primary Contact)*	(714) 580-2004	Site Manager, Environmental, Health & Safety Contact
Ted Wall (Maul Foster Alongi) (Secondary Contact, if any)	(503) 939-4849	Vice President
Oregon Department of Environmental Quality (DEQ)		
Sarah Greenfield (Cleanup Program PM for AWI)	(503) 229-5245	Call the RestorCap, LLC contacts FIRST, they will help you determine what other notification steps are necessary and make the appropriate calls. **The Environmental, Health & Safety Contact, or designee, is the primary Starting Line representative responsible for any agency notification and contact.**
Katie Daugherty (Cleanup Program)	(503) 229-6748	
Michael Kennedy (Stormwater, Water Quality & Permitting)	(503) 729-6488	
Disposal Facility Information		
Hillsboro Landfill and Tualatin Valley Waste Recovery	(503) 640-9427	Subtitle D Solid Waste Disposal Facility
Chemical Waste Management of the Northwest (Arlington)	(541) 454-2030	RCRA/TSCA Subtitle C Landfill
City of St. Helens		
City of St. Helens Fire Department	911	
Columbia County		
Columbia County Emergency Management Office (LEPC)	(503) 397-1244	Diane Dillard, Information Coordinator
Emergency Response Contractors		
Nexeo	(360) 259-9821	Lee Beedle
Cowlitz Clean Sweep (Vacuum Services)	(888) 423-6316	Matt Worel or Bob Gloyd
Jammie's Vacuum Services (Vacuum Services)	(360) 577-5691	

Table 4 – Notification and Approval Procedures for Soil and Sediment Management

Action or Event Item	Notification Requirements	Approval Requirements	Process Requirements
ANY Earthwork within Upland Restricted Area or Lowland/In-Water OU	Notify Facility Environmental, Health, and Safety (EH&S) Contact	Get Approval of EH&S Contact who will get approval from DEQ if necessary	Follow Procedures Outlined in Sections 3 and 4 of the Site Management Plan
Soil Management Procedures for Restricted Area Soils and Terrestrial Areas of OU2			
Excavated soil placed in temporary stockpiles	Notify Facility EH&S Contact	Facility EH&S Contact	May place without DEQ approval so long as stockpiles conform with provisions of Section 3.2.2 of SMP.
Excavated soil placed in ORIGINAL excavation	Notify Facility EH&S Contact	Facility EH&S Contact	Soil may be returned to original excavation without analytical testing, notification, or approval of DEQ so long as protective cap repaired consistent with pre-excavation cap. If soil excavated from an area without a protective cap, sufficient erosion control measures must be implented to stabilize soil (See Section 3.2.3).
Excavated soil placed in NEW capped location within Restricted Area	Notify Facility EH&S Contact	Facility EH&S Contact	Soil originating from Restricted Area may be placed in new location within Restricted Area without analytical testing, provided that the new location is in an area that is capped and the cap is replaced per the specifications in Table 5.
Excavated soil placed in NEW Upland Location Outside of Restricted Area or in Uncapped portion of Restricted Area	Notify Facility EH&S Contact who will collect sample to analyze for COCs per Section 3.2.6.	Facility EH&S Contact can approve AFTER testing confirms concentrations of COCs below RGs	Soil can be placed anywhere in Upland Area with or without a cap if sampling and analysis consistent with Section 3.2.6 demonstrates that COCs are below RGs. Sufficient erosion control measures consistent with Section 3.2.3 must be implemented.
Excavated soil disposed of Off-Site	Notify Facility EH&S Contact who will collect sample to analyze for characterization purposes per Section 3.2.6. Facility EH&S Contact must notify DEQ.	Facility EH&S contact must share characterization data with DEQ, and DEQ must approve disposal facility in advance of disposal.	Soil to be disposed of offiste must be characterized per Section 3.2.6 of this SMP and will be managed as a solid waste, and a hazardous waste if applicable based on characterization, in compliance with all applicable federal, state, or local laws. DEQ must approve disposal facility after receiving characterization data.
Imported backfill to be placed in excavation or as cap material	Notify EH&S Contact who will request characterization data prior to soil/fill placement.	DEQ approval required if import material exceeds one or more of the levels established for "clean backfill" as defined in DEQ's Clean Fill Determinations (DEQ, 2014)	Import material must be sampled, characterized, and shown to meet clean backfill requirements prior to placement within any area of the Site. If a clean fill determination cannot be achieved by commercially available import sources within 30 miles of the Site, the Site Owner will work with DEQ to select suitable import material on a case-by-case basis.
Sediment Management Procedures for Wetlands and Areas below OHW			
Excavated sediment from wetlands or below OHW within OU2	Notify Facility EH&S Contract and DEQ prior to work.	DEQ approval required. Additional permits from USACE, DSL, and/or City of St. Helens may be needed to conduct removal or fill activities within wetlands or in areas below OHW.	Sediment must be characterized before removal and cannot be temporarily or permanently stored anywhere on the Site, nor can the material be returned to the excavation without analytical testing. DEQ must approve excavation of sediment. One or more permits will be required from the USACE, DSL, and/or City of St. Helens prior to excavating sediment from wetlands or from areas below OHW within OU2.
Temporary stockpiling	Notify Facility EH&S Contact and DEQ prior to work.	DEQ approval required.	Sediment excavated within wetlands or areas below the OHW within OU2 may be temporarily stored in OU1 in accordance with temporary stockpile procedures described in the SMP, following analytical testing. DEQ must approve temporary stockpiling activities. Management of IDW generated during soil excavation and temporary storage activities should be managed as described in the SMP.
Excavated sediment disposed of offsite.	Notify Facility EH&S Contact and DEQ prior to work.	DEQ approval required.	Sediments excavated from wetlands or areas below OHW to be disposed offsite will require permitting and disposal at a designated disposal facilit. The disposal and facility must be approved by DEQ. Soil excavated from terrestrial areas within OU2 are subject to the same requirements for returning material to the original excavation.
Management of excess sediment.	Notify Facility EH&S Contact and DEQ prior to work.	DEQ approval requuied	During over or in-water work sampling activities, any excess water or surface sediments remaining after sample collection can be returned to the sampling location. Excess sediment that may remain after transport and processing at the OU1 processing facility will be containerized for offsite transport and disposal

Table 4 – Notification and Approval Procedures for Soil and Sediment Management

Action or Event Item	Notification Requirements	Approval Requirements	Process Requirements
Discovery of Unanticipated Gross Contamination or Anticipated Anthropogenic Waste Debris			
Anticipated Waste Debris including concrete rubble, wood, metal, perlite (white sandy material), weathered fiberboard, and other building materials is discovered during excavation activities	Notify Facility EH&S Contact	Facility EH&S Contact	To the extent practicable, segregate waste debris and assess whether any signs of gross or unidentified contamination are present. If not, it may be left in place or disposed of offsite without characterization. To the extent possible, soil should be brushed from debris back into the original excavation.
Discovery of unknown wastes or gross contamination (including but not limited to contents of buried drums, oily soil, soils or unidentified media with strong petroleum or chemical odor or oily sheen). Earthwork suspended and non-excavated contamination left in-situ.	CEASE all excavation activities and notify Facility EH&S Contact. He or she must notify DEQ Cleanup Program Manager.	Facility EH&S Contact	If gross contamination is discovered, work must be ceased immediately and the Facility EH&S contact must be notified who must notify DEQ of next steps. Any soil already excavated or excavated after DEQ notification must be appropriately managed. DEQ must be notified if any gross contamination is encountered and to be left in place.
Discovery of unknown wastes or gross contamination (including but not limited to contents of buried drums, oily soil, soils or unidentified media with strong petroleum or chemical odor or oily sheen). Contamination is to be excavated.	CEASE all excavation activities and notify Facility EH&S Contact. He or she must notify DEQ Cleanup Program Manager. Next steps will include sampling and characterization requirements in Section 3.2.6.3.	Facility EH&S contact must share characterization data with DEQ, and DEQ must approve disposal facility in advance of disposal.	If gross contamination is discovered, work must be ceased immediately and the Facility EH&S contact must be notified who must notify DEQ . Characterization data must be collected and material must be managed consistent with Section 3.2.6.3 of this SMP. Pending laboratory analyses and based on direction from the Facility's EH&S contact, excavation activities may be resequenced and work resumed after DEQ notification as long as the excavated material is managed appropriately (placed in drums or appropriately secured containers). DEQ must approve disposal facility after receiving characterization data.

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Figures

APPROXIMATE LOWLAND/IN-WATER OPERABLE UNIT

UPLAND OPERABLE UNIT

APPROXIMATE LOWLAND/IN-WATER OPERABLE UNIT

CONSTRUCTION DR
9TH ST
OLD PORTLAND RD
7TH ST
1ST ST
MILTON WAY
RAILROAD AVE
McNulty Creek
Milton Creek
MULTNOMAH CHANNEL

LEGEND

- Property Boundary
- Upland Boundary (OU1)
- Lowland/In-Water Operable Unit (OU2)(Project Area)
- Wetland Delineation Line
- Channel
- Creek

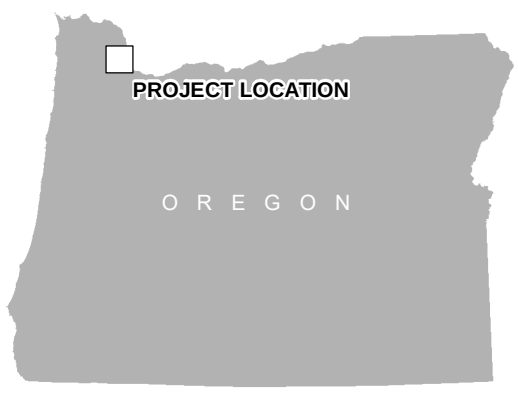

FIGURE 1
Site Map
Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

N

0 200 400 600
Feet

GSI Water Solutions, Inc.

Date: July 2, 2021
Data Sources: ESRI, USGS, Maxar 2019

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure1_SiteMap.mxd, WKimmon

LEGEND

- Restricted Soil Management Area
- Upland Operable Unit

Completed Remedy

- Gravel Cap
- Existing Pavement

FIGURE 2
Restricted Area
Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

N

0 80 160 240
Feet

GSI Water Solutions, Inc.

Date: July 2, 2021
Data Sources: Bridgewater, Air photo taken by NAIP 2014/2015

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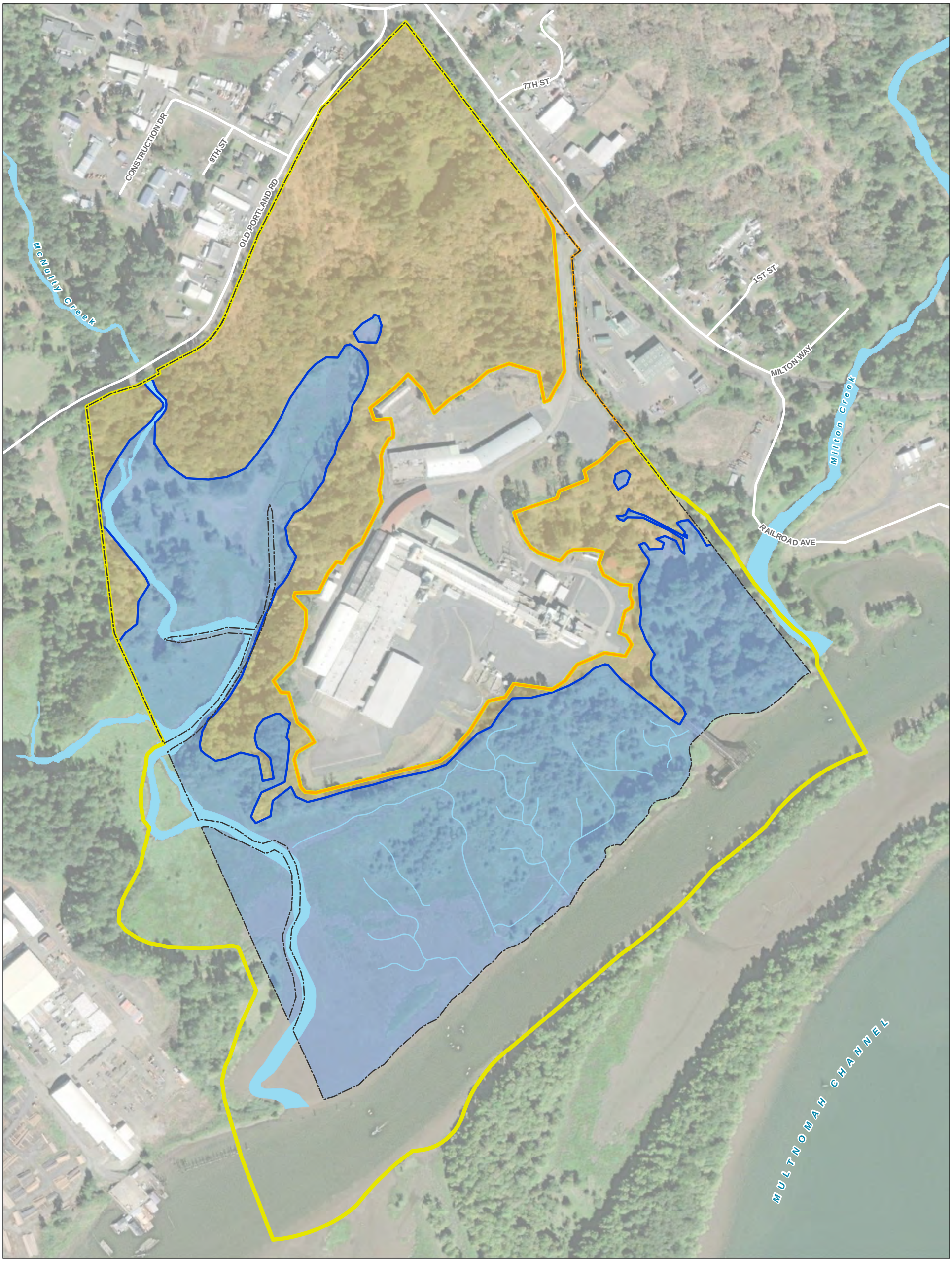

LEGEND

- Property Boundary
- Upland Boundary (OU1)
- Lowland/In-Water Operable Unit (OU2)(Project Area)
- Wetland Delineation Line
- Wetland Areas within Property Boundary
- Terrestrial Areas within OU2
- Channel
- Creek

Date: July 2, 2021
Data Sources: ESRI, USGS, Maxar 2019

FIGURE 3

Terrestrial and Wetland Areas within Lowland/In-Water OU2

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

N

0 200 400 600
Feet

GSI Water Solutions, Inc.

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B18QH Area
SA-5
Truck Parking / Road Area
SA-3
WC-001
WC-002
West Road Area
PD-04
PD-03
PGSA 1
NOF7-3
Lagoon Area
PGSA 1

LEGEND

- Protective Cap
- Existing Pavement
- Upland Remedial Action Gravel Cap
- ISM or Multi-Point Composite Sample Boundary
- Restricted Soil Management Area
- Upland Operable Unit

Arsenic Concentration (mg/kg), Discrete Soil Sample Location 0 - 1 ft bgs

- 0 - 13
- 13 - 58
- 58 -3,050
- Non-Detect

Arsenic Concentration (mg/kg), ISM or Multi-Point Sample Area

- 0 - 13
- 13 - 58
- 58 - 427

NOTES:
PGSA: Post Grading Sampling Area, sampled prior to cap placement during Upland Operable Unit Remedy
1. Concentration ranges are depicted by color by area for sampling done by the Incremental Sampling Method (ISM) or multi-point composite samples and at individual points for discrete samples.
2. Individual sample concentrations and approximate intervals below ground surface are provided in Table 1.
3. Former Lagoon Area was closed and backfilled with clean soil in 1989 under DEQ oversight.

N

0 80 160 240

Feet

GSI Water Solutions, Inc.

FIGURE 4a
Distribution of Arsenic in 0-1 ft Surface Soils Without Protective Cap

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure4a_Distribution_of_Arsenic_No_ProtectiveCap.mxd

LEGEND

- Protective Cap
- Existing Pavement
- Upland Remedial Action Gravel
- ISM or Multi-Point Composite Sample Boundary
- Restricted Soil Management
- Upland Operable Unit

Arsenic Concentration (mg/kg), Discrete Soil Sample Location 0-1 ft Beneath Cap

- 0 - 13
- 13 - 58
- 58 - 3,050
- Non-Detect

Arsenic Concentration (mg/kg), ISM or Multi-Point Sample Area

- 0 - 13
- 13 - 58
- 58 - 427

NOTES:
PGSA: Post Grading Sampling Area, sampled prior to cap placement during Upland Operable Unit Remedy
1. Concentration ranges are depicted by color by area for sampling done by the Incremental Sampling Method (ISM) or multi-point composite samples and at individual points for discrete samples.
2. Individual sample concentrations and approximate intervals below ground surface are provided in Table 1.

N

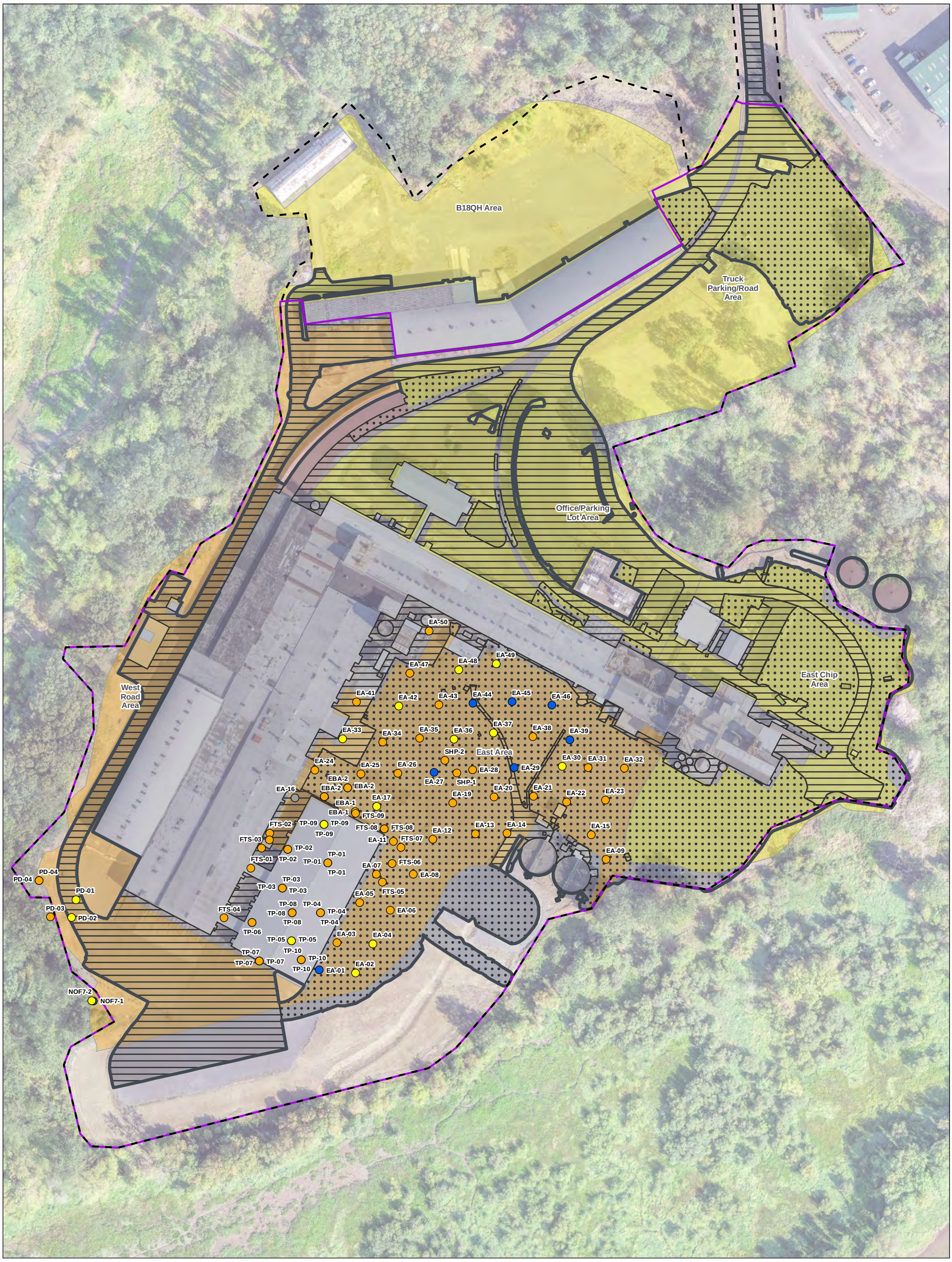
0 80 160 240
Feet

GSI Water Solutions, Inc.

FIGURE 4b
Distribution of Arsenic in 0-1 ft Near Surface Soils Beneath Protective Cap

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure4b_Distribution_of_Arsenic_Beneath_ProtectiveCap.mxd



LEGEND

- Protective Cap
- Existing Pavement
- Upland Remedial Action Gravel Cap
- ISM Boundary
- Restricted Soil Management Area
- Upland Operable Unit

Arsenic Concentration (mg/kg), Discrete Soil Sample Location >1 ft bgs

- 0 - 13
- 13 - 58
- 58 -3,050
- Non-Detect

Arsenic Concentration (mg/kg), ISM or Multi-Point Sample Area

- 0 - 13
- 13 - 58
- 58 - 427

NOTES:
1. Concentration ranges are depicted by color by area for sampling done by the Incremental Sampling Method (ISM) and at individual points for discrete samples.
2. Individual sample concentrations and approximate intervals below ground surface are provided in Table 1. Subsurface Soils are >1 ft below ground surface or beneath protective cap where present.

FIGURE 5
Distribution of Arsenic in Subsurface Soils (>1 ft below ground surface)

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

N

0 80 160 240
Feet

GSI Water Solutions, Inc.

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure5_Distribution_of_Arsenic_Shallow.mxd

B18QH Area
SA-5
Truck Parking / Road Area
SA-3
West Road Area
PGSA 1
NOF7-3
Lagoon Area
PGSA 1

LEGEND

- Protective Cap
- Existing Pavement
- Upland Remedial Action Gravel
- ISM or Multi-Point Composite Sample Boundary
- Restricted Soil Management
- Upland Operable Unit

Dioxin/Furan TEQ Concentration (ng/kg), Discrete Soil Sample Location 0 - 1 ft bgs

- 0 - 69
- 69 - 440
- 440 - 3,454

Dioxin/Furin TEQ Concentration (ng/kg), ISM or Multi-Point Sample Area

- 0 - 69
- 69 - 440
- 440 - 2,340

NOTES:
PGSA: Post Grading Sampling Area, sampled prior to cap placement during Upland Operable Unit Remedy
1. Concentration ranges are depicted by color by area for sampling done by the Incremental Sampling Method (ISM) or multi-point composite samples and at individual points for discrete samples.
2. Individual sample concentrations and approximate intervals below ground surface are provided in Table 1.
3. Former Lagoon Area was closed and backfilled with clean soil in 1989 under DEQ oversight.

N

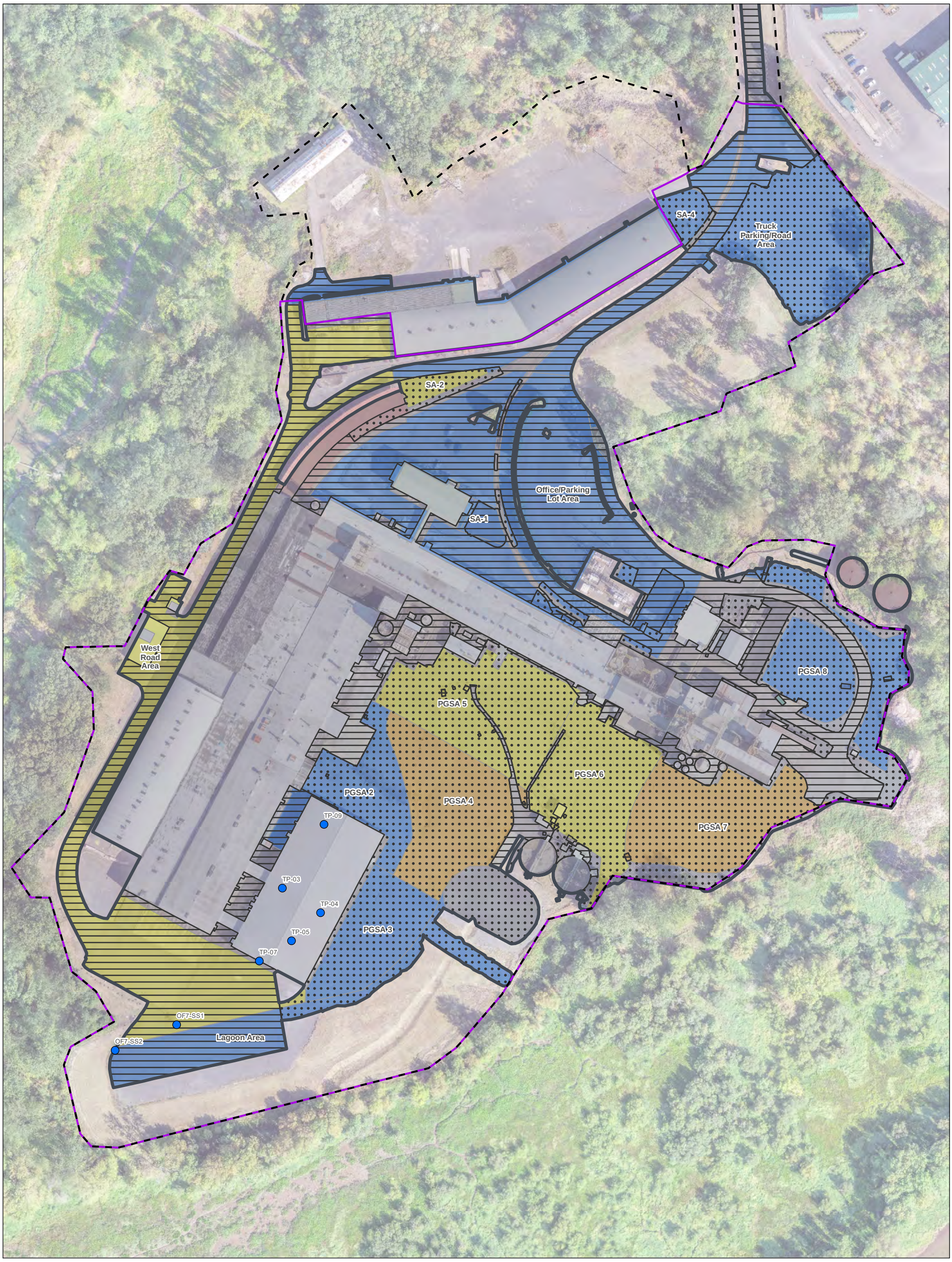
0 80 160 240
Feet

GSI Water Solutions, Inc.

FIGURE 6a
Distribution of Dioxin/Furan TEQ in 0-1 ft Surface Soils Without Protective Cap

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure6a_Distribution_of_DioxinTEQ_No_ProtectiveCap.mxd



LEGEND

- Protective Cap
- Existing Pavement
- Upland Remedial Action Gravel
- ISM or Multi-Point Composite Sample Boundary
- Restricted Soil Management
- Upland Operable Unit

Dioxin/Furan TEQ Concentration (ng/kg), Discrete Soil Sample Location 0-1 ft Beneath Cap

- 0 - 69
- 69 - 440
- 440 - 3,454

Dioxin/Furin TEQ Concentration (ng/kg), ISM or Multi-Point Sample Area

- 0 - 69
- 69 - 440
- 440 - 2,340

NOTES:
PGSA: Post Grading Sampling Area, sampled prior to cap placement during Upland Operable Unit Remedy
1. Concentration ranges are depicted by color by area for sampling done by the Incremental Sampling Method (ISM) or multi-point composite samples and at individual points for discrete samples.
2. Individual sample concentrations and approximate intervals below ground surface are provided in Table 1.

FIGURE 6b
Distribution of Dioxin/Furan TEQ in 0-1ft Near Surface Soils Beneath Protective Cap

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

N

0 80 160 240
Feet

GSI Water Solutions, Inc.

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure6b_Distribution_of_DioxinTEQ_Beneath_ProtectiveCap.mxd

B18QH Area
Truck Parking/Road Area
Office/Parking Lot Area
West Road Area
East Chip Area
East Area
SHP-2
SHP-1
EBA-2
FTS-10
FTS-09
TP-09
FTS-08
FTS-02
FTS-03
FTS-07
FTS-01
FTS-06
TP-03
FTS-05
FTS-04
TP-04
TP-05
TP-07
NOF7-1
NOF7-2

LEGEND

- Protective Cap
- Existing Pavement
- Upland Remedial Action Gravel
- ISM Boundary
- Restricted Soil Management Area
- Upland Operable Unit

Dioxin/Furan TEQ Concentration (ng/kg), Discrete Soil Sample Location >1 ft bgs

- 0 - 69
- 69 - 440
- 440 - 3,454

Dioxin/Furan TEQ Concentration (ng/kg), ISM or Multi-Point Sample Area

- 0 - 69
- 69 -440
- 440 - 2,340

NOTES:
1. Concentration ranges are depicted by color by area for sampling done by the Incremental Sampling Method (ISM) and at individual points for discrete samples.
2. Individual sample concentrations and approximate intervals below ground surface are provided in Table 1. Subsurface Soils are >1 ft below ground surface or beneath protective cap where present.

N

0 80 160 240

Feet

GSI Water Solutions, Inc.

FIGURE 7
Distribution of Dioxin/Furan TEQ in Subsurface Soils (>1 ft below ground surface)

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure7_Distribution_of_DioxinTEQ_Shallow.mxd

LEGEND

- Gravel Cap
- Existing Pavement
- Clean Soil Cap
- Limited Access Area
- Building

All Other Features

- Restricted Soil Management Area
- Upland Operable Unit

FIGURE 8

Existing Capped Areas within Restricted Area

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

N

0 80 160 240

Feet

GSI Water Solutions, Inc.

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure8_Existing_Prop_Capped_Areas_NEW.mxd

LEGEND

- Cap Inspection Area
- Gravel Cap
- Existing Pavement
- Clean Soil Cap
- Limited Access Area

All Other Features

- Restricted Soil Management Area
- Upland Operable Unit

Date: July 2, 2021
Data Sources: Air photo taken August 2019

FIGURE 9
Cap Inspection Areas for Long-Term Cap Monitoring and Maintenance

Site Management Plan,
Former St. Helens Fiberboard Facility
Site Management Plan,
St. Helens, Oregon

N

0 80 160 240
Feet

GSI Water Solutions, Inc.

Document Path: Y:\0380_Armstrong\Source_Figures\St_Helens\Site_Management_Plan\2019_Post_Remedy\Figure9_Cap_Inspections.mxd

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ATTACHMENT 1

Easement and Equitable Servitude

COLUMBIA COUNTY, OREGON **2019-09635**
DEED-EAS
Cnt=2 Pgs=20 KLUGD **11/19/2019 10:40:00 AM**
$100.00 $5.00 $11.00 $10.00 $60.00 **$191.00**
$5.00
I, Elizabeth E. Huser, County Clerk for Columbia County, Oregon, certify that the instrument identified herein was recorded in the Clerk records.
Elizabeth E. Huser - County Clerk

Space above this line for Recorder's use.

After recording, return to:
Oregon DEQ
Northwest Region
700 NE Multnomah Avenue
Portland, OR 97232
Attn: Sarah Greenfield, P.E.

EASEMENT AND EQUITABLE SERVITUDES

This grant of Easement and acceptance of Equitable Servitudes is made effective November 5, 2019, between Armstrong World Industries, Inc., a Pennsylvania corporation, ("***Armstrong***" or "***Grantor***") and the State of Oregon, acting by and through the Oregon Department of Environmental Quality ("***DEQ***" or "***Grantee***").

RECITALS

A. Grantor is the owner of certain real property located at 1645 Railroad Avenue, in St. Helens, in Columbia County, Oregon, as more particularly described in Exhibit A (the "***Property***") to this Easement and Equitable Servitudes and which is illustrated in Exhibit B. The Property is part of a site referenced under the name Armstrong World Industries, ECSI #91 (the "***Site***") in the files of DEQ's Environmental Cleanup Program at the Northwest Region Office located at 700 NE Multnomah Avenue in Portland. Interested parties may contact the Northwest Region Office to review a detailed description of the residual risks remaining at the Site.

B. On June 13, 2018, the Director of DEQ issued the Record of Decision that selected the remedial action for the Property ("***ROD***"). The remedial action selected requires, among other things, maintenance of existing pavement capping in certain areas, construction of additional capping in certain areas, monitoring and maintenance of the caps, implementation of a soil management plan and restrictions on land use.

C. On June 19, 2019, Grantor entered into a consent judgment with DEQ in Columbia County Circuit Court, State of Oregon, Case No. 19-CV-26021, under which Grantor agreed to implement the selected remedial action, including the required institutional controls (the "***Consent Judgment***").

Space above this line for Recorder's use.

After recording, return to:
Oregon DEQ
Northwest Region
700 NE Multnomah Avenue
Portland, OR 97232
Attn: Sarah Greenfield, P.E.

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B. On June 13, 2018, the Director of DEQ issued the Record of Decision that selected the remedial action for the Property ("***ROD***"). The remedial action selected requires, among other things, maintenance of existing pavement capping in certain areas, construction of additional capping in certain areas, monitoring and maintenance of the caps, implementation of a soil management plan and restrictions on land use.

C. On June 19, 2019, Grantor entered into a consent judgment with DEQ in Columbia County Circuit Court, State of Oregon, Case No. 19-CV-26021, under which Grantor agreed to implement the selected remedial action, including the required institutional controls (the "***Consent Judgment***").

D. The provisions of this Easement and Equitable Servitudes ("***EES***") are intended to further the implementation of the selected remedial action and thereby protect human health and the environment.

E. Nothing in this EES constitutes an admission by Grantor of any liability for the contamination described in this EES.

1. DEFINITIONS

1.2 "***DEQ***" means the Oregon Department of Environmental Quality, and its employees, agents, and authorized representatives. "DEQ" also means any successor or assign of DEQ under the laws of Oregon, including but not limited to any entity or instrumentality of the State of Oregon authorized to perform any of the functions or to exercise any of the powers currently performed or exercised by DEQ.

1.3 "***Engineering control***" has the meaning set forth in OAR 340-122-0115.

1.4 "***Hazardous substance***" has the meaning set forth in ORS 465.200

1.5 "***Owner***" means any person or entity, including Grantor, who at any time owns fee simple title in or to any portion of the Property or a vendee's interest of record to any portion of the Property, including any successor, heir, assign or holder of fee simple title or a vendee's interest of record to any portion of the Property, excluding any entity or person who holds such interest solely for the security for the payment of an obligation and does not possess or control use of the Property.

1.6 "***Remedial action***" has the meaning set forth in ORS 465.200 and OAR 340-122-0115.

2. GENERAL DECLARATION

2.1 Grantor, in consideration of Grantee entering the Consent Judgment, grants to DEQ an Easement for access and accepts the Equitable Servitudes described in this instrument and, in so doing, declares that the Property is now subject to and must in the future be conveyed, transferred, leased, encumbered, occupied, built upon, or otherwise used or improved, in whole or in part, subject to this EES.

2.2 Each condition and restriction set forth in this Easement and Equitable Servitudes touches and concerns the Property and the equitable servitudes granted in Section 3 and easement granted in Section 4 below, shall run with the land for all purposes, shall be binding upon all current and future owners of the Property as set forth in this Easement and Equitable Servitudes, and inures to the benefit of the State of Oregon. Grantor further conveys to DEQ the perpetual right to enforce the conditions and restrictions set forth in this Easement and Equitable Servitudes.

3. EQUITABLE SERVITUDES (RESTRICTIONS ON USE)

3.1 **Soil Cap Engineering Control.** The Consent Judgment required Grantor to expand the existing surface cap to additional areas as shown on Exhibit C (a color version of Exhibit C can be found in the files of DEQ's Environmental Cleanup Program at the Northwest Region Office located at 700 NE Multnomah Avenue in Portland). Except upon prior written approval from DEQ or as provided in a site management plan approved by DEQ, Owner may not conduct or allow operations or conditions on the Property or use of the Property in any way that might penetrate the existing caps or caps to be constructed under the Consent Judgment or to jeopardize the caps' protective function as an engineering control that prevents exposure to contaminated soil, including without limitation any excavation, drilling, scraping, or uncontrolled erosion. Owner also shall inspect and maintain the cap, provide site security controls and maintain records as required and in accordance with a site management plan that has been approved by DEQ. DEQ approved the Site Management Plan ("***SMP***") prepared by Groundwater Solutions, Inc. dated August 1, 2018. Owner may further update or amend the SMP and obtain DEQ approval of such updates and amendments from time to time.

3.2 **Land Use Restriction**. Certain areas of the Site shown on Exhibit C as "limited access areas" are not actively used for plant operations. These areas shall not be regularly occupied by Owner's employees, contractors or others. If Owner desires to convert all or any portion of these low-use areas to active use or regular occupancy, the affected areas shall either: (a) be further investigated according to plans approved in advance by DEQ; if such investigation shows that contamination in these areas does not exceed remedial goals set forth in the ROD, such areas may be released for unrestricted use without further remedial action; or (b) be capped in the manner described in the ROD before such change of use occurs.

3.3 **Groundwater Use Restriction.** Owner shall not extract groundwater through wells or by other means, or use the groundwater at the Property for consumption or other beneficial use, if the hazardous substance concentrations exceed the acceptable risk level for such use; however, this restriction does not apply to extracting groundwater for non-consumption uses from wells screened more than two hundred (200) feet below ground surface. This prohibition does not apply to extraction of groundwater associated with groundwater treatment or monitoring activities approved by DEQ or to temporary dewatering activities related to construction, development, or the installation of sewer or utilities at the Property. Owner shall, however, conduct a waste determination on any groundwater that is extracted during such monitoring, treatment or dewatering activities and handle, store and manage waste water according to applicable laws.

3.4 **Use of the Property.** Owner may not occupy or allow other parties to occupy or use the Property for any purpose except in full compliance with all conditions and restrictions in Sections 3.1 through 3.3 of this Easement and Equitable Servitudes.

4. EASEMENT (RIGHT OF ENTRY)

During reasonable hours and subject to reasonable security requirements, DEQ may enter upon and inspect any portion of the Property to determine whether the requirements of this Easement and Equitable Servitudes have been or are being complied with. During reasonable hours and subject to reasonable security requirements, and without unreasonably interfering with Owner's use and enjoyment of the Property, DEQ may enter the Property to gain access to lowland areas adjacent to the Property for purposes of implementing remedial actions in those lowland areas as described in the Consent Judgment. Except when necessary to address an imminent threat to human health or the environment, DEQ will use its best efforts to notify the Owner not less than 72 hours before DEQ entry onto the Property. DEQ may enter upon the Property at any time to abate, mitigate, or cure at the expense of the Owner the violation of any condition or restriction contained in this Easement and Equitable Servitudes, provided DEQ first gives written notice of the violation to Owner describing what is necessary to correct the violation and Owner fails to cure the violation within the cure period specified in such notice. Any such entry by DEQ pursuant to this paragraph shall not be deemed a trespass.

5. RELEASE OF RESTRICTIONS

5.1 Owner may request release of any or all of the conditions or restrictions contained in this Easement and Equitable Servitudes by submitting such request to the DEQ in writing with evidence that the conditions or restrictions are no longer necessary to protect human health and the environment. The decision to release any or all of the conditions or restrictions in this Easement and Equitable Servitudes will be within the sole discretion of DEQ.

5.2 Upon a determination pursuant to Subsection 5.1, DEQ will, as appropriate, execute and deliver to Owner a release of specific conditions or restrictions, or a release of this Easement and Equitable Servitudes in its entirety.

6. GENERAL PROVISIONS

6.1 **Notice of Transfer/Change of Use.** Owner must notify DEQ within 10 days after the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of Owner's fee interest in the Property. Such notice must include the full name and address of the Party to whom Owner has transferred an interest in the Property.

6.2 **Zoning Changes.** Owner must notify DEQ no less than 30 days before Owner's petitioning for or filing of any document initiating a rezoning of the Property that would change the base zone of the Property under the Columbia County zoning code or any successor code. As of the date of this Easement and Equitable Servitudes, the base zone of the Property is industrial.

6.3 Reference in Deed. A reference to this EES, including its location in the public records, must be recited in any deed conveying the Property or any portion of the Property. Each condition and restriction contained in this EES runs with the land so burdened until such time as the condition or restriction is removed by written certification from DEQ, recorded in the deed

records of the County in which the Property is located, certifying that the condition or restriction is no longer required to protect human health or the environment.

6.4 Effect of Recording. Upon the recording of this EES, all future Owners are conclusively deemed to have consented and agreed to every condition and restriction contained in this EES, whether or not any reference to this EES is contained in an instrument by which such person or entity occupies or acquires an interest in the Property.

6.6 **Enforcement and Remedies**. Upon any violation of any condition or restriction contained in this EES, the State of Oregon, in addition to the remedies described in Section 4, may enforce this EES as provided in the Consent Judgment or seek available legal or equitable remedies to enforce this EES, including civil penalties as set forth in ORS 465.900.

[Signature page follows.]

IN WITNESS WHEREOF Grantor and Grantee have executed this Easement and Equitable Servitudes as of the date and year first set forth above.

BY SIGNATURE BELOW, THE STATE OF OREGON APPROVES AND ACCEPTS THIS CONVEYANCE PURSUANT TO ORS 93.808.

GRANTOR: Armstrong World Industries, Inc. a Pennsylvania corporation

By: _____ Date: 10-31-19

Mark A. Hershey

Senior Vice President and General Counsel

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF LANCASTER

On this the 31st day of October 2019, before me, Beverly A. Berkheimer, a notary public, Mark A. Hershey personally appeared, and acknowledged himself/herself to be the Senior Vice President and General Counsel of Armstrong World Industries, Inc., a corporation that he as Senior Vice President and General Counsel, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself as Senior Vice President and General Counsel.

In witness whereof, I hereunto set my hand and official seal.

Beverly A Berkheimer

Notary Public

My Commission Expires 11-03-2019

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Beverly A. Berkheimer, Notary Public
Manor Twp., Lancaster County
My Commission Expires Nov. 3, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

GRANTEE: State of Oregon, Department of Environmental Quality

By: _____ Date: 11/8/19

Kevin Parrett, Cleanup Program Manager
Name, Title

STATE OF OREGON)
) ss.
County of Multnomah)

The foregoing instrument is acknowledged before me this 8th day of November, 2019, by Kevin Parrett of the Oregon Department of Environmental Quality, on its behalf.

OFFICIAL STAMP
BRENT J FUNK
NOTARY PUBLIC - OREGON
COMMISSION NO. 957070
MY COMMISSION EXPIRES NOVEMBER 29, 2020

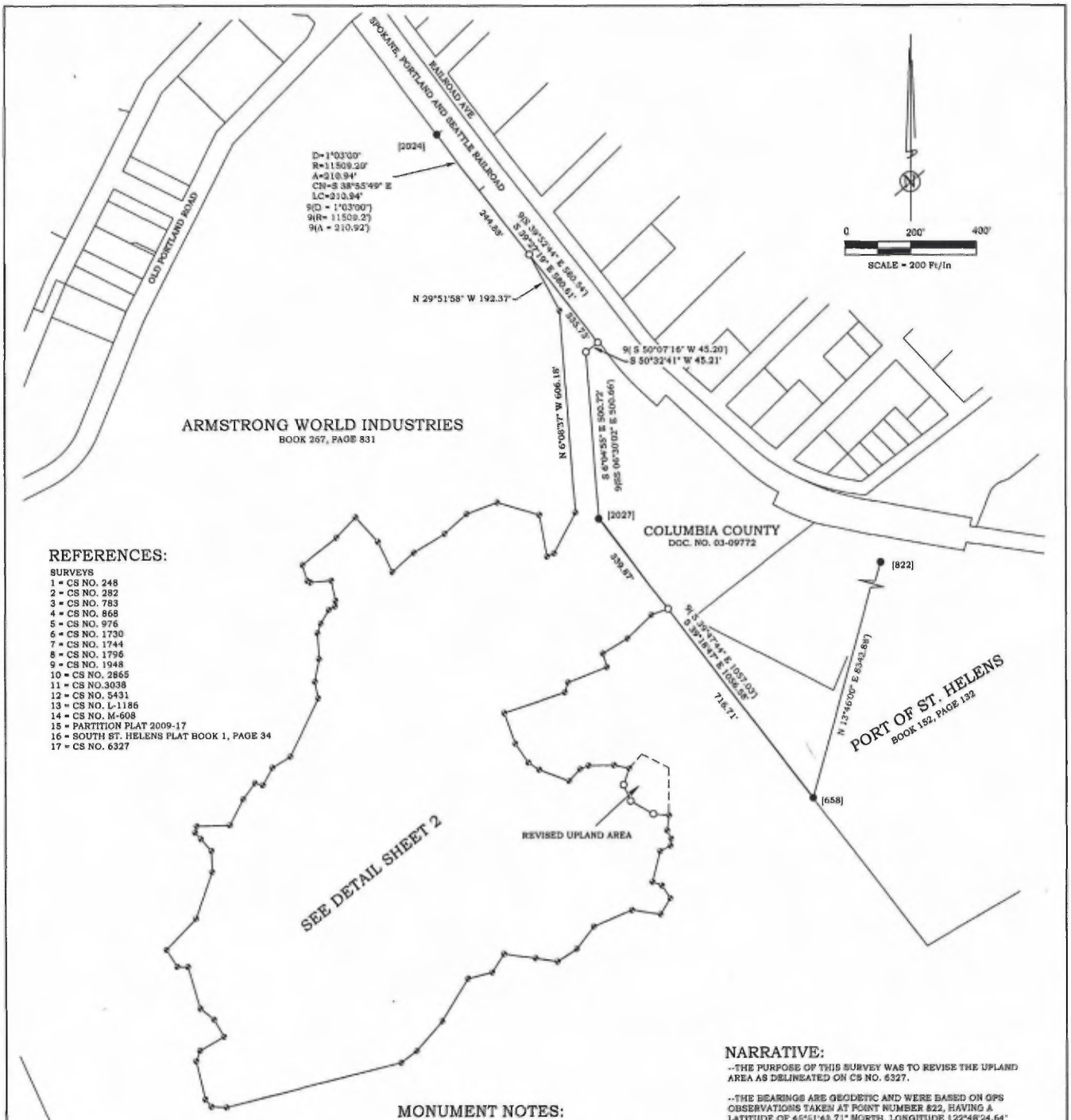
_____
NOTARY PUBLIC FOR OREGON

My commission expires: 11/29/2020

EXHIBIT A

Legal Description of the Property

COLUMBIA COUNTY SURVEYOR
RECEIVED: 03-25-2019
FILED: 04-04-2019
SHEET 1 OF 2 CS# 6504



REFERENCES:

SURVEYS
1 = CS NO. 248
2 = CS NO. 282
3 = CS NO. 783
4 = CS NO. 868
5 = CS NO. 976
6 = CS NO. 1730
7 = CS NO. 1744
8 = CS NO. 1796
9 = CS NO. 1948
10 = CS NO. 2865
11 = CS NO.3038
12 = CS NO. 5431
13 = CS NO. L-1186
14 = CS NO. M-608
15 = PARTITION PLAT 2009-17
16 = SOUTH ST. HELENS PLAT BOOK 1, PAGE 34
17 = CS NO. 6327

LEGEND

●	FOUND MONUMENT AS NOTED
ø	FOUND 5/8" IRON ROD WITH Y.P.C. MARKED "KLS SURVEYING INC" PER CS NO. 6327. NOT RETIED IN THIS SURVEY
○	SET A 5/8" X 30" IRON ROD WITH A YELLOW PLASTIC CAP MARKED "KLS SURVEYING INC."
[x]	MONUMENT POINT NO
( )	RECORD SURVEY DATA
[ ]	RECORD DEED DATA
CS NO.	SURVEY NUMBER, COLUMBIA COUNTY SURVEY RECORDS
Y.P.C.	YELLOW PLASTIC CAP

MONUMENT NOTES:

[658]
FOUND A 4" IRON PIPE FILLED WITH CONCRETE WITH BRASS SCREW IN TOP AS NOTED ON CS NO. 282. (HELD)

[822]
CL INTERSECTION OF ST. HELENS AND 9TH STREET FOUND A 2 1/2" BRASS DISK IN A MONUMENT BOX, ORIGIN UNKNOWN.

[2024]
FOUND A 5/8" IRON ROD WITH A Y.P.C. MARKED "PHIL DEWEY PLS 847" PER CS NO. 1948. (HELD)

[2027]
FOUND A 5/8" IRON ROD WITH A Y.P.C. MARKED "PHIL DEWEY PLS 847" PER CS NO. 1948. (HELD)

NARRATIVE:

--THE PURPOSE OF THIS SURVEY WAS TO REVISE THE UPLAND AREA AS DELINEATED ON CS NO. 6327.

--THE BEARINGS ARE GEODETIC AND WERE BASED ON GPS OBSERVATIONS TAKEN AT POINT NUMBER 822, HAVING A LATITUDE OF 45°51'43.71" NORTH, LONGITUDE 122°48'24.64" WEST. THE CONVERGENCE ANGLE (FROM OREGON STATE PLANE COORDINATE SYSTEM NORTH ZONE) AT SAID POINT IS -01°38'09.5". DISTANCES SHOWN ARE GROUND DISTANCES.

--FOR CONTROL I HELD THE RESOLUTION AND MONUMENTATION PER CS NO. 6327 AND REVISED THE UPLAND BOUNDARY AS SHOWN.

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 19, 1993
DONALD D WALLACE, JR
2601
RENEWAL DATE 6/30/20

K.L.S. SURVEYING INC.
1224 ALDER STREET
VERNONIA, OREGON 97064
(503) 429-6118

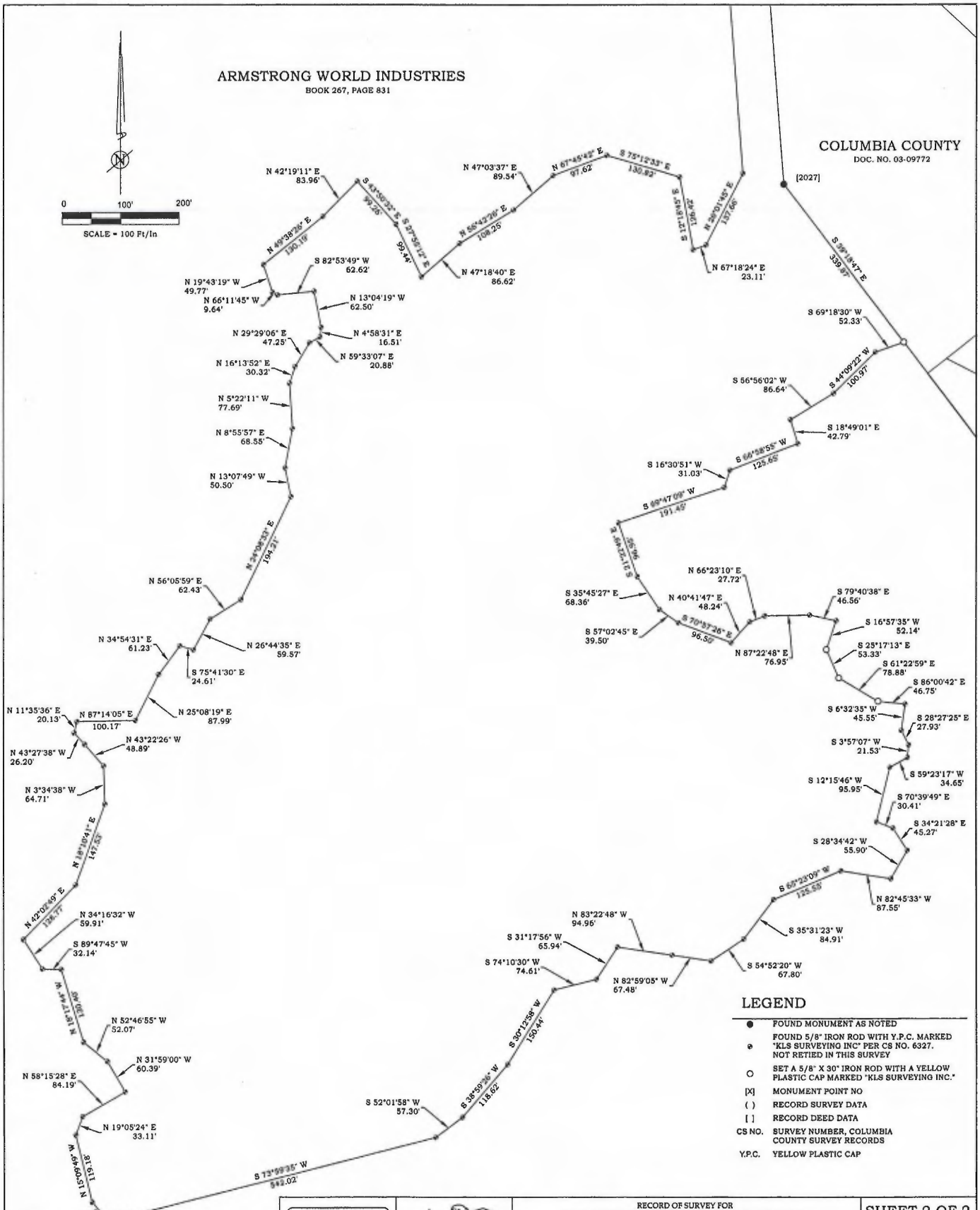
RECORD OF SURVEY FOR
ARMSTRONG WORLD SERVICES
IN THE SE 1/4 OF SECTION 9
T4N, R1W, W.M.,
CITY OF ST. HELENS,
COLUMBIA COUNTY, OREGON
JULY 3, 2018

SHEET 1 OF 2

DRAWN BY: DDW	
FIELD: MDM/SMJ/DJL	
EQUIPMENT: GTP301/HYPER	
JOB No. ST. HELENS	
DRAWING NAME: 17-365A ROS 6	
REVISED: 3-18-2019	

Traverse PC

COLUMBIA COUNTY SURVEYOR
RECEIVED: 03-25-2019
FILED: 04-04-2019
SHEET 2 OF 2 CS# 6504



LEGEND

●	FOUND MONUMENT AS NOTED
⊕	FOUND 5/8" IRON ROD WITH Y.P.C. MARKED "KLS SURVEYING INC" PER CS NO. 6327. NOT RETIED IN THIS SURVEY
○	SET A 5/8" X 30" IRON ROD WITH A YELLOW PLASTIC CAP MARKED "KLS SURVEYING INC."
[X]	MONUMENT POINT NO
( )	RECORD SURVEY DATA
[ ]	RECORD DEED DATA
CS NO.	SURVEY NUMBER, COLUMBIA COUNTY SURVEY RECORDS
Y.P.C.	YELLOW PLASTIC CAP

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 19, 1993
DONALD D WALLACE, JR
2601
RENEWAL DATE 6/30/20

K.L.S. SURVEYING INC.
1224 ALDER STREET
VERNONIA, OREGON 97064
(503) 429-5115

RECORD OF SURVEY FOR
ARMSTRONG WORLD SERVICES
IN THE SE 1/4 OF SECTION 9
T4N, R1W, W.M.,
CITY OF ST. HELENS,
COLUMBIA COUNTY, OREGON
JULY 3, 2018

SHEET 2 OF 2

DRAWN BY: DDW	
FIELD: BWN/JLW	
EQUIPMENT: GTP301/HYPER	
JOB No. ST. HELENS	
DRAWING NAME: 17-365A ROS 82	
REVISED: 3-28-2019	

Traverse PC

KLS Surveying Inc.
1224 Alder Street
Vernonia, OR 97064

Phone: (503) 429-6115
Fax: (866) 297-1402
Email: dwallace_kls@msn.com

Exhibit A

Upland Operable Unit

A portion of that tract of land conveyed to Armstrong World Industries Inc. in Book 267, Page 931, Columbia County Deed Records in the West half of Section 9, Township 4 North, Range 1 West of the Willamette Meridian, Columbia County, Oregon being more particularly described as follows:

- Beginning at a point a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC" at the most Northerly corner of Parcel 1 of that tract of land conveyed to Columbia County in Document No. 2003-09772, Columbia County deed records, said point being on the Southwesterly line of the railroad right of way conveyed to Spokane, Portland and Seattle Railway Company in deed book 54, page 265, Columbia County Deed records;
- thence South 50°32'41" West along the Westerly line of said Parcel 1, 45.21 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence continuing along said Westerly line South 6°04'55" East 500.72 feet to a 5/8" iron rod with a yellow plastic cap marked "PHIL DEWEY PLS 847";
- thence continuing along said Westerly line South 39°18'48" East 339.87 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence leaving said Westerly line South 69°18'29" West 52.33 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 44°09'22" West 100.97 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 56°56'02" West 86.64 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 18°49'01" East 42.79 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 66°58'55" West 125.65 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 16°30'50" West 31.03 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 69°47'09" West 191.45 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 21°22'49" East 96.95 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";

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- thence South 35°45'28" East 68.36 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 57°02'45" East 39.50 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 70°57'27" East 96.50 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 40°41'46" East 48.24 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 66°23'09" East 27.72 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 87°22'48" East 76.95 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 79°40'38" East 46.56 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- ***thence South 16°57'34" East 52.14 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 25°17'14" East 53.331 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 61°23'00" East 78.88 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 86°00'43" East 46.75 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 6°32'34" West 45.55 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 28°27'26" East 27.93 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 3°57'07" West 21.53 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 59°23'17" West 34.65 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 12°15'45" West 95.95 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 70°39'49" East 30.41 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";

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- thence South 34°21'29" East 45.27 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 28°34'42" West 55.90 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 82°45'34" West 87.55 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 65°23'09" West 125.55 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 35°31'22" West 84.91 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 54°52'19" West 67.80 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 82°59'05" West 67.48 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 83°22'48" West 94.96 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 31°17'55" West 65.94 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 74°10'30" West 74.61 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 30°12'57" West 150.44 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 38°59'25" West 118.62 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 52°01'58" West 57.30 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 73°59'35" West 542.02 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 88°31'32" West 45.28 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 42°43'37" West 28.16 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 15°09'50" West 119.18 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";

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- thence North 19°05'24" East 33.11 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 58°15'28" East 84.19 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 31°59'01" West 60.39 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 52°46'56" West 52.07 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 18°17'45" West 130.40 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 89°47'45" West 32.14 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 34°16'33" West 59.91 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 42°02'48" East 128.77 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 18°10'41" East 147.53 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- .thence North 3°34'39" West 64.71 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 43°22'26" West 48.89 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 43°27'39" West 26.20 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 11°35'35" East 20.13 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 87°14'05" East 100.17 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 25°08'19" East 87.99 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 34°54'31" East 61.23 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 75°41'30" East 24.61 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";

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- thence North 26°44'34" East 59.57 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 56°05'59" East 62.43 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 24°08'32" East 194.21 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 13°07'49" West 50.50 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 8°55'57" East 68.55 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 5°22'12" West 77.69 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 16°13'52" East 30.32 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 29°29'05" East 47.25 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 59°33'06" East 20.88 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 4°58'30" East 16.51 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 13°04'19" West 62.50 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 82°53'49" West 62.62 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 66°11'45" West 9.64 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 19°43'20" West 49.77 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 49°38'26" East 130.19 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 42°19'10" East 83.96 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 43°50'32" East 99.26 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";

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- thence South 27°55'13" East 99.44 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 47°18'39" East 86.62 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 56°42'25" East 108.25 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 47°03'37" East 89.54 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 67°45'41" East 97.62 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 75°12'34" East 130.82 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence South 12°18'45" East 126.42 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 67°18'24" East 23.11 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 26°01'44" East 137.66 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 06°08'37" West 606.18 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC";
- thence North 29°51'59" West 192.37 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC" on the Southwesterly line of the railroad right of way conveyed to Spokane, Portland and Seattle Railway Company in deed book 54, page 265, Columbia County Deed records;
- thence along said Southwesterly line South 39°27'19" East 335.73 feet to a 5/8" iron rod with a yellow plastic cap marked "KLS SURVEYING INC" at the point of beginning.

Containing 37.91 acres more or less.

The basis of bearings for this description is from County Survey No. 6327.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 19, 1993
DONALD D WALLACE, JR
2601

RENEWAL DATE 6/30/20

EXHIBIT B

ILLUSTRATION OF LOCATION OF PROPERTY


UPLAND OPERABLE UNIT

EXHIBIT C

SOIL CAP SPECIFICATIONS

LEGEND

Completed Remedy

- Gravel/New Asphalt, 8.79 ac.
- Pavement, 8.88 ac.
- Existing Clean Soil Cap, 2.46 ac.
- Limited Access Area, 3.54 ac.

All Other Features

- Restricted Soil Management Area
- Upland Operable Unit

EXHIBIT C

Soil Cap Specifications

St. Helens Fiberboard Plant
St. Helens, Oregon

N

0 80 160 240
Feet

GSI Water Solutions, Inc.

Date: October 1, 2019
Data Sources: Air photo taken August 2019

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ATTACHMENT 2

Inadvertent Discovery Plan for Cultural and Archaeological Resources

DRAFT

Oregon Department of Environmental Quality

Inadvertent Discovery Plan

Former St Helens Fiberboard Facility

Lowland/In-Water Operable Unit Data Gaps Investigation

July 28, 2021

Prepared by:

GSI Water Solutions, Inc.

55 SW Yamhill St., Suite 300, Portland, OR, 97204

HARTCROWSER

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Contents

Figures

Appendix

Abbreviations and Acronyms

CIS	Commission on Indian Services
DEQ	Oregon Department of Environmental Quality
Fir-Tex	Fir-Tex Insulation Board Company
GLO	General Land Office
IDP	Inadvertent Discovery Plan
OU1	Operational Unit 1 (Upland)
OU2	Operational Unit 2 (Lowland)
Project Area	Lowland Operational Unit (OU2)
NAVD 88	North American Vertical Datum of 1988
SHPO	State Historical Preservation Office

SECTION 1: **Introduction**

Cultural resources are extremely important to Tribal nations and to Oregon's sense of identity and history. Tribal cultural resources can include remains of structures, objects used or discarded in everyday activities, past ceremonial artifacts, and burial sites. For Tribes, properties that contain cultural resources are of critical significance and are of great importance to the traditions and identity of Tribes. Cultural resources also include Euro-American development and, as a rule of thumb, may include any item that appears to be older than approximately 50 years. Therefore, it is extremely important that identification and protection of cultural resources be considered carefully in planning for any ground-disturbing activities at a site.

This Inadvertent Discovery Plan (IDP) presents the procedures that should be followed if cultural materials, including human remains, are encountered during ground-disturbing field work at the Lowland/In-Water Operable Unit (OU2) (Project Area) at the former St. Helens Fiberboard facility (Site) in St. Helens, Oregon (Figure 1). Cultural resources are protected under Federal and State laws and their disturbance can result in criminal penalties. This IDP pertains to any workers and companies performing ground-disturbing work at the Site. Topics covered in this IDP include:

- General information about the site and its long cultural history (Sections 2.1 and 2.2);
- Planned project activities which may potentially encounter cultural resources (Section 2.3);
- Cultural resource monitoring requirements during Site work (Section 3.1);
- Examples of potential cultural artifacts and features that might be encountered (Section 3.2);
- Steps to undertake when an inadvertent discovery of a cultural resource, including human remains, occurs (Section 4); and
- Required documentation and confidentiality of discovered cultural resources (Section 5).

Definitions and references are provided in Sections 6 and 7, respectively. Appendix A includes a visual reference guide to archaeological artifacts representative of cultural resources.

SECTION 2: **Background**

2.1 Site and Area Description

The Armstrong World Industries property encompasses approximately 175 acres at 1645 Railroad Avenue in an industrial area in the southern portion of St. Helens, Columbia County, Oregon (Figure 1). It is situated in Sections 9 and 16 of Township 4 North, Range 1 West, Willamette Meridian. The Site is bordered to the northeast by Railroad Avenue and to the northwest by Old Portland Road. McNulty Creek flows through the western portion of the Site and Milton Creek is present along the eastern corner of the Site; both creeks reach Scappoose Bay lying to the south and southeast.

The Site has been divided into two areas or operational units (OUs) as shown on Figure 2: the Upland Operable Unit (OU1) and the Lowland/In-water Operable Unit (OU2). OU1 is approximately 38 acres and is defined as the developed area where manufacturing operations were located and is at an elevation higher than approximately 27 feet North America Vertical Datum of 1988 (NAVD 88). OU1 is situated atop a prominent basalt lobe surrounded on three sides by the lowland areas of Scappoose Bay and the drainages for McNulty Creek and Milton Creek (Oregon Department of Environmental Quality [DEQ] 2018). The basalt is overlain by a thin veneer of predominantly fine-grained alluvial deposits and fill material. OU2 is comprised of the adjacent lowland and in-water areas lower than approximately 27 feet NAVD 88. Riparian areas of OU2 are largely undeveloped and provide abundant and valuable habitat for terrestrial and aquatic ecological species. Wetland habitat is also present within the OU2. At the confluence of McNulty Creek and Scappoose Bay is a network of mudflats and intertidal areas. (Arcadis 2013).

The Project Area for the Armstrong Lowland Operable Unit site is shown on Figure 2. It includes OU2 as well as other areas within the locality of the former facility below 27 feet NAVD 88 (GSI 2013). As such, portions of mudflats of McNulty Creek, the southwest bank of Milton Creek, and Scappoose Bay are included. This IDP will be used during project activities, described below, within the Project Area. There may be instances, however, when sampling may be performed as part of background studies or to delineate the extent of contamination beyond the Project Area; the ICP will also apply to these areas as well.

2.2 Cultural and Historical Setting

The Site and the surrounding area of St. Helens have a long cultural history. The first known inhabitants of the area were the Chinookan peoples, several groups of indigenous people who resided along the Columbia River that spoke the Chinookan language. Chinookan speaking people that are part of federally recognized Tribes include the Yakama Nation, the Confederated Tribes of the Warm Springs Reservation, Confederated Tribes of Grand Ronde, and Confederated Tribes of Siletz Indians (Wikipedia 2020).

Chinookan villages were strategically clustered in favorable areas along the river banks, including throughout the productive riverine zone centering on Sauvie Island (Boyd and Hajda 1987). Several villages were recorded in 1805 and 1806 during the Lewis and Clark Expedition along the Multnomah Channel and Scappoose Bay, including Clan-nar-min-a-mon, Cath-lah-cum-up, Clah-in-na-ta, Cath-lah-nah-qui-ah, and Clackstar (Lewis and Clark 1804-1806). Chinookan villages were occupied primarily in the winter and consisted of 15 to 20 red cedar plankhouses (20 to 60 feet wide and 50 to 150 feet long) that housed 20 or more people of three or four families related through extended kinship (Silverstein 1990, Wikipedia 2020). During warmer weather, the family groups would move independently to other settlements (Boyd and Hajda 1987). Village population estimates given by Lewis and Clark for Lower Sauvie Island range from 150 to 1,200 people (Boyd and Hajda 1987).

The Chinookans practiced a seasonal round of hunting and fishing, as well as gathering of roots, shoots, and berries over the Lower Columbia area, though the variety of fauna and flora varied from area to area (Silverstein 1990). Salmon, particularly chinook in season and coho in the fall, were staples; but sturgeon, eulachon, and small backwater fishes were important as well. Columbia whitetail deer and elk were hunted, and elk products (bone and hides) in particular were used in the material culture. Wapato was harvested from ponds and lakes, camas from wet prairies, and various berries and Oregon oak acorns from dry prairies and open woods. All were dried, variably processed, and stored for winter use. (Oregon Encyclopedia 2020b). Dense patches of wapato cover the lower elevations within the Project Area (Arcadis 2013).

Chinookans' early contact with explorers occurred due to their habitation at the mouth of and along the Columbia River. In 1792, the Chinookans are mentioned during two different ocean-faring expeditions: one by Robert Gray and John Boit, and the other by George Vancouver (Silverstein 1990). In 1805, Lewis and Clark provided extensive accounts of the Chinookans' culture and place names, passing through the vicinity of St. Helens on November 4, 1805, and March 28, 1806 (LewisAndClarkTrail.com 2020). During the summer of 1830 and summers following, Native populations plunged by probably 90 percent due to an epidemic called "fever and ague," which epidemiologically was likely malaria. Almost all villages were depopulated. During Yakima War in 1855, fewer than a hundred survivors were collected on two temporary reserves, at Milton Creek near St. Helens and at Fort Vancouver, before removal to the new reservations at Grand Ronde and Yakama (Oregon Encyclopedia 2020b).

Euro-American settlement in the vicinity of St. Helens occurred in the mid-19th century. Bartholomew White settled in the area in 1844, but Henry Knighton acquired his land in 1847 as part of a 640-acre preemption land claim. Between 1849 and 1851, Knighton had streets and lots of his new town of Plymouth surveyed. The Plymouth post office was established on April 9, 1850. On May 22, 1850, Knighton and L. C. Grey deeded one undivided quarter of a section of land to George H. Ensign of San Francisco, "to lay out a town thereon to be known and styled Casenou." (The Columbia County Historian 2020). This name was for the Chinookan Chief Kiesno who had died in 1848. Chief Kiesno was from the village of Cath-lah-cum-up along the Multnomah Channel before moving to the Columbia River in 1825. As he was connected by intertribal marriage to other groups on the Columbia and Willamette Rivers, he became a high-profile leader of the area in 1830, developing mutual trade relationships with fur trading companies (Oregon Encyclopedia 2020a). On April 9, 1851, however, the court, in appointing judges of election, called the precinct St. Helens after the mountain across the Columbia River (The Columbia County Historian 2020).

The Project Area was part of a larger donation land claim of 640 acres to Thomas H. and Maria Smith (General Land Office [GLO] 1866, 1873). In approximately 1846, Captains Thomas Smith and Nathaniel Crosby founded Milton about a mile and half away at the mouth of Milton Creek. Sawmills were established in the town (The Columbia County Historian 2020). In 1851, Milton was first laid out and the founders offered free lots to settlers who would erect houses and make their homes in Milton. An 1854 map shows a church just east of the Project Area (GLO 1854). On January 16, 1854, when Columbia County was created, the measure located the county seat at Milton. Milton, however, would soon fade away. The town had been sold in 1851 and again in 1854. A flood had washed the community away, and one of the first sawmills had moved about a mile up Milton Creek. On June 7, 1857, the county seat was moved to St. Helens, the Milton precinct was combined with that of St. Helens, and in 1861 the town's water rights were sold to Knighton for running factories and mills (The Columbia County Historian 2020).

Population and industrial growth in St. Helens and the general area would be continue. In 1883, the Northern Pacific Railroad completed a line through St. Helens, and the first passenger train to Portland was run on May 17, 1884 (City of St. Helens 2020, St. Helens Women's Club History 1955). St. Helens was incorporated in 1889. Early industries focused on timber, with sawmills present from the earliest days of St. Helens. St. Helens Pulp and Paper Company began paper-making operations in 1926, later adding plywood;

and St. Helens Wood Products Company manufactured broom handles and other handles, and wooden dowels starting in 1924. Other industries included a rock quarry from 1895 to 1915, and the Pope and Talbot creosote treatment plant in 1913 (St. Helens Women's Club History 1955).

Industrial development of the Site property began in approximately 1928, with the planning for Fir-Tex Insulation Board Company (Fir-Tex 1928). The facility was constructed in the upland portion of the property (in OU1) with a dock extending over OU2 to Scappoose Bay. Early maps show a discharge channel of Milton Creek passing through the east corner of the property (Sanborn 1921), which at some point abandoned (Fir-Tex 1928, 1952). Operations begin in 1930 to produce compressed wood fiber board, some of which was used for the cold storage room at the Benson Hotel in Portland and for Timberline Lodge on Mt. Hood (St. Helens Women's Club History 1955). Dant & Russell acquired Fir-Tex in 1938 but continued operating the facility as Fir-Tex (Arcadis 2013). Throughout this period, the fiberboard plant manufactured sheet products, including wood fiber ceiling board and other building products (Arcadis 2013).

In 1956, Kaiser Gypsum Company purchased the facility and operated the plant until 1978. During this time, the plant produced sheet products from wood fiber and mineral wool, including sheathing, expansion joints, ceiling tiles and panels, mobile home ceiling board, carpet board, and roof insulation. In 1978, Owens Corning Sales, LLC, acquired the plant and manufactured wood fiber and mineral wool sheet products until shutting down in December 1981. In 1987, Armstrong Wood Industries purchased the facility and manufactured ceiling tile until the plant was renovated in 1990 to use recycled newsprint to manufacture ceiling tile. Armstrong Wood Industries ceased operations in May 2018.

2.3 Scope of Project Activities

Project activities planned for the Site will include numerous investigations to fill data gaps, some of which are non-invasive (e.g., surveying, water level monitoring) and others that will involve ground-disturbing investigations. These latter investigations are being performed to further delineate the magnitude and extent of chemical contamination from historical plant operations, understand the contaminant migration pathways, assess potential risks to human health and the environment, and plan for future remedial actions to address contamination posing a risk. Investigations will involve sampling of environmental media, such as surface and subsurface soil and sediment, groundwater, pore water, and plant tissue. These samples will be obtained using various methodology such as surface soil/sediment sampling (e.g., shovel, ponar), incremental surface sampling over discrete areas of the Site (a.k.a. Decision Units), and subsurface coring (e.g., direct-push probes, hand auger, peat borer, vibracore). As these sampling activities are ground-disturbing, there is a potential for encountering cultural and historical resources; this IDP provides the procedures should this occur.

SECTION 3: **Cultural Resource Identification**

As discussed in Section 2.2, the area of St. Helens has a long history of occupation by first the Chinookan peoples and later through Euro-American settlement and development. Therefore, ground-disturbing project activities may possibly encounter cultural and historical materials, including human remains. Monitoring requirements for project activities are discussed below, followed by a non-exclusive list of potential Native American and Euro-American artifacts.

3.1 Monitoring Requirements

Prior to field work, DEQ will consult with the State Historic Preservation Office (SHPO) and appropriate Tribal organizations to notify representatives of planned activities and determine whether a cultural resource monitor will be required to be present during the activities or be available on-call. Based on the long history of occupation in the Site vicinity, it is likely that a cultural resource monitor will be required for any ground-disturbing activities. An archaeological firm will be procured to provide cultural resource monitoring by a professional archaeologist during ground-disturbing activities If an activity is deemed by SHPO and the Tribal organizations to not necessitate that a monitor be present during the activity, the archaeologist will be on-call and field staff will be made aware to inspect environmental media and the work area for cultural materials, including bones, when conducting sampling.

3.2 Artifacts and Features

Cultural resources can come in many forms including both artifacts and features. Human remains may also be found. All these items provide cultural and historical insight to the past for archaeologists and historians and hold significance and importance to the traditions and identity of Tribes. The following lists of items may be encountered at the Site but are by no means inclusive. Appendix A provides a visual reference guide to archaeological artifacts that are representative of cultural and historical resources. If such or similar materials are encountered, work must stop and the steps in Section 4 must be followed. When in doubt, it should be assumed that the material is a cultural resource.

3.2.1 Native American

Native American artifacts may include, but are not limited to, the following items.

- Human remains
- Bones or small pieces of bone
- An accumulation of shells (e.g., middens), burned rocks, or food-related materials
- Flaked stone tools (e.g., arrowheads, knives, scrapers)
- Waste flakes that resulted from the construction of flaked stone tools (a.k.a. “lithic scatter”)
- Ground stone tools such as mortars and pestles
- Layers (strata) of discolored earth resulting from fire hearths. These may be black, red, or mottled brown and often contain discolored cracked rocks or dark soil with broken shells.
- Structural remains, such as wooden beams, post holes, and fish weirs

3.2.2 Euro-American

Euro-American artifacts may include, but are not limited to, the following items.

- Glass (e.g., bottles, vessels, windows, marbles, beads)
- Ceramic (e.g., dinnerware, vessels)
- Metal (e.g., nails, drink/food cans, tobacco tins, industrial parts)
- Building materials (e.g., bricks, shingles)
- Building remains (e.g., foundations, architectural components)
- Old wooden posts, pilings, or planks (these may be encountered above or below water)
- Remains of ships or sea-going vessels, marine hardware, etc.
- Old farm equipment may indicate historic resources in the area.
- Even what looks to be old garbage could very well be an important archaeological resource.

SECTION 4: **Incidental Discovery Procedures**

Project activities may uncover previously unidentified Native American or Euro-American artifacts. During field work, environmental media will be inspected for cultural resources. If any potential cultural or historical artifacts, and particularly human remains, are discovered by any member of the field team during investigation activities, the following steps must be taken.

Step 1: Stop Work

If any field team member believes that they have uncovered a cultural resource or potential human remains that requires examination by an archaeologist at any point in the project, all work at and adjacent to the discovery must stop immediately and the area secured and protected. A 30-meter (100-foot) buffer will be placed around the discovery with no further work proceeding within this area.

- Potential Human Remains. If bone material is observed in a sample and is clearly not fish or bird bone, it could represent human remains and shall be returned to its original location. Further evaluation by archaeologist with osteological training will be necessary to determine if the bone is animal or human. Until such time, it shall be assumed that the discovery is potential human remains. Do not disturb them in any way. Cover remains from view and protect them from damage or exposure (e.g., tarp), restrict access, and leave in place. Do not call 911. Do not speak with the news media. Do not take photographs. The location shall remain secured, and work will not resume in the area of discovery until all parties involved agree upon a course of action. Always treat potential human remains with dignity and respect.
- Artifacts. If a discrete item is discovered during sampling activities, the item will be carefully placed into a plastic Ziplock bag and stored in a secure location until evaluated by the archaeological monitor. The sampling location will be secured, flagged, and geographic coordinates taken using a survey-grade, global positional system unit. If found on land, exploration holes will be left open so that the item can be reburied where it was found after examination by the archaeological monitor. Note that there are restrictions regarding collecting archaeological objects; therefore, the item(s) will only be retained if collected from a submerged location.

Step 2: Notifications

Notifications will begin immediately after discovery. If an archaeologist is providing cultural resource monitoring, he/she shall examine the discovery to make a determination if it is culturally or historically significant requiring further notification and documentation. For situations where the archaeologist is on-call, the person making the discovery shall notify the GSI Project Manager (person and number below), who will in turn notify archaeologist monitor to examine the discovery (initial review of an artifact, not human remains, and its location may be completed through emailed photographs, with follow-up physical inspection conducted if deemed necessary by the archaeologist).

If the archaeologist determines that the discovery requires further notification and documentation, the GSI Project Manager (or assignee) will be notified who in turn will notify the DEQ Project Manager, DEQ Tribal Liaison, SHPO, and landowner (see below). The DEQ Project Manager will notify the appropriate Tribes per notification policies with the Tribes. If human remains and/or funerary objects are encountered, the GSI Project Manager (or assignee) will also notify the Oregon State Police (do not call 911), Commission on Indian Services (CIS), SHPO, and the appropriate Tribes (through the DEQ Project Manager) in accordance with Oregon state laws and regulations (ORS 97.740 - 97.760; State Executive Order Number 96-30).

Contact information is as follows.

GSI Project Manager: Andrew Davidson (773-817-4229)

DEQ Project Manager: Sarah Greenfield (503-229-8155) or Katie Daugherty (503-229-6748)

DEQ Tribal Liaison: Annalisa Bhatia (503-734-4080)

SHPO: Dennis Griffin (503-986-0674) or John Pouley (503-986-0675)

Landowner Representative: _____

Oregon State Police: Sgt. Chris Allori (503-731-4717)

CIS: Mitch Sparks (503- 986-1067)

Appropriate Tribes: Those designated by CIS and DEQ Tribal Liaison.

Step 3: Work Continuance Protocols

After an inadvertent discovery and appropriate notifications have been made, the archaeologist shall assess whether the discovery is potentially significant, if an adverse effect will result from the proposed work, and if avoidance is not possible, recommend additional steps to mitigate the effect. This assessment and any recommendations must be sent to SHPO for concurrence prior to commencing ground-disturbing activities (SHPO 2016). Based on this preliminary assessment, the archaeologist can specify areas of the work area for 1) continued sampling; 2) close monitoring, or 3) "no work zones." These areas will be identified to the GSI and DEQ Project Managers, verified in consultation with SHPO, and clearly demarcated in the field, as needed. Tribal consultation may also be needed depending on the significance or sensitivity of the discovery. The following presents the work continue protocols.

- If deemed appropriate by the archaeologist and DEQ Project Manager, sampling activities may recommence in a different area of the Site (greater than 30 meters away from a discovery) while awaiting the results of the IDP consultations.
- As designated by the archaeologist and after applicable IDP consultations have been completed, sampling activities may recommence under close monitoring at or adjacent to the point of discovery, such as in the case of where isolated artifacts (designated by SHPO as less than 10 artifacts of non-diagnostic quality) are recovered.
- If the discovery is not an isolated find, proper archaeological inspections and possible excavations will need to occur in accordance SHPO guidelines (SHPO 2016). Sampling in the immediate area (within 10 meters or 33 feet) of the inadvertent discovery can proceed only after the proper archaeological inspections/excavations have occurred and environmental clearances are obtained. This requires close coordination with SHPO and the Tribes.
- If human remains and/or funerary objects are encountered, work shall not continue in this area until an archaeological investigation has been completed, and SHPO and the appropriate Tribes approve that work can continue. Sampling can continue elsewhere but not within 30 meters (100 feet) of the remains.

SECTION 5: **Documentation and Confidentiality Requirements**

Archaeological discoveries will be documented and reported to SHPO, any potentially affected Tribes, and other potential federal agencies. Artifacts collected from samples will be analyzed, catalogued, and temporarily curated. Ultimate disposition of cultural materials will be determined in consultation with SHPO, or any other applicable Tribes and agencies. All archaeologically sensitive prehistoric or historic cultural material discovered will be recorded by a professional archaeologist on a form using standard techniques. Site overviews, features, and artifacts will be photographed; and stratigraphic profiles and soil/sediment descriptions will be prepared for subsurface exposures. Discovery locations will be documented on scaled site plans and site location maps.

The National Historic Preservation Act, as amended (Section 304 [16 U.S.C. 470s-3]), and Oregon State law (ORS 192.501(11)) establishes that the location of archaeological sites, both on land and underwater, shall be confidential to protect fragile, vulnerable, or threatened archaeological sites. All persons involved with investigations for the Lowland Operable Unit at the Armstrong World Industries Site shall make their best efforts, in accordance with federal and state law, to ensure that the discovery is kept confidential. The media, any third-party member, or members of the public are not to be contacted or have information regarding the discovery, and any public or media inquiry is to be reported to the DEQ. Prior to any release, the DEQ, SHPO, and Tribes shall concur on the amount of information, if any, to be released to the public.

SECTION 6: **Definitions**

Definitions used here are adopted from ORS 358.905 except as noted:

- "Archaeological object" means an object that:
    - Is at least 75 years old;
    - Is part of the physical record of an indigenous or other culture found in the state or waters of the state: and
    - Is material remains of past human life or activity that are of archaeological significance including, but not limited to, monuments, symbols, tools, facilities, technological by-products and dietary by-products.
- "Archaeological site" means a geographic locality in Oregon, including but not limited to submerged and submersible lands and the bed of the sea within the state's jurisdiction. Examples of archaeological sites include but are not limited to shipwrecks, lithic quarries, house pit villages, camps, burials, lithic scatters, homesteads, and townsites.
- "Feature" means a non-moveable/nonportable element of an archaeological site. A feature is any separate archaeological unit that is not recorded as a structure, a layer, or an isolated artifact; examples include a wall, hearth, storage pit, or burial area (https://archaeologywordsmith.com/search.php?q=Feature).
- "Funerary objects" means any artifacts or objects that, as part of a death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later.
- "Isolated Find" means an artifact that has been lost or discarded; there is no associated site or feature to provide important information about some past human activity. In Oregon, an isolated find is defined as nine or less artifacts (SHPO 2016).
- "Diagnostic" means an item that is indicative of a particular time period and/or cultural group (http://www.wvculture.org/shpo/glossary.html). Conversely, "non-diagnostic" means that the particular time period for the artifact is unknown
- "Professional archaeologist" means a person who has extensive formal training and experience in systematic, scientific archaeology (ORS 72.740)

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ATTACHMENT 3

Upland Cap Inspection Form

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UPLAND CAP INSPECTION FORM

Use this inspection form to document cap inspections. If unacceptable conditions are observed, complete an additional form immediately after repairs are completed.

Inspection Date: _____ Inspected By: Name:_____

Company:_____

Address:_____

Phone:_____

Email:_____

Cap Inspection Area 1 (see Figure 9):

1. *Soil and Gravel Cap* – Observe soil and gravel cap surface for ruts, potholes, subsidence, hydraulic erosion or heaving, unauthorized excavation, and other damage.

Is soil cap in acceptable condition? ☐ YES ☐ NO

If so, attach photographs documenting acceptable conditions. ☐

If no, attach photographs ☐ and describe unacceptable condition:

Location: _____

Condition: _____

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Describe any actions taken or repairs to soil and gravel cap conducted since previous inspection:

_____

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_____

All repairs adequate? ☐ YES ☐ NO — Photograph of repair attached

2. *Asphalt and Concrete Pavement* – Observe asphalt and concrete paving for unauthorized excavation and other damage.

Does pavement maintain a protective barrier for underlying soils? ☐ YES ☐ NO

If so, attach photographs documenting acceptable conditions. ☐

If no, attach photographs ☐ and describe unacceptable condition:

Location: _____

Condition: _____

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Describe any actions taken or repairs to pavement conducted since previous inspection:

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All repairs adequate? ☐ YES ☐ NO — Photograph of repair attached

3. *Limited Access Areas* – Observe and inspect any limited access areas as depicted on Figures 7 and 8 in SMP.
Does use of limited access area appear to have changed since last inspection? ☐ YES ☐ NO

If no, attach photographs documenting acceptable low-use conditions and stable soils. ☐

If so, attach photographs ☐ and describe change in conditions:

Location: _____

Condition: _____

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Describe any actions taken within limited-access areas since previous inspection:

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Have actions helped maintain low-use, stable conditions? ☐ YES ☐ NO — Photograph of action area attached.

Additional Notes: _____

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Signed: _____ Date: _____

Cap Inspection Area 2 (see Figure 9):

1. *Soil and Gravel Cap* – Observe soil and gravel cap surface for ruts, potholes, subsidence, hydraulic erosion or heaving, unauthorized excavation, and other damage.

Is soil cap in acceptable condition? ☐ YES ☐ NO

If so, attach photographs documenting acceptable conditions. ☐

If no, attach photographs ☐ and describe unacceptable condition:

Location: _____

Condition: _____

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Describe any actions taken or repairs to soil and gravel cap conducted since previous inspection:

_____

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_____

All repairs adequate? ☐ YES ☐ NO — Photograph of repair attached.

2. *Asphalt and Concrete Pavement* – Observe asphalt and concrete paving for unauthorized excavation and other damage.

Does pavement maintain a protective barrier for underlying soils? ☐ YES ☐ NO

If so, attach photographs documenting acceptable conditions. ☐

If no, attach photographs ☐ and describe unacceptable condition:

Location: _____

Condition: _____

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Describe any actions taken or repairs to pavement conducted since previous inspection:

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All repairs adequate? ☐ YES ☐ NO — Photograph of repair attached.

3. *Limited Access Areas* – Observe and inspect any limited access areas as depicted on Figures 7 and 8 in SMP.
Does use of limited access area appear to have changed since last inspection? ☐ YES ☐ NO

If no, attach photographs documenting acceptable low-use conditions and stable soils. ☐

If so, attach photographs ☐ and describe change in conditions:

Location: _____

Condition: _____

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Describe any actions taken within limited-access areas since previous inspection:

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Have actions helped maintain low-use, stable conditions? ☐ YES ☐ NO — Photograph of action area attached.

Additional Notes: _____

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Signed: _____ Date: _____

Cap Inspection Area 3 (see Figure 9):

1. *Soil and Gravel Cap* – Observe soil and gravel cap surface for ruts, potholes, subsidence, hydraulic erosion or heaving, unauthorized excavation, and other damage.

Is soil cap in acceptable condition? ☐ YES ☐ NO

If so, attach photographs documenting acceptable conditions. ☐

If no, attach photographs ☐ and describe unacceptable condition:

Location: _____

Condition: _____

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Describe any actions taken or repairs to soil and gravel cap conducted since previous inspection:

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All repairs adequate? ☐ YES ☐ NO — Photograph of repair attached.

2. *Asphalt and Concrete Pavement* – Observe asphalt and concrete paving for unauthorized excavation and other damage.

Does pavement maintain a protective barrier for underlying soils? ☐ YES ☐ NO

If so, attach photographs documenting acceptable conditions. ☐

If no, attach photographs ☐ and describe unacceptable condition:

Location: _____

Condition: _____

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Describe any actions taken or repairs to pavement conducted since previous inspection:

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All repairs adequate? ☐ YES ☐ NO — Photograph of repair attached.

3. *Limited Access Areas* – Observe and inspect any limited access areas as depicted on Figures 7 and 8 in SMP.

Does use of limited access area appear to have changed since last inspection? ☐ YES ☐ NO

If no, attach photographs documenting acceptable low-use conditions and stable soils. ☐

If so, attach photographs ☐ and describe change in conditions:

Location: _____

Condition: _____

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Describe any actions taken within limited-access areas since previous inspection:

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Have actions helped maintain low-use, stable conditions? ☐ YES ☐ NO — Photograph of action area attached.

Additional Notes: _____

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Signed: _____ Date: _____

ATTACHMENT 4

Perimeter Security Inspection Form

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PERIMETER SECURITY INSPECTION FORM

Use this inspection form to document perimeter security inspections. If unacceptable conditions are observed, complete an additional form immediately after repairs or modifications are completed.

Inspection Date: _____ Inspected By: Name: _____

Company: _____

Address: _____

Phone: _____

Email: _____

1. *Existing Fencing* – Observe existing integrity of fencing for signs of damage including storm damage, vehicle damage, tree falling on fence, vandalism, etc.

Is facility fencing in acceptable condition? ☐ YES ☐ NO

If so, attach photographs documenting acceptable conditions. ☐

If no, attach photographs ☐ and describe unacceptable conditions:

Location: _____

Condition: _____

_____

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Describe any repairs to fencing conducted since previous inspection:

_____

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All repairs adequate? ☐ YES ☐ NO — Photograph of repair attached.

2. *Signage* – For areas where fencing is not present, observe posted signage for damage.

Is signage present and does it appear in acceptable condition? ☐ YES ☐ NO

If so, attach photographs (if any) documenting acceptable conditions. ☐

If no, attach photograph ☐ and describe unacceptable condition:

Location: _____

Condition: _____

_____

_____

Describe any repairs to signage conducted since previous inspection:

_____

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All repairs adequate? ☐ YES ☐ NO — Photograph of repair attached.

3. *Unauthorized Entry*– Monitor perimeter and Upland Operable Unit for signs of unauthorized entry.

Are signs of unauthorized entry present? ☐ YES ☐ NO

If so, attach photographs (if any) and describe evidence of unauthorized entry. ☐

Location: _____

Condition: _____

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Describe any additional actions implemented to prevent unauthorized entry:

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Do actions appear adequate? ☐ YES ☐ NO — Photograph of repair attached.

Additional Notes: _____

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Signed: _____ Date: _____