# *Habitat Management Plan*

*PREPARED FOR:*

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601 Union Street, Suite 3599
Seattle, Washington 98101

*PROJECT:*

**Six Kilns Distribution Center**
Sumner, Washington
H-2012-14

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*DATE:* March 21, 2014

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# 1.0 INTRODUCTION

The purpose of this habitat management plan is to identify impacts of the proposed Six Kilns Distribution Center on (a) federally or state-listed fish and wildlife species and their critical habitats, and (b) state candidate or monitor species or federal candidate species. This plan is a revision to the Revised Habitat Management Plan dated March 24, 2013. Habitat management plans are required by the City of Sumner (Sumner) for proposed development activities within 1,000 feet of the White River which is a documented habitat for threatened, endangered, or sensitive fish and wildlife species. The site and surrounding area were evaluated for the presence of fish and wildlife habitat and species. The proposed action is to construct one 330,400 SF industrial warehouse building on a 24.45 acre site. The Sumner Shoreline Master Program Chapter 6 and the Sumner Municipal Code 16.56.080 requires measures to preserve existing habitats, and restore habitats that were degraded prior to the proposed land use activity. The project proposes to enhance the onsite degraded portion of the buffer with native trees and shrubs.

In 2009, Greenwater, LLC and the City of Sumner entered into a Development Agreement that contemplates this proposed development of the site. See Pierce County AFN No. 200906250584. Pursuant to the Development Agreement, the permits for this development are vested to the development regulations in effect at the time of mutual approval/execution of the Development Agreement, February 9, 2009.

## 1.1 Site Location and Description

The Six Kilns site is comprised of three parcels (0420014-006, -061, and -062) totaling approximately 24.45 acres, located at 14218 Stewart Road in the Sumner, Washington (Section 01, Township 20, Range 04, W.M.). The project site is located in the White River valley and contains fill pads, a Category III wetland and the White River in the southern portion of the site and the recently constructed Stewart Creek, a Type F stream, along the eastern of boundary of the site. Generally the site is relatively flat with depressions where the wetland and Stewart Creek are located. A sewage lift station and easement is located northwest of the wetland onsite. North of the site is Stewart Road, south is the White River, west of the site are storm ponds and industrial development and east of the site is the decommissioned Sumner Meadows Golf Course property (Figure 1).

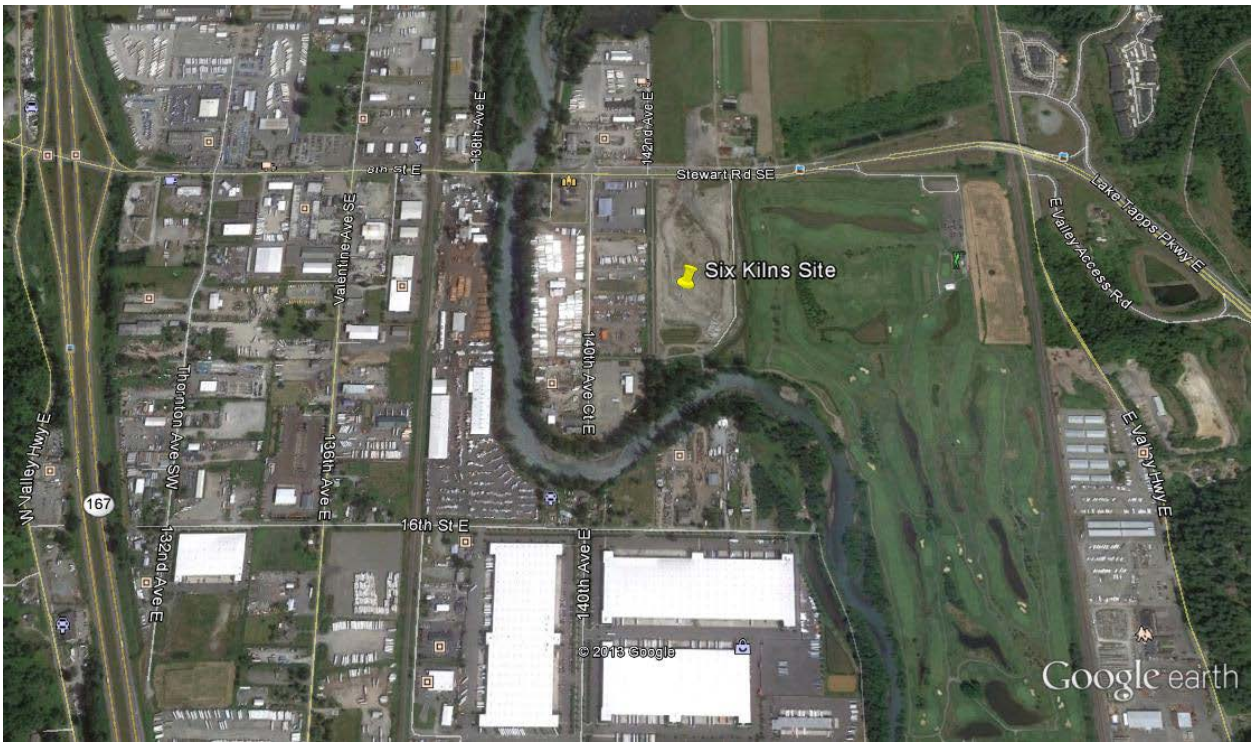



Figure 1: Vicinity Map

The applicant proposes to construct one 330,400 SF industrial warehouse building on a 24.45 acre site. Improvements will include associated parking and landscaping. The proposal will convert existing compacted fill pads currently containing grasses and weeds to impervious surfaces and landscaping. The 50 foot wetland buffer, Stewart Creek easement, 100 foot shoreline buffer and 100 year White River floodplain will not be altered by the proposed development. Portions of the wetland buffer and 100 foot shoreline buffer that are degraded will be enhanced with native vegetation.

Stormwater from the proposed development will be treated onsite consistent with Sumner stormwater regulations. Due to the proximity of the White River to the site, stormwater detention is not expected to be required prior to discharge to the river.

## 2.0 NOAA FISHERIES BIOLOGICAL OPINION REGARDING THE NATIONAL FLOOD INSURANCE PROGRAM IN THE PUGET SOUND REGION

In September 2008, NOAA Fisheries, acting pursuant to the Endangered Species Act, issued a Biological Opinion to the Federal Emergency Management Agency (FEMA) regarding operation of the National Flood Insurance Program (NFIP) in the Puget Sound Region (NFIP BiOp). The NFIP BiOp concludes that FEMA's existing minimum standards for floodplain development, 44 CFR §60.3, do not adequately protect endangered salmon species and their critical habitat from adverse modifications. Based on the NFIP BiOp, FEMA has directed local jurisdictions to review their local development regulations and ensure that those regulations are adequate to ensure that development within the 100-year floodplain will not adversely affect endangered species or their habitat.

In February 2012, the City of Sumner requested confirmation from FEMA and NOAA Fisheries (aka NMFS) that the existing development regulations included in the City's Code are adequate to satisfy the NFIP BiOp. In 2003, as part of a prior ESA Section 7 consultation regarding the SR 167: North Sumner Interchange, the City updated its development regulations to include new habitat assessment and habitat management plan requirements, including revisions to Chapter 16.56 SMC. By letter dated February 29, 2012, FEMA confirmed that by applying those habitat regulations to all development within the floodplain throughout the City, the City would satisfy any obligation that it might have related to the NFIP BiOp. Consequently, by preparing this Habitat Management Plan, Six Kilns has satisfied the NFIP BiOp.

# 3.0 DOCUMENT REVIEW

A review of readily available documents was conducted to characterize the site and prior to the site visit. This includes information from the U.S. Fish and Wildlife (USFWS 2013) and National Marine Fisheries Service (NMFS 2013) databases on listed and proposed listed species, and the Washington Department of Fish and Wildlife (WDFW 2013) Priority Habitats and Species (PHS) and SalmonScape databases.

## 3.1 USFWS and NMFS Listed Species

The USFWS (2014) species list for Pierce County includes the bull trout, Canada lynx, gray wolf, grizzly bear, marbled murrelet, northern spotted owl, and water howellia, historic occurrences of golden paintbrush and marsh sandwort, as well as designated critical habitat for bull trout, marbled murrelet, and the northern spotted owl. The NMFS (2013) list includes the Puget Sound distinct population segment (DPS) of steelhead, and the Puget Sound evolutionarily significant unit (ESU) of Chinook, as well as designated critical habitat for steelhead.

## 3.2 DNR and Fish and Wildlife Database Reviews

According to the Washington State DNR, Natural Heritage Information System website, no rare plants or high quality ecosystems are located in the specific township range and sections of the proposed project (Section 01, Township 20, Range 04, W.M.).

According to the Priority Habitat and Species Database, there are no priority wildlife heritage points within 1 mile of the site (WDFW, 2014). The Priority Habitat and Species Database (WDFW, 2014) identifies Stewart Creek along the eastern boundary of the site which is listed as containing resident cutthroat, fall Chinook, Coho salmon, and winter steelhead. The White River is listed as containing resident cutthroat, fall and spring Chinook, chum, Coho salmon, dolly varden/bull trout, pink salmon, sockeye salmon, and winter steelhead. Puget Sound Chinook, Steelhead, and dolly varden/bull trout are State Candidate and Federal Threatened species. Coho salmon are a State Candidate and Federal Species of Concern.

## 3.3 Salmonscape Stream Map

The Washington State Department of Fish and Wildlife Salmonscape Version 4 Map shows Stewart Creek, which has since been relocated along the east boundary of the site, the White River south of the site and a wetland south of the site. Salmonscape indicates a partial barrier between the White River and Stewart Creek which has since been replaced with a fish passable box culvert. Information from the Salmonscape website regarding fish use in the White River and Stewart Creek is provided in Table 1.

| Species | White River | Stewart Creek | Stock Status (most current year) | Stock Original | Production Type |
|---|---|---|---|---|---|
| Bull Trout/Dolly Varden | presence documented | | unknown 1998 | native | natural |
| Fall Chinook | presence documented | presence documented | unknown 2002 | unknown | composite |
| Spring Chinook | Rearing | Presence documented | critical 2002 | native | composite |
| Summer Chinook | Not listed | | | | |
| Coho | Spawning | presence documented | healthy 2002 | mixed | composite |
| Sumner Chum | Not listed | | | | |
| Fall Chum | Spawning | | | | |
| Winter Chum | Not listed | | | | |
| Pink (odd year) | presence documented | | depressed 2002 | native | natural |
| Sockeye | presence documented | | | | |
| Summer Steelhead | Not listed | | | | |
| Winter Steelhead | Spawning | presence documented | depressed 2002 | native | natural |

Table 1: Summary of Salmonscape Fish Data

### 3.4 Widener & Associates Wetland Delineation and Mitigation Plan

In January 25, 2007, Widener & Associates completed a Wetland Investigation and Delineation report for the subject site. The 2007 wetland delineation map shows Wetland V in the same location and condition as it appeared during my site review on January 7, 2013 and as depicted on the AHBL site plan in Appendix A. A wetland was depicted on the east portion of the site and a stream channel on the western portion of the site that has since undergone mitigation. In the November 9, 2007 Mitigation Plan the western stream was moved along the eastern boundary and the wetlands and relocated stream (Stewart Creek) were enhanced. A fish passable box culvert was also constructed at the confluence of Stewart Creek and the White River. The City of Sumner has an easement over this portion of the site which contains the mitigation area including the required buffers.

### 3.5 1987 FEMA FIRM Map

The August 1987 FEM FIRM Map indicates the location of 100 year floodplain on portions of the site; however, most of this floodplain was filled in the past under fill and grade permits issued by the City of Sumner. According to AHBL, LOMAR map revisions are approved. The floodway boundary corresponds with the ordinary high water mark along the southern boundary of the subject property.

## 4.0 EXISTING CONDITIONS

Several site visits were completed by Theresa Dusek in 2009 and on January 7, 2013 to evaluate the site and surrounding area within 200 feet of the site for wetlands, and 1,000 feet for fish and wildlife habitat areas as required by the City of Sumner. Existing hydrology, downstream drainage conditions, and river conditions as they relate to this project and surrounding area were also observed.

## 4.1 Topography

The topography of project site and surrounding areas have been highly manipulated by (a) placement of fill in accordance with fill and grade permits on and surrounding the site, (b) historic agricultural activities including plowing, placement and maintenance of drain tiles, and filling and excavation of agricultural ditches, (c) construction of the Stewart Creek mitigation projects in the eastern easement of the property, (d) construction of Stewart Road north of the property, (e) construction of a levee between the onsite wetland and the White River, (f) construction of historic and recent culverts, and (g) construction of a sewer lift station near the southwest portion of the site. The site is generally flat with a slight slope to the southeast toward the White River. Depressions are located where the onsite wetland is located and in the Stewart Creek easement.

## 4.2 Fauna

Squirrels, crows, black-capped chickadees, marsh wrens, Steller's jays, towhees, several species of songbirds, a hawk, a great blue heron, and deer have been observed on or flying over the site. Evidence of various animal species on the site has also been noted. Rodent holes and coyote scat were observed throughout the site. No animal species listed federally or by the state as threatened or endangered have been observed on the site. The White River located adjacent and south of the site contains Chinook and steelhead, which are within regulated distances of the site. Although fish were not observed during the site visit Stewart Creek located in the stream easement on the east portion of the site is documented to contain resident cutthroat, fall Chinook, coho salmon, and winter steelhead. The White River is documented as containing resident cutthroat, fall and spring Chinook, chum, coho salmon, dolly varden/bull trout, pink salmon, sockeye salmon, and winter steelhead. Puget Sound Chinook, Steelhead, and dolly varden/bull trout are State Candidate and Federal Threatened species. Coho salmon are a State Candidate and Federal Species of Concern.

## 4.3 Vegetation

The vegetation community within the wetland is dominated by black cottonwood (*Populus balsamifera*) (FAC), red alder (*Alnus rubra*) (FAC), Pacific willow (*Salix lasiandra*) (FACW), Sitka willow (*Salix sitchensis*) (FACW), and reed canarygrass (*Phalaris arundinacea*) (FACW). The upland habitats on the site are comprised of (a) fill pads, and (b) cottonwood, red alder, snowberry, sword fern, dewberry, blackberry, elderberry, and Indian plum along the edge of wetland and within the riparian corridor of the White River. The Stewart Creek easement area is dominated by Pacific and Sitka willow, western red cedar, red osier dogwood, and herbaceous grasses, sedges and rushes. Plant species listed federally or by the state as threatened or endangered have not been observed on the site.

## 4.4 Wetland

The site contains one wetland in the southwest corner of the site between the access road and White River levee berm. The wetland is fully described in the Widener & Associates Wetland Investigation and Delineation Report dated January 25, 2007, and illustrated on the site plan. The conditions described in the Widner report were unchanged based on my review of the site, The wetland outlets through a bee hive overflow system and a 24 inch culvert near the intersection of Stewart Creek and the White River. The wetland is 0.27 acre, is a Depressional, Palustrine Forested, Seasonally Flooded system. The wetland is a Category III system with a code required (SMC 16.16.150) 50 foot buffer. The wetland and associated buffer are not proposed to be impacted; however, the degraded condition of the buffer will be restored.

An additional wetland is located along the Stewart Creek corridor as designed in the Widener & Associates Wetland Mitigation Plan dated November 9, 2007. The Stewart Creek easement contains the creek, wetland and associated variable width buffer. The Stewart Creek Easement is protected and will not be impacted by the proposed project.

## 4.5 Streams

Stewart Creek is located in the easement along the eastern portion of the site. The creek enters the White River in the southeast corner of the site. Stewart Creek is a Type F (fish bearing stream) listed by Fish and Wildlife as containing resident cutthroat, fall Chinook, Coho salmon, and winter steelhead. The stream corridor as designed and constructed is described in the Widener & Associates Wetland Mitigation Plan, and Stream Relocation Report and Habitat Management Plan both dated November 2007. In August 2011, the City of Sumner and the property owner completed replacement of an onsite damaged 24 inch culvert at the intersection of Stewart Creek and the White River. It was replaced with a 12 foot by 12 foot box culvert to improve fish passage and surface water flows. The property owner funded approximately 80 percent of the culvert replacement which also removed fill material.

The White River is located adjacent to the south boundary of the site. The White River is listed by Fish and Wildlife as containing resident cutthroat, fall and spring Chinook, chum, Coho salmon, dolly varden/bull trout, pink salmon, sockeye salmon, and winter steelhead. The White River is a Type S stream and a Shoreline of Statewide Significance. This segment of the White River's shorelands is designated as Urban Conservancy and has a 100 foot shoreline buffer. The river and setback are not proposed to be impacted.

A Special Flood Hazard Area (100 year floodplain) extends north from the White River onto a portion of the site. Most of the floodplain was filled in the past under fill and grade permits issued by the City of Sumner. According to AHBL, LOMAR map revisions have been approved and 132,000 square feet of the 100 year floodplain will be impacted by placement of 610 cubic yards of fill for the project proposal. According to Section 5.4 of the Developers Agreement which applies to the site no compensatory floodplain storage is required for floodplain fill. The Developer Agreement states the following: Consistent with SMC15.52 and 15.68 the Developer shall not be required to provide compensatory storage for placing fill on the South Property. In addition, the property owner funded approximately 80 percent of the Stewart Creek culvert replacement which also removed fill material.

The habitat existing functions of the stream corridors are described below.

### 4.5.1 Stormwater Quality and Quantity

Currently, stormwater runoff from the site is controlled by a temporary sedimentation control plan approved by regulatory agencies for the past filling on the site. Runoff from the site flows generally to the west into storm ponds. The southern portion of the site slopes to the southeast and enters Stewart Creek and then enters the White River. Stormwater from the proposed development will be treated consistent with Sumner stormwater regulations. Due to the proximity of the White River to the site, stormwater detention is not expected to be required prior to discharge to the river.

According to the Washington State Department of Ecology 303(d) website, the White River adjacent to the site and downstream is listed as impaired for water temperature and ph. It is also listed as impaired by a non-pollutant low in-stream flow.

Because of the relatively small size of the site in relation to the contributing basin of the

White River, it is unlikely that the proposed site plan would significantly alter the volume and timing of water flowing to downstream receiving waters of the White River. By providing water quality treatment consistent with the requirements of the WDOE (2005) stormwater manual, it is unlikely that the proposed development would have significant adverse effects on the water quality of the river. In addition, through implementation of appropriate BMP's, it is unlikely that construction of the building addition and associated parking would result in adverse hydrologic or water quality impacts to the river.

### 4.5.2 Riparian Vegetation

Riparian vegetation influences in-stream habitat conditions by providing shade, organic matter, root strength, bank stability, and large woody debris input. These characteristics influence water temperature, structure and physical attributes, migration habitat and food supply. The development portion of the site contains no riparian vegetation. The majority of the site contains fill pads and gravel access roads. The southern 100 to 200 feet of the site contains a forested riparian corridor which includes an onsite wetland and confluence with Stewart Creek. Dominant White River riparian vegetation is composed of black cottonwood, red alder, willow, snowberry, sword fern, elderberry, Indian plum, and minor blackberry and Japanese knotweed. The Stewart Creek riparian area is dominated by young Pacific and Sitka willow, western red cedar, red osier dogwood, and herbaceous grasses, sedges and rushes. Native riparian vegetation is not proposed to be impacted and the riparian area associated with the White River is proposed to be restored with native evergreen trees and native shrubs.

### 4.5.3 Large Woody Debris

Habitats on the site, including Stewart Creek and its associated buffer, wetland and its associated buffers, and the White River 100 foot buffer contains large woody debris and snag habitat which will not be impacted by the project. These areas have trees and snags which provide large woody debris as a function. The portion of the site proposed to be developed has no trees or snags; therefore, large woody debris recruitment to the White River or Stewart Creek is not an existing function that will be impacted; however, past impacts to the area eliminated evergreen trees which will be planted as part of the buffer restoration.

### 4.5.4 Bank Stability

As explained in Section 3.5 above, a segment of Stewart Creek was recently relocated onto the eastern portion of the site. This segment includes approximately 1,600 linear feet of stable rock lined banks. The bank of the White River south of the site was modified several decades ago through the construction of a riprap levee. The levee functionally separates the site from the White River except where it back floods into the Stewart Creek or during the largest flood events. Banks of the White River and Stewart Creek are not proposed to be impacted.

### 4.5.5 Channel Migration

The onsite wetland may have been a portion of the White River historically. The wetland was cut off from the White River by construction of the riprap levee. Neither the wetland nor any other portion of the site is mapped within a channel migration zone. The constructed portion of Stewart Creek that is located on the site is not mapped as a channel migration zone.

### 4.5.6 Hyporheic Zone

The hyporheic zone is a region beneath and alongside a stream bed where there is mixing of shallow groundwater and surface water. The flow dynamics and behavior in this zone (termed

hyporheic flow or underflow) is recognized to be important for surface water/groundwater interactions, as well as fish spawning, among other processes.

The only onsite area that appears to have any hyporheic function is within the onsite wetland and Stewart Creek corridor. The onsite wetland is seasonally flooded providing groundwater interaction (hyporheic flow), although it is somewhat restricted by the levee between the White River and the wetland. The remainder of the site is surrounded by industrial development and Stewart Road which cuts off or limits hyporeic function.

### 4.5.7 Flood Volumes

A portion of the site is located within the White River 100-year floodplain. It is anticipated that the southern wetland, White River riparian corridor and Stewart Creek easement area would flood to an elevation of approximately 64 feet in a 100-year flood event. According to AHBL, LOMAR map revisions have been approved. Based on the LOMAR Map revision 132,000 square feet of the 100 year floodplain will be impacted by placement of 610 cubic yards of fill for the proposed project (Appendix B). According to Section 5.4 of the Developers Agreement which applies to the site no compensatory floodplain storage is required for floodplain fill. The Developer Agreement states the following: Consistent with SMC15.52 and 15.68 the Developer shall not be required to provide compensatory storage for placing fill on the South Property. In addition, the property owner funded approximately 80 percent of the Stewart Creek culvert replacement which also removed fill material. Given these conditions and activities overall 100 year flood volumes would not be altered by the proposed project.

### 4.5.8 Hydrologic Connectivity

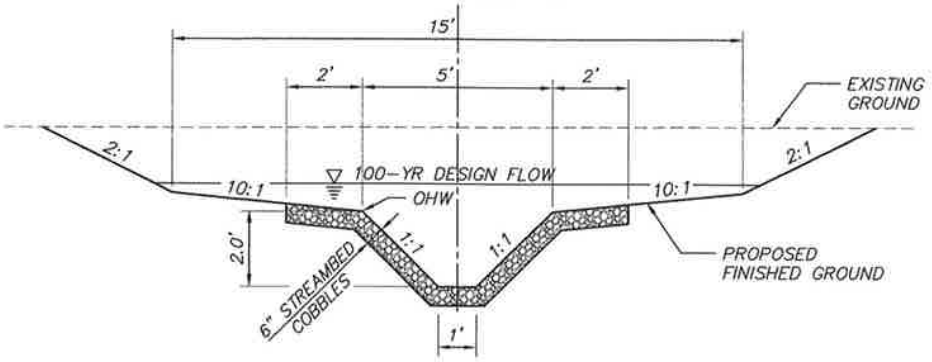
There are several patterns of flow of White River floodwaters over the site. In the existing conditions during extreme flood events, floodwaters overtop the existing riprap levee along the White River and enter the onsite wetland, Stewart Creek easement and White River riparian corridor. The development proposal does not propose to impact these hydrologic connections.

### 4.5.9 Flood Velocities

Because of the relatively small size of the site in relation to the contributing basin of the White River, it is unlikely that the project as proposed would significantly alter the volume and timing of water flowing to downstream receiving waters of the White River.

### 4.5.10 Spawning Substrate

Spawning substrate within the property is limited to the 1,600 linear feet of the onsite section of the relocated Stewart Creek. The channel is a manmade rock lined channel approximately 2 feet deep and 5 feet wide with vegetated benched area above the primary channel (see detail below). The White River located south of the site also contains spawning substrate. Spawning substrate on and adjacent to the site is not proposed to be impacted.




### 4.5.11 Floodplain Refugia

Floodplain refugia habitat includes rocks, vegetation and large woody debris used by fish for cover. Fish refugia habitat is located in the onsite wetland and Stewart Creek but not in areas that are proposed for development. The relocated Stewart Creek and the 12 foot by 12 foot culvert at the confluence of Stewart Creek and the White River were constructed to provide habitat for fish and off channel refuge for fish species during flood events. Floodplain refugia are not proposed to be impacted.

## 5.0 REGULATORY REQUIREMENTS

The City of Sumner currently defines and regulates wetlands, streams, fish and wildlife habitat areas, and floodplains in the Sumner Municipal Code (SMC), Title 16 Environment and Shoreline Master Plan. The applicant has designed the proposed development to comply with the City's requirements.

### 5.1 Wetland and Streams

Onsite is a Category III wetland with a Sumner code required 50 foot buffer and 15 foot building setback line in the southwest corner of the site, and wetland and associated variable buffer along the banks of Stewart Creek located along the eastern portion of the site in an easement. The White River and associated Sumner required 100 foot setback is located offsite along the south property boundary. Federal and state agencies with jurisdiction over impacts to the streams and wetlands located on and near the site include the U.S. Army Corps of Engineers, the Washington Department of Fish and Wildlife, and the Washington Department of Ecology. The project does not propose to impact wetlands, streams or their associated buffers; therefore, would not require federal or state permits related to wetlands or streams.

### 5.2 Fish and Wildlife Habitat Areas

Designated fish and wildlife habitat areas are within 1,000 feet of the site, therefore a habitat management plan is required per SMC 16.56.080. The regulated fish and wildlife habitat areas include the White River located offsite, the onsite White River 100 year floodplain, Stewart Creek corridor, the onsite wetland, and associated wetland and stream buffers. These systems are not proposed to be impacted by the proposed project.

The purpose of the habitat management plan is to provide for the implementation, monitoring, and maintenance of permanent mitigation and restoration measures for fish and wildlife habitat. The habitat management plan shall contain at a minimum:

- A discussion of the project's effects on fish and wildlife habitat;
- A discussion of any federal, state, or local special management recommendations which have been developed for species or habitats located on the site;
- A discussion of measures to preserve existing habitats and restore habitats that were degraded prior to the proposed land use activity. Restoration plans shall include at a minimum the following:
    a. Planting and soil specifications;
    b. Success standards; and
    c. Contingency plans;
- A discussion of proposed measures which mitigate the impacts of the project;
- An evaluation of the effectiveness of the proposed mitigation and restoration measures;
- A discussion of ongoing management practices which will protect fish and wildlife habitat after the project site has been fully developed, including proposed monitoring and maintenance programs;
- An assessment of habitat recommendations proposed by resource agencies and their applicability to the proposal; and
- Any additional information necessary to determine the impacts of a proposal and mitigation of the impacts.

## 6.0 PROPOSED RESTORATION

Overall the project will avoid direct impacts to the Category III wetland and associate 50-foot buffer, the Stewart Creek easement which includes the creek, wetland and buffer, and the White River and its 100-foot shoreline buffer. The riverbank will not be disturbed, nor will the trees or rocks within the riparian corridor.

Proposed site development will not impact the existing habitat; however, portions of the White River 100 foot buffer and Category III wetland buffer are degraded and are required by the City of Sumner Shoreline Master Program and Municipal Code Municipal Code 16.56.080 to preserve existing habitats and restore habitats that were degraded prior to the proposed land use activity. Accordingly, Six Kilns LLC proposes to restore the degraded portions of the buffers and provide an open rail fence to assist in preserving the wetland and riparian corridor.

The Category III wetland buffer contains invasive, noxious weeds including Japanese knotweed and minor blackberry, is lacking evergreen trees and has an abandoned dirt road on the south site of the wetland. Restoration of the 100 foot White River setback and wetland buffer is proposed through removal of blackberry and Japanese knotweed, planting evergreen trees and planting shrubs where needed.

## 7.0 RESTORATION IMPLEMENTATION AND PERFORMANCE STANDARDS

The following describes the restoration plan for the White River 100-foot buffer and the 50-foot wetland buffer, as required by SMC 16.56.080 and the Shoreline Master Program.

## 7.1 Buffer Restoration Goals and Objectives

The overall objective for the buffer restoration project is to protect existing onsite wetland, stream, and associated buffers, and to restore the native plant community with evergreen trees and deciduous shrubs (Appendix C). To implement the overall objectives for the site, the following goals were established.

- To set aside a minimum 50 foot buffer between the onsite wetland and site development.
- To set aside a minimum 100 foot buffer between the White River and site development.
- To use BMPs required by the City during construction to ensure water quality and flow control.
- To remove blackberry and Japanese knotweed and other noxious weeds in the buffer areas to allow native trees and shrubs to dominate these areas.
- Plant the buffer areas with native evergreen trees and shrubs where needed.

## 7.2 Buffer Restoration Planting Plan

The plant species selected for the buffer restoration areas are native to the Puget Sound Region. All of the species selected are present in local wetlands in the City of Sumner. The planting plan proposes the establishment of intermixed trees, and shrubs in the restoration areas. Location of the species may be modified based on conditions during planting. Species to be planted and their general locations in the buffers are shown in Appendix C.

## 7.3 Clearing

Portions of the buffers contain invasive blackberries and Japanese knotweed. Prior to planting the buffer restoration areas, all non-native, invasive shrub species will be removed from the area. Japanese knotweed will require chemical application to obtain successful control as there is not option that has been proven to be successful with removal of large stands of knotweed. Application of herbicides shall be conducted by a Contractor licensed and insured as a Washington State Commercial Applicator. In addition, the staff applying the herbicide shall be licensed as a Commercial Operator. Blackberry will be removed by hand grubbing to remove the entire root and cane. Existing trees, native non-invasive vegetation, snags, and downed trees will remain undisturbed in the buffer restoration areas.

## 7.4 Implementation Procedures

The project ecologist will visit the site regularly during construction to monitor restoration activities including placement of erosion and clearing limit fencing, clearing, approval of plant material and layout, and planting. The project is anticipated to begin in 2014. Planting is anticipated to occur between October 2014 and March 2015. After the buffer restoration project has been completed and vegetation has been established, the project ecologist will provide an as-built/baseline monitoring report to the City of Sumner for approval.

The ecologist will document the following implementation criteria in the as-built/baseline monitoring report:

- Placement of erosion control and clearing limit fencing pursuant to the temporary sedimentation and erosion control plan for the site.

- Marking of the outer edge of the critical areas tract with permanent survey markers as established by the project surveyor prior to construction activities.

- Removal of blackberry, Japanese knotweed and other invasive species in the 50 foot wetland buffer and 100 foot shoreline setback.

- Planting of vegetation as specified in Appendix C. Planting will occur during the cool season (October to March) to take advantage of seasonal rains. Other planting times, if authorized, may require plant substitutions and irrigation.

- After planting of the restoration area is completed, maintenance by the landscape contractor will include regular visits for the purpose of weeding, supplemental water, and other items necessary to maintain planted areas in a healthy condition. Weeding is to be performed quarterly throughout the restoration area to discourage aggressive, non-native plant introductions. No pruning will occur. The initial maintenance period will be for a period of one year from the date of written acceptance of the plantings. Additional maintenance will occur annually until project monitoring is complete.

- Placement of an open rail fence at the outer edge of the 50 foot wetland buffer as shown in the plans in Appendix C.

- Placement of permanent critical areas signs at 100-foot intervals along the outer edge of the critical area buffers as shown in the plans in Appendix C.

## 7.5 Monitoring Plan

The primary purpose of the monitoring program is to document the degree of success or failure in achieving the performance objectives and to identify remedial action. The buffer restoration plan will be monitored (a) within 30 days after planting and (b) annually at the end of the growing season (August to mid-September) for five years. As required by SMC 16.56.080.C, annual monitoring reports will be provided to the City of Sumner until the restoration project has been in place for at least five years and the success standards have been met. The following will be monitored annually for five years:

- Survival and percent cover of planted trees and shrubs in the buffer restoration areas.

- Invasion of the site by non-native, invasive plant species. No more than ten percent cover of nonnative or other invasives, e.g., Himalayan blackberry, Japanese knotweed, evergreen blackberry, Scot's broom, English ivy, morning glory, etc., is permissible in the overall mitigation area in any monitoring year.

The monitoring will be completed with the following methodology

- Establish permanent vegetation plots to monitor survival, changes in plant species composition, and percent cover by species over time. Tree and shrub density will be evaluated using permanent sampling plots that effectively sample at least ten percent of the buffer restoration areas. The sampling plot locations will be identified in the as-built/baseline monitoring report to be submitted upon completion of planting. Trees and shrubs will be tallied by species.

- Establish photograph stations within the permanent sampling plots to collect a sequence of photographs. These photographs will be used to evaluate vegetation community response over time.

- Observe the buffer restoration area for excessive erosion, scour, or sedimentation that may affect the health and/or diversity of the overall mitigation project.

- Observe and report wildlife use in the buffer restoration area.

- Monitoring reports will be submitted to the City of Sumner within 30 days of planting the buffer restoration area and by December annually for five years.

## 7.6 Performance Standards

Performance standards provide measurements to gauge the progress of the restoration project periodically and to identify remedial actions necessary to meet the final success criteria. For this buffer restoration project, it is proposes to use the health of the vegetation to gauge the progress of the project. The planted species will be monitored for vigor and survival. The overall target survival will be 100 percent the first year, and 80 percent per year of the planted tree and shrub species, as measured in representative planted buffer plots, for years two through three and 60 percent survival per year four through five.

If it is determined that planted tree and shrub species are being replaced or out-competed by native shrubs or trees that grow voluntarily, the success criteria will be met only if the number of volunteer and planted shrub and tree species in the restoration area meet or exceed the number of shrub and trees required in the area for that year.

If these performance standards are not met, the cause of the failure to meet the performance standard will be evaluated and action will be taken to rectify the problem until the objectives are achieved.

## 7.7 Success Criteria

The buffer restoration area should ultimately have 60 percent survival of planted trees and shrubs at the end of the five year monitoring program. This vegetation in the monitoring areas shall be self-sustaining, noninvasive, native vegetation at the end of five years. If the performance standards are met each monitoring year, and the success criteria are met at the end of five years, the project should be released from regulatory purview by the City of Sumner. If the success criteria are not met, the monitoring program could be reviewed and extended by the permitting agency.

## 7.8 Contingency Plan

The following events could affect the success of the buffer restoration project. Prior to implementing any of the contingency plans, the City of Sumner will be contacted for approval. The three events and the contingency for the each event follow:

**Event:** Mortality of planted vegetation in accordance with performance standards.

**Contingency:** The landscape contractor must conduct quarterly monitoring of the health of all the newly introduced plant material for one year after the date of acceptance of the planted material. Replace planted material as necessary during the appropriate planting seasons. After the first year, plant survival will be monitored by the ecologist, and if plant mortality exceeds the

required performance standard, the causes for observed plant mortality will then be evaluated. If performance standards have not been met, replacement plant material will be prescribed based on this evaluation. The landscape contractor is responsible for replacing plant material during the first year after implementation. After the first year, the project owner is responsible for plant replacement.

**Event:** Non-availability of specified native plant materials.

**Contingency:** Plant species substitutions, other than those listed as alternate, must first be authorized by an ecologist and the City of Sumner. Replacement species will be specified at a schedule appropriate and consistent with species planting requirements and the overall buffer restoration objectives.

## 7.9 Effectiveness of the Buffer Restoration Proposal

The removal of blackberry, knotweed and other non-native species prior to construction has been effective in allowing the planted native species to inhabit the buffer areas. The BMPs proposed to be used during construction are the best known methods of avoiding water quality problems during construction as noted on the Fill and Grade construction plans. Overall, the proposed mitigation measures will effectively provide protected fish and wildlife habitat that will provide food sources, refuge, large woody debris recruitment over time and cover for wildlife that use wetland and the riparian corridors.

## 7.10 Ongoing Management Practices After Site Development

Direct management practices after site development will include maintenance of the stormwater facilities, sweeping of the future parking areas, and removal of blackberry, Japanese knotweed and noxious weeds from the formal and natural landscape. The operations and maintenance manual for the stormwater facilities will be prepared during the development phase of the project for review and approval by the City of Sumner.

# 8.0 CLOSURE

The findings and conclusions documented in this report have been prepared for specific application to this site. They have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. Our work was also performed in accordance with the terms and conditions set forth in our proposal. The conclusions and recommendations presented in this report are professional opinions based on an interpretation of information currently available to us, and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made.

Theresa R Dusek

Theresa R. Dusek
Natural Resource Ecologist

# 9.0 REFERENCES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# *Appendix A*

## AHBL Site Plan

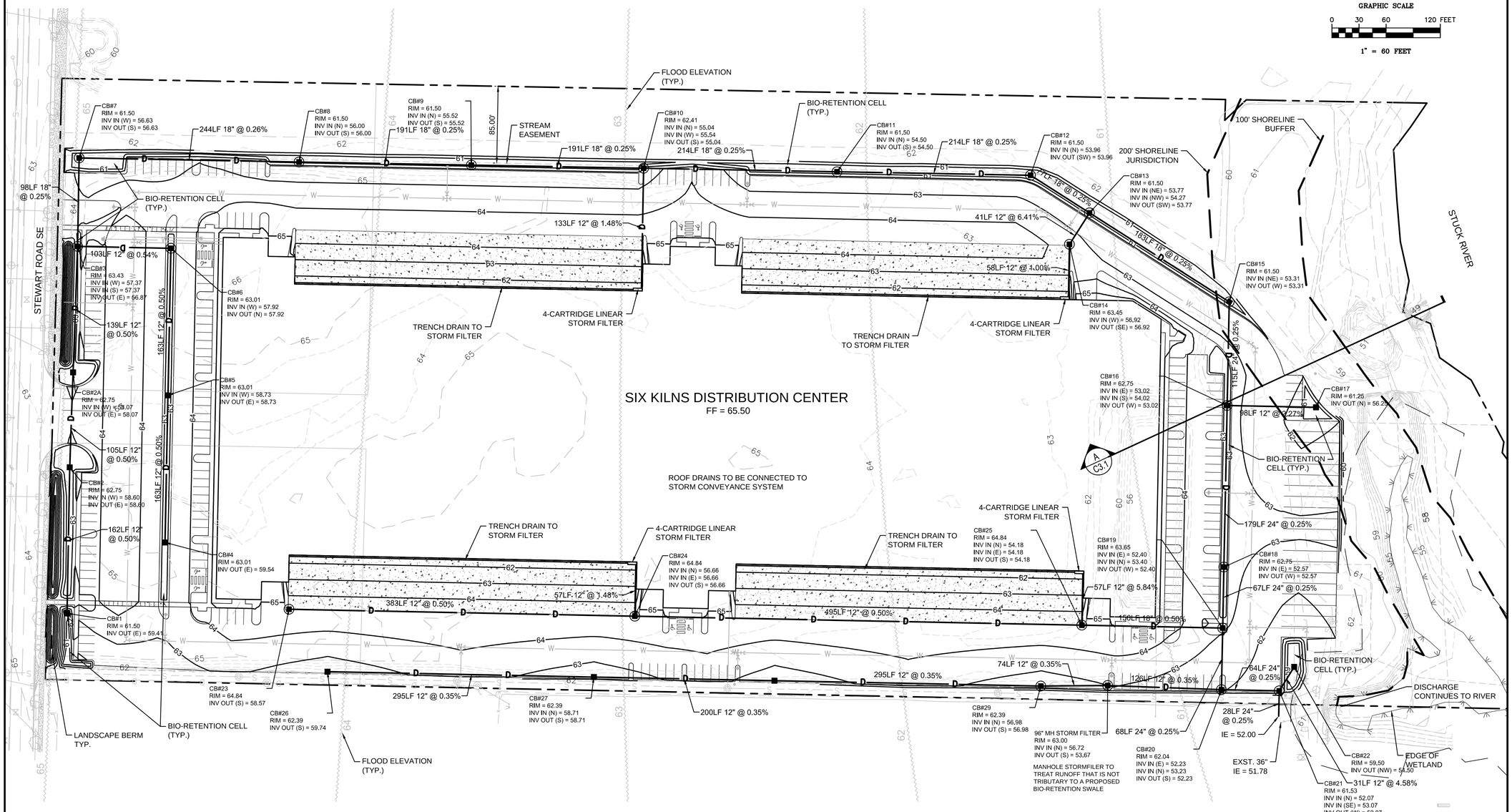
# SIX KILNS DISTRIBUTION CENTER

## A PORTION OF THE S.W. 1/4 OF THE S.E. 1/4 OF SEC. 1, TWN. 20 N., RGE. 4 E., W.M.

## CITY OF SUMNER, PIERCE COUNTY, WASHINGTON

Know what's **below.**
**Call** before you dig.

GRAPHIC SCALE
0 30 60 120 FEET
1" = 60 FEET




## EARTHWORK QUANTITIES

DISTURBED AREA: 782,820 SF (17.97 ACRES)
CUT VOLUME: 11,800 CY
FILL VOLUME: 31,700 CY
NET VOLUME: 19,900 CY FILL

NOTE:
THE ABOVE QUANTITIES ARE ESTIMATES ONLY INTENDED FOR THE PERMITTING PROCESS. DO NOT USE FOR BID PURPOSES. THE QUANTITIES DO NOT HAVE STRIPPING, COMPACTION, OR CUT OR FILL ADJUSTMENT FACTORS APPLIED TO THEM, NOR DO THEY ACCOUNT FOR PAVEMENT OR BUILDING SECTIONS.


Civil Engineers
Structural Engineers
Landscape Architects
Community Planners
Land Surveyors
Neighbors

AHBL
TACOMA · SEATTLE
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2215 North 30th Street, Suite 300 Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB


Project Title:
**SIX KILNS DISTRIBUTION CENTER**

Client:
**TARRAGON**
**AN INVESTCO COMPANY**
601 UNION STREET, SUITE 3500
SEATTLE, WA 98101
MS. KRISTEN LINK
(206) 233-9600

Job No.
2140020.10

Issue Set & Date:
**CONCEPT**
MAY 20, 2014

J. MATTHEW WEAVER
STATE OF WASHINGTON
34858
REGISTERED
PROFESSIONAL ENGINEER
5/23/14

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4 _____
3 _____
2 _____
1 _____
Revisions:

Sheet Title:
**CONCEPT GRADING & STORM**

| Designed by: | Drawn by: | Checked by: |
|---|---|---|
| GCH | GCH | JMW |

Sheet No.
**C1.1**
1 of 3 Sheets

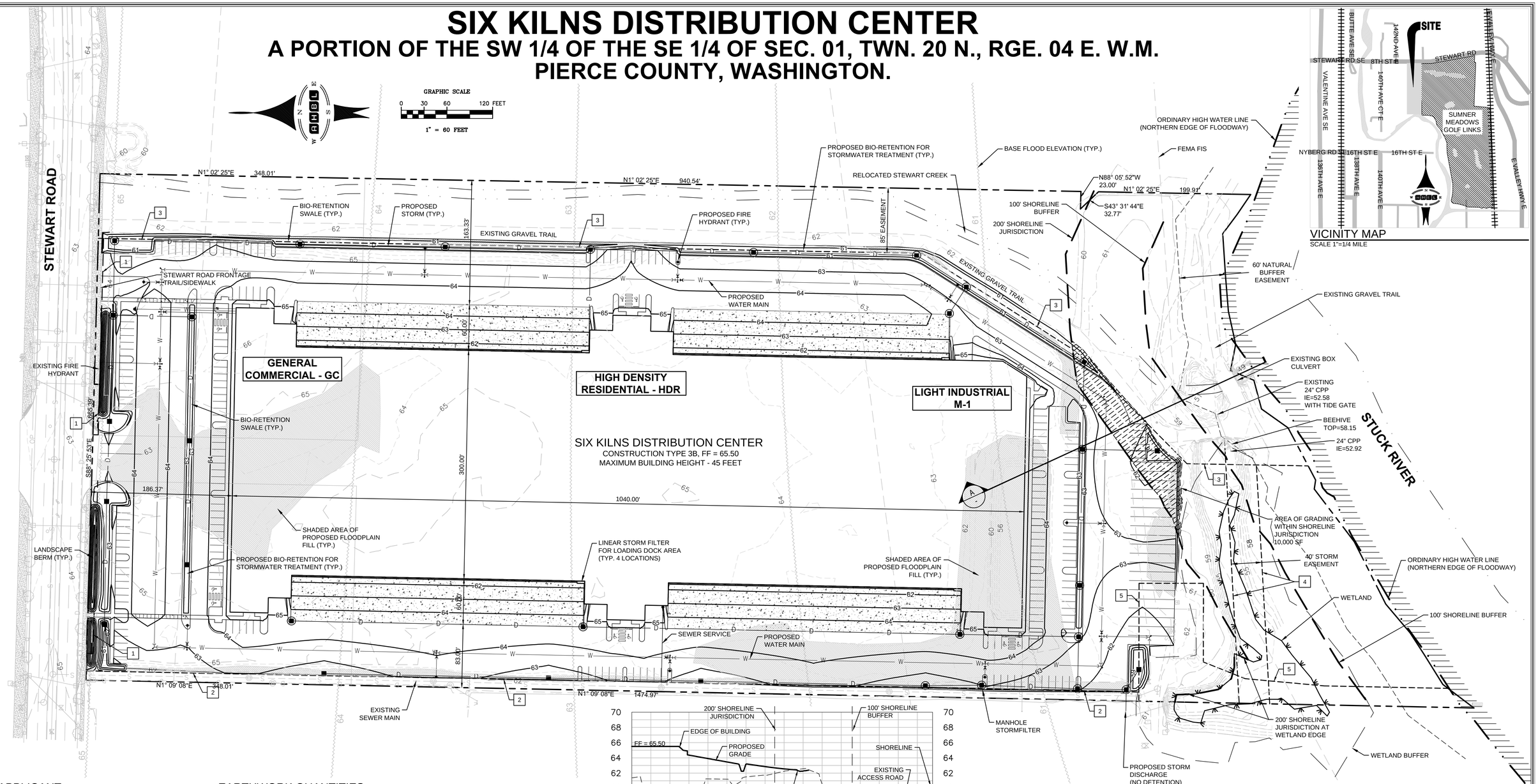
# *Appendix B*

## AHBL Floodplain Fill Map

# SIX KILNS DISTRIBUTION CENTER

## A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC. 01, TWN. 20 N., RGE. 04 E. W.M.

## PIERCE COUNTY, WASHINGTON.




## APPLICANT

TARRAGON
601 UNION STREET #3500
SEATTLE, WA 98101

(206) 233-9600

CONTACT: KRISTEN LINK

## EASEMENT NOTES

1. SLOPE EASEMENT
2. SANITARY SEWER EASEMENT
3. RECREATIONAL TRAIL ACCESS AND DRAINAGE EASEMENT
4. STORM EASEMENT
5. SANITARY SEWER LIFT STATION EASEMENT

## EARTHWORK QUANTITIES

DISTURBED AREA: 782,820 SF (17.97 ACRES)
CUT VOLUME: 11,800 CY
FILL VOLUME: 31,700 CY
NET VOLUME: 19,900 CY FILL

NOTE:
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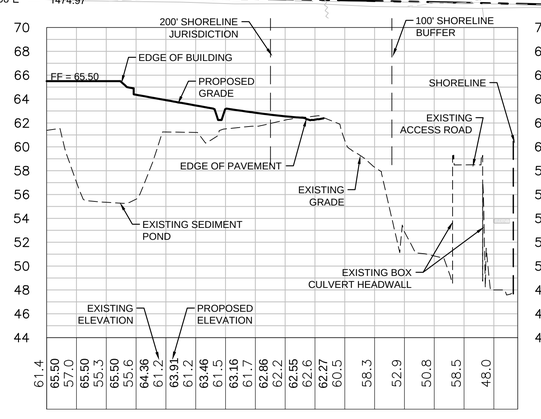
## FILL IN FLOODPLAIN

FLOODOLAIN FILL AREA: 132,000 SF (3.03 ACRES)
FLOODPLAIN FILL VOLUME: 610 CY




**A** GRADING SECTION THROUGH SHORELINE

HORIZ.: 1"=60', VERT.: 1"=6'


*Civil Engineers*
*Structural Engineers*
*Landscape Architects*
*Community Planners*
*Land Surveyors*
*Neighbors*

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**SHORELINE SUBSTANTIAL DEVELOPMENT PERMIT**

**SIX KILNS DISTRIBUTION CENTER**
**SUMNER, WASHINGTON**

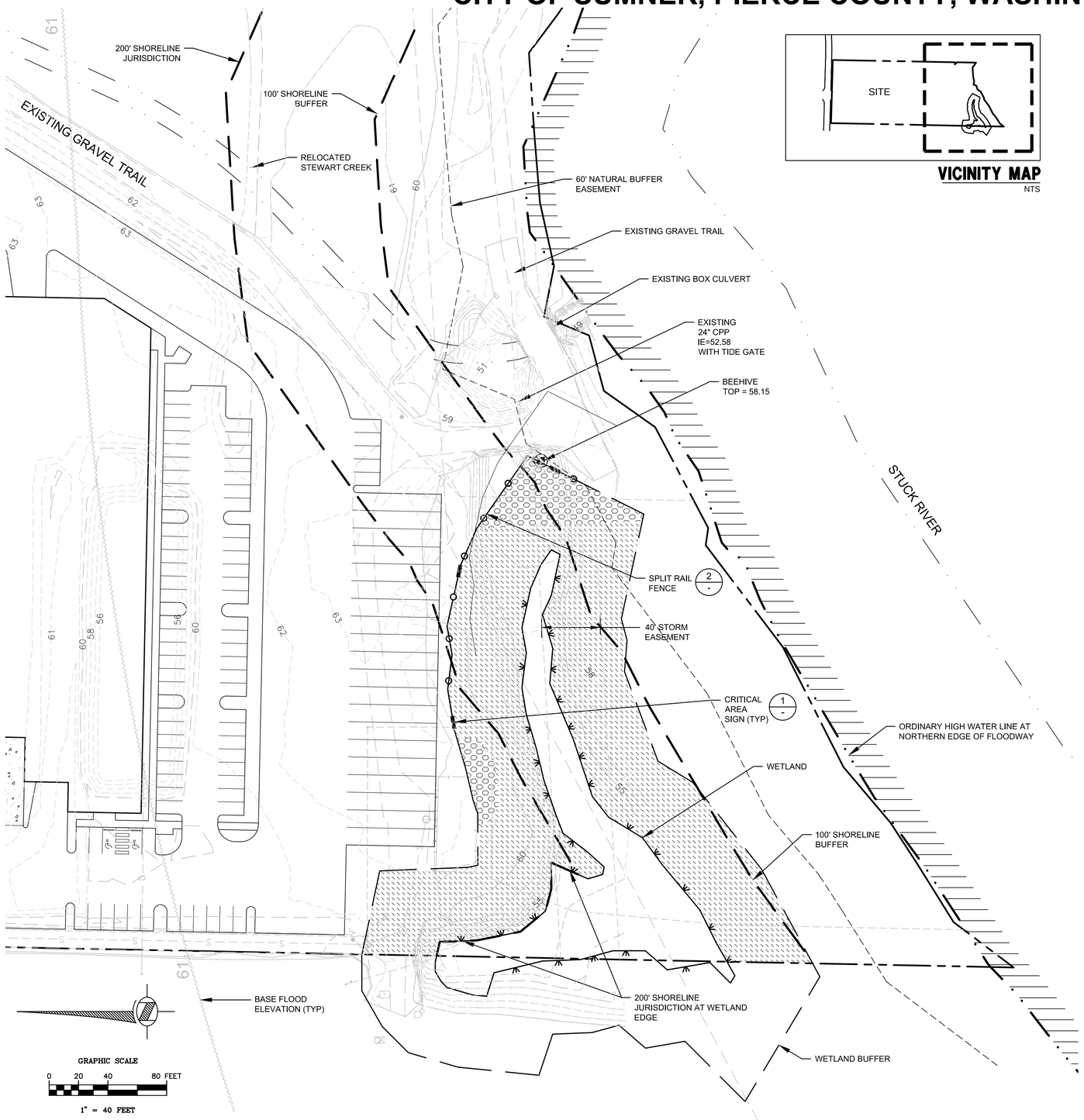
# *Appendix C*

## Restoration Plan Sheets 1-2

# SIX KILNS DISTRIBUTION CENTER

## A PORTION OF THE S.W. 1/4 OF THE S.E. 1/4 OF SEC. 1, TWN. 20 N., RGE. 4 E., W.M.

## CITY OF SUMNER, PIERCE COUNTY, WASHINGTON







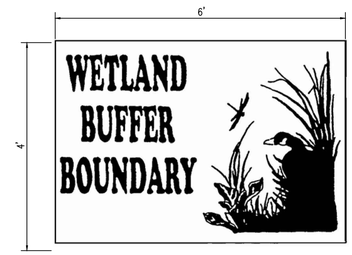
**VICINITY MAP**
NTS

## WETLAND MITIGATION LEGEND

REMOVE INVASIVE SPECIES AND PLANT AS FOLLOWS:

| QTY | TYPE | SIZE |
|---|---|---|
| 25 | THUJA PLICATA / WESTERN RED CEDAR | B&B, 5' MIN. HEIGHT |
| 25 | PSEUDOTSUGA MENZIESII / DOUGLAS FIR | B&B, 5' MIN. HEIGHT |
| 50 | CORYLUS CORNUTA / HAZELNUT | 1 GAL |
| 50 | LONICERA INVOLUCRATA / TWINBERRY | 1 GAL |
| 50 | RIBES SANGUINEUM / RED FLOWERING CURRENT | 1 GAL |

NOTES:
1. PLANT LOCATIONS WILL BE DETERMINED BY THE PROJECT BIOLOGIST IN THE FIELD.
2. SEE SHEET W2 FOR PLANTING DETAILS.




WETLAND BUFFER SIGN:
SIZE: 4"X6" RECTANGLE
COLOR: BLACK LETTER ON AZURE BLUE BACKGROUND
WORDING: WETLAND BUFFER BOUNDARY

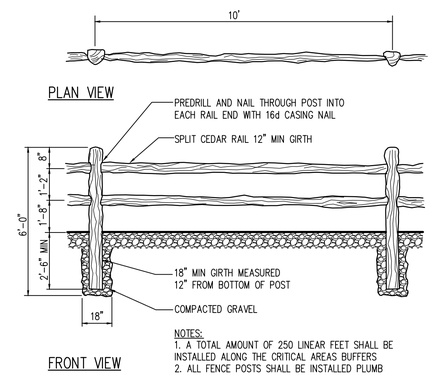
NOTES:
1. A TOTAL OF 3 SIGNS SHALL BE INSTALLED ALONG THE CRITICAL AREAS BUFFER FENCE.
2. ONE SIGN SHALL BE INSTALLED EVERY 100 FEET ALONG THE WETLAND BUFFER AS SHOWN ON THE PLAN.
3. ATTACH SIGN TO WOOD FENCE POST.
4. SIGNS SHALL FACE AWAY FROM THE CRITICAL AREA AND MUST BE PLACED ON WOOD FENCE POSTS INSTALLED SECURELY IN THE GROUND.
5. THE FOLLOWING COMPANIES HAVE SIMILAR TEMPLATES FOR THE BUFFER SIGNS:

J.L DARLING CORP.
2614 PACIFIC HIGHWAY EAST
TACOMA, WA 98424
(253)922-5000

TACOMA SIGNWRITERS
3153 SOUNDVIEW DRIVE WEST
TACOMA, WA 98466
(253)5657449

### 1 CRITICAL AREA BUFFER BOUNDARY SIGN DETAIL

NOT TO SCALE




NOTES:
1. A TOTAL AMOUNT OF 250 LINEAR FEET SHALL BE INSTALLED ALONG THE CRITICAL AREAS BUFFERS
2. ALL FENCE POSTS SHALL BE INSTALLED PLUMB

### 2 SPLIT RAIL FENCE DETAIL

NOT TO SCALE


Civil Engineers
Structural Engineers
Landscape Architects
Community Planners
Land Surveyors
Neighbors

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2215 North 30th Street, Suite 300 Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB


Project Title:

**SIX KILNS DISTRIBUTION CENTER**

Client:

**TARRAGON**
**AN INVESTCO COMPANY**
601 UNION STREET, SUITE 3500
SEATTLE, WA 98101
MS. KRISTEN LINK
(206) 233-9600

Job No.

2140020.10

Issue Set & Date:

MAY 20, 2014


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4.
3.
2.
1.

Revisions:

Sheet Title:

**WETLAND BUFFER MITIGATION PLAN**

| Designed by: | Drawn by: | Checked by: |
|---|---|---|
| TD | HW | TD |

Sheet No.

**W1**

1 of 2 Sheets

# SIX KILNS DISTRIBUTION CENTER

## A PORTION OF THE S.W. 1/4 OF THE S.E. 1/4 OF SEC. 1, TWN. 20 N., RGE. 4 E., W.M.

## CITY OF SUMNER, PIERCE COUNTY, WASHINGTON

### *PART 1 - GRADING SPECIFICATIONS*

GRADING SPECIFICATIONS

Installation of enhancement plantings must use techniques which will not allow sediments to enter the flow of any of the streams or wetland. Restoration planting shall occur during the cool season months from October through March to take advantage of seasonal rains. Other planting times may require plant substitutions and additional irrigation.

GENERAL SITE CONDITIONS

Contractor shall give the project biologist a minimum of ten (10) days' notice prior to intention to proceed with work in the buffers.

No construction work shall commence in the buffer until there is a meeting between the Client, the project biologist, and participating Contractor. The approved plans and specifications shall be reviewed to allow parties involved to understand the intent and the specific details related to the construction documents, specifications, and site constraints.

Locations of existing utilities have been established by field survey or obtained from available records and should be considered approximate only and not necessarily complete. It is the sole responsibility of the Contractor to: (1) independently verify the accuracy of utility locations and (2) discover and avoid any utilities within the restoration area not shown which may be affected by implementation of this plan. Such areas are to be clearly marked in the field. The project biologist shall resolve any conflicts with the approved planting plan prior to implementation.

Construction must be performed in accordance with Agency standards, codes, permit conditions, and other applicable ordinances and policies.

The applicant is responsible for obtaining any other related or required permits prior to the start of construction.

A copy of the approved plans, specifications, permits, and agency approvals must be on site whenever construction is in progress and shall remain on site until project completion.

The project biologist shall be on site, as necessary, to monitor construction and approve minor revisions to the plan.

Topographic elevations represented on this plan are based upon topographic maps supplied by the AHBL Survey Department. Final elevations may vary depending on site-specific conditions. It is the responsibility of the Contractor to verify pre-construction topographic elevations and tree locations for accuracy prior to grading. The Contractor shall notify the project biologist immediately if any modifications to the plans may be necessary due to inaccuracies of the original survey.

SURVEY/STAKE/FLAG LIMITS OF BUFFER ZONE

Prior to any construction, a licensed surveyor shall survey, stake, and flag limits of the wetland buffer between the development and wetland. Landscape Contractor shall be responsible for avoiding disturbance to existing native vegetation. No removal of any vegetation shall occur without prior approval by the project biologist. Areas outside clearing limits that are degraded or accidentally cleared shall be replanted consistent with other mitigation planting occurring as a part of this contract, at no extra cost to the owner. Plant species and quantities are to be approved by the project biologist prior to installation.

CLEAR AND GRUB

Contractor shall remove blackberry and other specified invasive species by hand (or mechanical means if approved), with minimal disturbance to the existing vegetation. Cleared and grubbed vegetation shall be exported from the site. Particular care must be given to ensure complete removal of tops and roots (to depth of 18 inches), and any other invasive/exotic plant species. Invasive/exotic plant species to be removed and treated in the mitigation and buffer areas are: Scot's broom, English ivy, Himalayan and evergreen blackberry, purple loosestrife, hedge bindweed (morning glory), Japanese knotweed, thistle, and creeping nightshade.

Japanese knotweed will require chemical application to obtain successful control. Application of herbicides shall be conducted by a Contractor licensed and insured as a Washington State Commercial Applicator. In addition, the staff applying the herbicide shall be licensed as a Commercial Operator.

The Project biologist is to designate any additional plant species to be removed/treated prior to construction.

### *PART 2 - PLANTING SPECIFICATIONS*

PLANTING SCHEDULE

Planting should occur anytime between October and March to take advantage of seasonal rains.

GENERAL CONDITIONS

In the restoration area, the Contractor shall remove weedy or exotic invasive species (e.g., Scot's broom, English ivy, Himalayan and evergreen blackberry, reed canarygrass, purple loosestrife, hedge bindweed, Japanese knotweed, Canada thistle, and creeping nightshade) by manual or mechanical means prior to plant installation.

Japanese knotweed will require chemical application to obtain successful control. Application of herbicides shall be conducted by a Contractor licensed and insured as a Washington State Commercial Applicator. In addition, the staff applying the herbicide shall be licensed as a Commercial Operator.

Contractor shall verify that plant installation conditions are suitable within the restoration areas. Any unsatisfactory conditions shall be corrected prior to start of work. When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, significant vegetation, or obstructions, Contractor shall notify the Project biologist prior to planting. Beginning of work constitutes acceptance of conditions as satisfactory.

Plants installed in undisturbed areas shall be integrated with existing native vegetation, and planted in a random, naturalistic pattern.

LOCATE/STAKE/VERIFY PLANTING AREAS

Contractor shall field locate, stake, and verify planting areas and configurations prior to planting. The Project biologist shall review and approve locations prior to planting.

Proposed locations of trees and shrubs shall be staked and identified with an approved coding system or by placement of the actual plant material. For large groupings of a single species of shrub, Contractor may stake the planting boundaries. The Project biologist shall review and approve locations of all plants and plant groupings prior to planting.

APPROVE PLANTING LOCATIONS AND SPACING

Planting locations shown on planting plans are general, based on anticipated site conditions. Actual planting locations will be directed by the project biologist and locations of existing vegetation. Nevertheless, any variations from the planting plan will require prior approval by the Project biologist.

Plant spacing for species listed is to be random (naturalistic), and not in a regular grid pattern. On-center spacing called out on plant list indicates an average spacing dimension. For example, when the plan calls for 24" O.C., spacing shall vary from 18 to 30 inches O.C., with an average spacing of 24 inches.

The Project biologist shall review planting locations and spacing prior to plant installation.

### *PART 3 - PLANT MATERIAL STANDARDS*

PLANT MATERIALS

The Project biologist shall examine plant material prior to planting. Any material not meeting the required specifications shall be immediately removed from the site and replaced with like material that meets the required standards. Plant material shall meet the requirements of State and Federal laws with respect to plant disease and infestations. Inspection certificates, required by law, shall accompany each and every shipment and shall be submitted to the Project biologist upon Contractor's receipt of plant material. The Project biologist shall pre-approve in writing any substitution of plant materials prior to ordering substitution plants.

Plant materials shall be locally grown (lower Puget Sound region), healthy, bushy, in vigorous growing condition, and be guaranteed true to size, name, and variety. If replacement of plant material is necessary due to construction damage or plant failure within one year of installation, the sizes, species, and quantities shall be equal to damaged or unsuitable plants, or as indicated on the plans.
Plants shall be nursery grown, well-rooted, of normal growth and habit, and free from disease or infestation. The Project biologist reserves the right to require replacement or substitution of any plants deemed unsuitable.

Trees shall have uniform branching, single straight trunks, (unless specified as multi-stemmed), and the central leader intact and undamaged. Balled and burlapped stock shall have been root-pruned at least once within the previous two years. Container stock shall be fully rooted but not root-bound. Plant material with damaged root zones or broken root balls will not be accepted.

Coniferous trees shall be nursery grown, full and bushy, with uniform branching and a natural non-sheared form. Original central leader must be healthy and undamaged. Maximum gap between branching shall not exceed 9 inches, and length of top leader shall not exceed 12 inches.

Shrubs shall be a minimum height of 36 inches.

Within 30 days of award of the landscape contract, Contractor shall submit documentation that specified plant materials have been ordered and secured. A list of supplier names, addresses, phone numbers and the storage/growing location of the materials shall be submitted to the Project biologist within 30 days of Contractor award.

VERIFY NURSERY STOCK CONDITION

The Project biologist shall inspect plant material at the job site, including previously tagged trees, for compliance with required standards for plant size and quality prior to planting. This includes, but is not limited to, size and condition of rootballs and root systems, presence of insects, latent injuries and defects. Trees must be untied and separated for inspections. The Project biologist reserves the right to refuse any/all plant material any time prior to final acceptance if it is determined that such material does not meet the specifications as described herein. Rejected material shall be immediately removed from project site.

VERIFY STORAGE SITE AND METHOD

Plant material shall be stored in a manner necessary to accommodate their horticultural requirements. Protect plant material stored on-site from weather damage, construction activity and the public. Balled and burlapped material which cannot be installed immediately shall be "heeled-in" to keep from drying out prior to planting. Protect rootballs by covering with moist soil, mulch or sawdust. Water as required to keep rootballs moist.

Keep plant specimens moist (wetland species saturated) and shaded until the actual time of installation. If bare-root plants are specified, soak roots in water one-hour minimum prior to planting. Before and after planting, immediately saturate the soils in the planting area to prevent capillary stress.

SUBSTITUTIONS

Substitutions of plant species or sizes may be permitted based on plant availability, but only with prior written approval by the Project biologist and the Agencies.

### *PART 4 - PLANT INSTALLATION*

SOIL PREPARATION/AMENDMENTS

Prior to installation of plantings, ensure complete removal of non-native fill material. Trees and shrubs shall be pit planted as shown in the plan details. Include in the planting backfill a soil moisture retention agent (polymer) per manufacturer's specification.

SOIL MOISTURE RETENTION AGENT

Add hydrated Soil Moist, or approved equal, to the topsoil backfill of all planting pits. Follow manufacturer's specifications for directions for use and application rates.

FERTILIZER

Fertilize woody plantings in buffer areas only with a slow-release (8-month), high nitrogen granular fertilizer (21-3-7), with application rates as specified by manufacturer. Apply fertilizer after planting pit is backfilled, and prior to application of mulch. Do not apply fertilizer between November and March.

MULCH

In graded areas only, a 3" layer of wood chip mulch shall be placed around the base of new tree (36 inch diameter ring) and shrub plantings (24 inch diameter ring) for erosion, weed control, and moisture retention.

STAKING

Trees shall be staked with at least one stake, 3/4 the height of the tree (see plan detail). Contractor shall remove stakes at the end of the one-year guarantee period.

RESTORE EXISTING NATURAL OR LANDSCAPED AREAS

Existing natural or landscaped areas that are damaged during construction shall be restored to their original condition, unless improvements or modifications are specified for those areas.

Contractor shall exercise care to protect from injury to trunk, roots, or branches, of any trees or shrubs that are to remain. Any living woody plant that is damaged during construction shall be treated immediately. "Wound Shaping" treatment shall be used for scuffed tree bark and for broken branches. Notify the Project biologist and prune wounded portions of plant immediately after damage occurs. Water plants thoroughly and undertake any additional measures to aid in plant survivability.

### *PART 5: WOOD FENCE, AND INFORMATIVE SIGNS SPECIFICATIONS*

WOOD FENCE AND INFORMATIVE SIGN INSTALLATION

Wood fencing shall be constructed adjacent to the outer edge of the 50 foot wetland buffer between the development site and wetland from the sewer list station to the area near the beehive outfall from the wetland system as depicted on Sheet W-1, upon completion of planting. Stake the location of fence for approval by the Project biologist prior to construction.

Contractor shall attach wetland informative signs to the fence post at the wetland buffer boundary at 100-foot intervals. Contractor shall supply and install the informative signs upon construction completion of the fence. Stake the location of signs along the boundary for approval by the Project biologist prior to installation.

CLEAN-UP

Contractor shall be responsible for the removal of construction materials and debris on the site following installation of plant materials and fence construction.

### *PART 6: WARRANTY*

Contractor shall ensure that construction related activities do not damage off-site features or adjacent vegetation. The Project biologist shall be notified immediately if accidental damage occurs. Contractor shall ensure that adjacent roads are maintained and clear of soil and/or other debris at all times during construction. Contractor shall make them self-aware of and comply with Agency codes regarding street maintenance/cleaning/traffic control during construction.

Any changes or modifications to this plan must receive prior approval from the Project biologist.
This warranty shall include replacement of plants (same size and species shown on the drawings) that prove either to be mislocated or unsuitable as to plant material standards. Except for loss due to excessively severe climatological conditions (substantiated by 10-year recorded weather charts), installed plant materials are required to be guaranteed for one year against defects and unsatisfactory growth, except for cases of neglect by Owner or abuse/damage by others. Plants replaced shall be reinitiated under plant guarantee conditions.

### *PART 7: FINAL ACCEPTANCE*

Upon completion of the planting, the Contractor shall provide the Project biologist with a set of clearly marked as-built prints designating the actual locations and quantities of plantings within the mitigation areas. Contractor shall keep a complete set of prints at the job site during construction for the purpose of "red-lining" changes or modifications to the approved plans and shall update said information on a daily basis.

The Project biologist shall approve planting locations. If items are to be corrected, a punch list shall be prepared by the Project biologist and submitted to the Contractor for completion. After punch list items have been completed, the Project biologist shall review the project for final acceptance of plan implementation. After acceptance has been obtained, Contractor shall provide as-built drawings to the Project biologist of planted material.

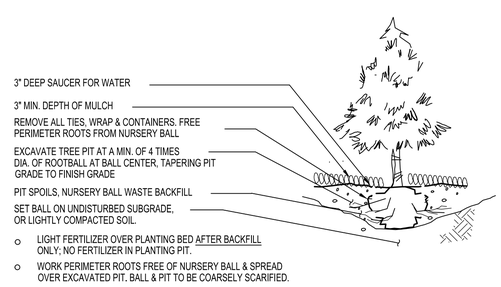
The Project biologist shall meet on-site with a representative of the Agencies for review and acceptance of the restoration plan installation.

The date of final acceptance shall constitute the beginning of the one-year warranty/maintenance period.

### *PART 8: ONE-YEAR MAINTENANCE*

Contractor shall review landscape maintenance recommendations with the Project biologist who is familiar with the stated goals and objectives of the restoration plan. Maintenance is to be provided throughout construction and for one-year quarterly following construction beginning at final acceptance.

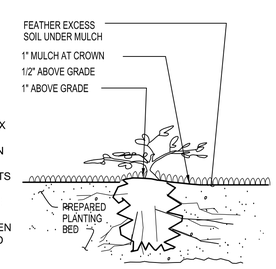
Contractor shall maintain trees and shrubs as required to maintain healthy growth and habitat diversity. This may include tightening and repair of tree stakes, resetting plants to proper grade and upright position, grass and invasive control, and correcting drainage problems as required. During the one-year maintenance period, between May 15 and September 15, hand seed all previously seeded areas which show bare ground patches larger than 36 inches x 36 inches. Remove tree stakes at the end of the one-year maintenance period.




**1 CONIFER TREE PLANTING DETAIL**
NOT TO SCALE

TYPICAL NOTES:

1. EXCAVATE EACH PLANTING HOLE 4X DIAMETER OF PLANT CONTAINER.
2. PREPARE A FIRM MOUND OF SOIL IN THE BOTTOM OF THE EXCAVATION
3. REMOVE CONTAINER & WORK ROOTS FREE OF SOIL.
4. SPREAD ROOTS EVENLY ONTO THE SOIL MOUND
5. TOP OF ROOT BALL SHOULD BE EVEN WITH OR SLIGHTLY ABOVE GROUND SURFACE.
6. BACKFILL WITH TOPSOIL
7. SETTLE BACKFILL WITH WATER ONLY




1 GAL. CONTAINER SHRUBS
( PLANTED BEFORE MULCH )

**2 SHRUB AND BARE ROOT PLANTING DETAILS**
NOT TO SCALE


Civil Engineers
Structural Engineers
Landscape Architects
Community Planners
Land Surveyors
Neighbors

AHBL
TACOMA · SEATTLE
SPOKANE · TRI-CITIES
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Project Title:

**SIX KILNS DISTRIBUTION CENTER**

Client:

**TARRAGON**
**AN INVESTCO COMPANY**
601 UNION STREET, SUITE 3500
SEATTLE, WA 98101
MS. KRISTEN LINK
(206) 233-9600

Job No.

2140020.10

Issue Set & Date:

MAY 20, 2014


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4 _____

3 _____

2 _____

1 _____

Revisions:

Sheet Title:

**WETLAND BUFFER MITIGATION SPECIFICATIONS & DETAILS**

| Designed by: | Drawn by: | Checked by: |
|---|---|---|
| TD | HW | TD |

Sheet No.

**W2**

2 of 2 Sheets