

**STREAM AND WETLAND BUFFER RESTORATION PROGRAM**

One of the primary elements of the *Selected Site Development Action* is the establishment and restoration of a protective buffer composed of native trees and shrubs through the removal and control of the existing reed canarygrass and the planting of selected native species adjacent to the offsite wetland and stream corridor. The establishment of this buffer area would also include the planting of the adjacent stormwater facility to provide even greater onsite habitats and protection of the offsite wetland and stream corridor. The established native plant community would provide thermal protection for aquatic habitats, a protective screen between upland uses and the established wetland and stream corridor, provide direct and indirect aquatic and terrestrial habitats, and provide support for the onsite and downstream aquatic food web.

**DESCRIPTION OF THE BUFFER PROGRAM**

- As compensation for the minor reduction of the standard buffer for a Category III Wetland located to the northeast of the eastern portion of the project site and for a minor modification of the very outer edge of the standard buffer associated with the offsite Jovita Creek Corridor the established onsite buffer area shall be restored and enhanced. Compensatory actions shall be accomplished through the removal of the existing reed canarygrass and blackberry, the planting of native trees and shrubs, and ongoing monitoring and maintenance to ensure project success. As a part of this program there shall be no adverse changes in the existing offsite stream/wetland hydrology patterns.
- The restoration and enhancement buffer area shall be cleared of invasive grasses and shrubs. All cut vegetation shall be removed from the project site and disposed in an approved offsite location. These areas shall then be planted with a mixture of native trees and shrubs common to the local area and selected to provide additional stream and wetland functions.
- Habitat features (i.e. standing snags and logs) shall be placed within the established buffer area to provide structural diversity and habitats for wildlife common to the area.
- All onsite activities shall be monitored by the onsite biologist. Following the completion of onsite planting activities a "record-drawing" plan shall be prepared and submitted to the City of Sumner. A five-year monitoring program shall be undertaken to assure the success of the buffer program. If required by the City, a series of financial guarantees shall also be implemented to assure that the proposed work is completed and is proven successful. In addition, if required by the City the monitoring period may be increased if the performance criteria are not met at the end of the five-year monitoring period.
- Temporary and long-term erosion control measures shall be implemented. These measures include the use of Best Management Practices during initial actions and as a part of the maintenance program.
- The stormwater facility shall also be planted with a variety of native trees and shrubs common to the local area. The intent is to make the stormwater facility a functional part of the overall protective area along the offsite wetland and stream corridor.
- Site development shall utilize designs to minimize potential impact to the established onsite buffer area. Such designs include directional lighting away from the buffer area and onsite water quality protections.
- Protective fencing shall be installed along the western edge of the stormwater facility to limit human intrusion into the established buffer area. This fence shall have a lockable gate to allow for monitoring and maintenance access. The protective fence shall also be posted with buffer boundary signs as approved by the City of Sumner.

**GOAL AND OBJECTIVE OF THE BUFFER PROGRAM**

The **GOAL** of the *Buffer Program* is to fully compensate for an unavoidable reduction of standard buffer for an offsite wetland and for a minor modification of the outer edge of the standard buffer associated with the Jovita Creek Corridor. The buffer program shall provide full compensation for minor buffer impacts while also enhancing the physical and biological functions of the onsite buffer associated with the Jovita Creek Corridor.

To achieve the defined **GOAL**, the following **OBJECTIVES** and **PERFORMANCE CRITERIA** have are defined:

**Objective A.** The buffer program areas shall restore and enhance the retained onsite buffer through the removal/management of invasives and the planting of native tree and shrubs species. The retained onsite buffer shall exhibit a scrub/shrub and sapling tree vegetation class within five years following initial planting

**Performance Criterion #A1:** As defined by sampling at established plots, 100% of the trees and shrubs initially planted within the restored buffer shall exhibit survival through the end of the first growing season following planting.

**Performance Criterion #A2:** As defined by sampling at established plots, 80% of the trees and shrubs initially planted within the restored buffer

shall exhibit survival through the end of the second, third, fourth, and fifth growing seasons following planting.

**Performance Criterion #A3:** As defined by sampling at established plots within the restored buffer the presence of invasive shrubs shall not adversely impact the survival of desirable vegetation. The restored buffer shall not exceed 10% aerial coverage of blackberries or other invasive shrubs at the end of the first, second, third, fourth, or fifth growing seasons following planting.

**Objective B.** The buffer area shall include the placement of snags (stumps) and downed logs which provide nesting and cover habitat for wildlife common to the area.

**Performance Criterion #B1:** A minimum of six (6) snags (minimum 20 feet in length, minimum 20 inch diameter at the top, minimum 10 foot diameter at bottom of rootball) and a minimum of six (6) downed log (minimum 20 feet in length, minimum 20 inch diameter at 10 feet above root collar, minimum 10 foot diameter at bottom of rootball) shall be placed within the buffer area.

**SELECTED PLANT COMMUNITIES**

The plants selected for the restored buffer shall be obtained as nursery stock. These selected species are native and commonly occur in the local area. The plant species prescribed are selected to increase plant diversity, match present offsite communities, increase wildlife habitats, and enhance the aquatic environment. Many of the selected species can be somewhat sensitive to direct sunlight upon initial removal from the nursery and installation within the buffer area. Special care shall be undertaken by the planting contractor during installation to utilize existing shading and to ensure that plants are handled and installed with some care. Adequate irrigation must also be provided at the time of installation.

In addition, special planting actions shall be undertaken to help control reed canarygrass. These actions may include the placement of cardboard or biodegradable fabric pads and mulch around the desirable plants.

**IMPLEMENTATION INSPECTION**

Essential to the success of the buffer program is the accurate inspection of onsite activities immediately prior to and during the initial invasive control and planting phase. These activities include pre-implementation site inspection, onsite

inspection and technical direction during invasive species removal and planting activities, and post-planting site inspection and evaluation.

The project biologist shall complete onsite inspections, verify, and approve the following project tasks (at a minimum):

- Marking of work areas and access corridors. Marking of desirable plants to be retained.
- Removal of invasive species and existing garbage.
- Nursery stock acceptance.
- Modification of plant species and sizes.
- The character and placement of habitat features.
- Installation of the irrigation system.
- Installation of buffer boundary signs.

The pre-implementation site inspection allows the project team and the project biologist to evaluate and, if necessary, adjust the onsite implementation steps. These steps include analysis of project site elevation features, project sequencing and timing, final grade analysis, unforeseen required minor modifications to the original establishment plan, and the establishment of environmental protections (silt fences, etc.) required during planting. Onsite technical inspection during implementation and planting activities shall be implemented by the project biologist. The project biologist shall perform implementation oversight and address minor unforeseen implementation difficulties to assure that the goal of the buffer program is met.

The project biologist shall be responsible for ensuring that the species and sizes of native plants selected and noted within the final planting plan are utilized during implementation. If selected native species become unavailable, the project biologist shall approve, based on City standards, substitute plant species to assure that the goal of the buffer program is met.

Following the completion of onsite planting activities an implementation report and "record-drawing" plan shall be prepared and submitted to the City of Sumner. The implementation report shall include a description of who completed the onsite actions, a description of the scope of work completed, a description of work specifications, and a detailed timeline of completed actions. The implementation report shall also include a project evaluation prepared by the project biologist.

**IMPLEMENTATION SCHEDULE**

PROJECT TASK	TASK SCHEDULE
Onsite pre-implementation meeting	Completed by August 1, 201x
Placement of protective fencing. Final marking and identification of work area and access corridors.	Completed by August 5, 201x
Removal of invasive plants for the project area(s).	Completed by August 15, 201x
Placement of habitat features within the project area(s).	Completed by August 30, 201x
City of Sumner environmental staff review of the planting areas.	Completed by September 15, 201x
Planting of buffer area.	Completed by October 15, 201x

Record-drawings implementation report to City Completed by November 5, 201x  
Year 201x represents the starting point of the buffer program.

**PROJECT MONITORING**

Following the successful completion of the proposed buffer program a five-year monitoring and evaluation program shall be undertaken. The purpose of this monitoring is to ensure the success of the buffer program as measured by an established set of performance criteria.

**VEGETATION MAINTENANCE PLAN**

Maintenance of the buffer plant community may be required. Such maintenance shall be identified during the monitoring period and shall be undertaken at the direction of the project biologist. The overall objective is to establish undisturbed plant communities that do not require maintenance. Activities may include, but are not limited to, the removal of invasive non-native vegetation and the irrigation of selected areas. Established maintenance activities include the removal of any trash within the established buffer area.

**REMOVAL OF INVASIVE NON-NATIVE VEGETATION**

As a contingency, should the removal of invasive non-native shrubs become necessary, the project proponent would contact the City of Sumner to establish and define specific actions to be taken. Resultant contingency plan activities shall be implemented when the ongoing vegetation monitoring program indicates that invasive shrubs are becoming dominant in the onsite plant community (i.e. greater than 10% aerial coverage).

Reed canarygrass control methods shall also be undertaken and shall focus on removal of the vegetation at the ground level using line-trimmers for the first three years following initial planting. The objective is to allow the more desirable native species to become established and eventually shade the reed canarygrass. The project team shall employ a landscape contractor to perform the control of the reed canarygrass, as well as the removal of other invasive species. All removal actions shall also be monitored onsite by the project biologist. The objective of the reed canarygrass control is to limit the ability of this species to adversely impact more desirable species. The success or failure of the overall buffer restoration program is not dependent upon reed canarygrass comprising less than 10% of the plant community.

The following invasive vegetation removal program shall be implemented to ensure the establishment of desirable plant communities.

MONITORING YEAR	FIRST REMOVAL ACTION	SECOND REMOVAL ACTION	THIRD REMOVAL ACTION
YEAR-1	On or about March 10, 201x+1	on or about April 10, 201x+1	on or about June 15, 201x+1
YEAR-2	On or about March 10, 201x+2	on or about April 10, 201x+2	on or about June 15, 201x+2
YEAR-3	On or about March 10, 201x+3	on or about April 10, 201x+3	on or about June 15, 201x+3

At the direction of the project biologist additional removal actions (if required) shall also be undertaken to ensure the establishment of desirable plant communities. The project proponent shall not be responsible for replacement of removed plants by others.

**CONTINGENCY PLAN**

As a contingency, should the proposed buffer program fail to meet the performance criteria, the project proponent shall undertake required remedial actions. Where plant survival is the failing component, the project proponent shall replant and ensure the success of this second planting which would be held to the same standard of success as measured by threshold criteria and monitoring processes. Where non-native, invasive vegetation exceeds 10% aerial coverage the project proponent shall undertake removal actions. Such removal actions shall be completed using hand tools or pulling the plants by hand to remove the invasive vegetation without disrupting the soil profile. All cut or pulled vegetation shall be removed from the buffer area and disposed in an approved location. Herbicides shall only be used following approval by the City of Sumner. All herbicide application shall be completed by a licensed professional.

Should additional remedial actions be required, the project proponent shall meet with the City of Sumner to establish and define actions to be taken to meet the desired goal of this buffer program.

**TEMPORARY IRRIGATION**

The project proponent shall ensure that a minimum of one (1) inch of water is supplied each week to the restoration area between May 1 and October 15 for at least the first two years following initial planting. The calculated amount of required water shall include both natural rainfall and temporary irrigation. The need for additional years of irrigation shall be determined based on site conditions and overall plant survival. The amount of water supplied to the restoration area shall be increased if onsite monitoring defines such a need.

Irrigation shall be provided via a temporary system placed on the ground surface within the buffer area or with optional hand watering. The system shall allow for a minimum of 10% overlap of coverage between sprinklers and the sprinklers shall be a minimum of four (4) feet above ground. The project team shall employ a landscape contractor to install, operate, and maintain the irrigation system. All actions shall also be monitored onsite by the project biologist. The City of Sumner shall provide water for the temporary irrigation system.

**PLANTING NOTES**

All plant materials utilized within the buffer area shall be native to the Puget Sound Region. The onsite biologist shall inspect plant materials to assure the appropriate plant schedule and plant characteristics are met. The project proponent shall warrant that all plants would remain alive and healthy for a period of one year following completion of planting activities. The project proponent shall replace all dead and unhealthy plants with plants of the same specifications.



WEST VALLEY  
SUMNER, WA  
Habitat Technologies  
P.O. Box 1088  
Puyallup, WA 98371

PROJECT

**REVISIONS:**

DRAWING ISSUED FOR:  
AGENCY REVIEW  
DATE: NOVEMBER 18, 2013



KATHERINE OWENS  
CERTIFICATE NO. 692

PROJECT NO.: 1362  
FILE NAME: 1362/WLA  
X-REFS: CIVIL  
DRAWN BY: KLO  
CHECKED BY: KLO  
PLOT SCALE: 1:1  
DRAWING SCALES:

DRAWING CONTENTS:  
SELECTED DEVELOPMENT PROGRAM

DRAWING NO.:

WL2

