

WETLAND MITIGATION PLAN ADDENDUM

Mount Baker Road Single-Family Housing Orcas Island, Washington

Prepared for

OPAL Community Land Trust
286 Enchanted Forest Road
Eastsound, Washington 98245

Prepared by

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Introduction

Of People and Land (OPAL) Community Land Trust owns a 7-acre property on Orcas Island, San Juan County, Washington, and proposes to construct the Mount Baker Road single-family housing project, consisting of 32 single-family residences on the site.

This report is an addendum to the *Draft Revised Wetland Mitigation Plan—Mount Baker Road Single-Family Housing* (Herrera 2008). This addendum report provides revisions to the following sections of the wetland mitigation plan: Impacts Resulting from the Project; Mitigation Sequencing; Buffer Mitigation; Goals, Objectives, and Performance Standards; Proposed Mitigation Sites; Final Site Plan for the Offsite Wetland Enhancement Site; and Monitoring. These revisions are the result of reducing buffer impacts surrounding Wetland E and the addition of wetland enhancement measures proposed off site to mitigate for unavoidable buffer impacts on site. Offsite mitigation in the form of wetland enhancement is proposed at the Stonebridge-Terrill Preserve located approximately 0.5 miles east of the Mount Baker Road single-family housing project (Figures 1 and 2).

Impacts Resulting from the Project

Impacts on the buffer of Wetland E were reduced from 8,554 square feet (0.2 acres) to 4,979 square feet (0.11 acres). A revised Table 3 is provided below. The revised impact area for the buffer of Wetland E is shown on revised Figure 3.

Table 3 (revised ^a). Wetland and buffer impacts for the Mount Baker Road single-family housing project.

| Wetland | Impacted USFWS Class ^b | Impacted HGM Class ^c | Ecology Wetland Category ^d | Wetland Impact (ft ²) | Impact on Buffers of Wetlands to Remain ^e (ft ²) |
|--------------|-----------------------------------|---------------------------------|---------------------------------------|-----------------------------------|---|
| A | PEM | Depressional | III | 2,563 | 2,317 |
| B | N/A | N/A | III | 0 | 18,684 |
| C | PEM/PSS | Depressional | III | 4,399 | N/A ^f |
| D | PEM/PSS | Depressional | III | 1,844 | N/A ^f |
| E | PEM | Depressional | IV | 137 | 4,979 |
| F | PEM | Depressional | IV | 154 | N/A ^f |
| Total | | | | 9,097 | 25,980 |

^a Revised Table 3 from the *Draft Revised Wetland Mitigation Plan—Mount Baker Road Single-Family Housing* (Herrera 2008).

^b U.S. Fish and Wildlife Service classification is based on Cowardin et al. (1979): palustrine scrub-shrub (PSS) and palustrine emergent (PEM).

^c Hydrogeomorphic (HGM) classification based on Brinson (1993).

^d Ecology wetland category based on Washington State Department of Ecology rating system (Hruby 2004).

^e Buffer impacts are based on Ecology-recommended buffer widths (Ecology 2005).

^f N/A: not applicable. Wetlands C, D, and F will be completely impacted and no buffers will remain.

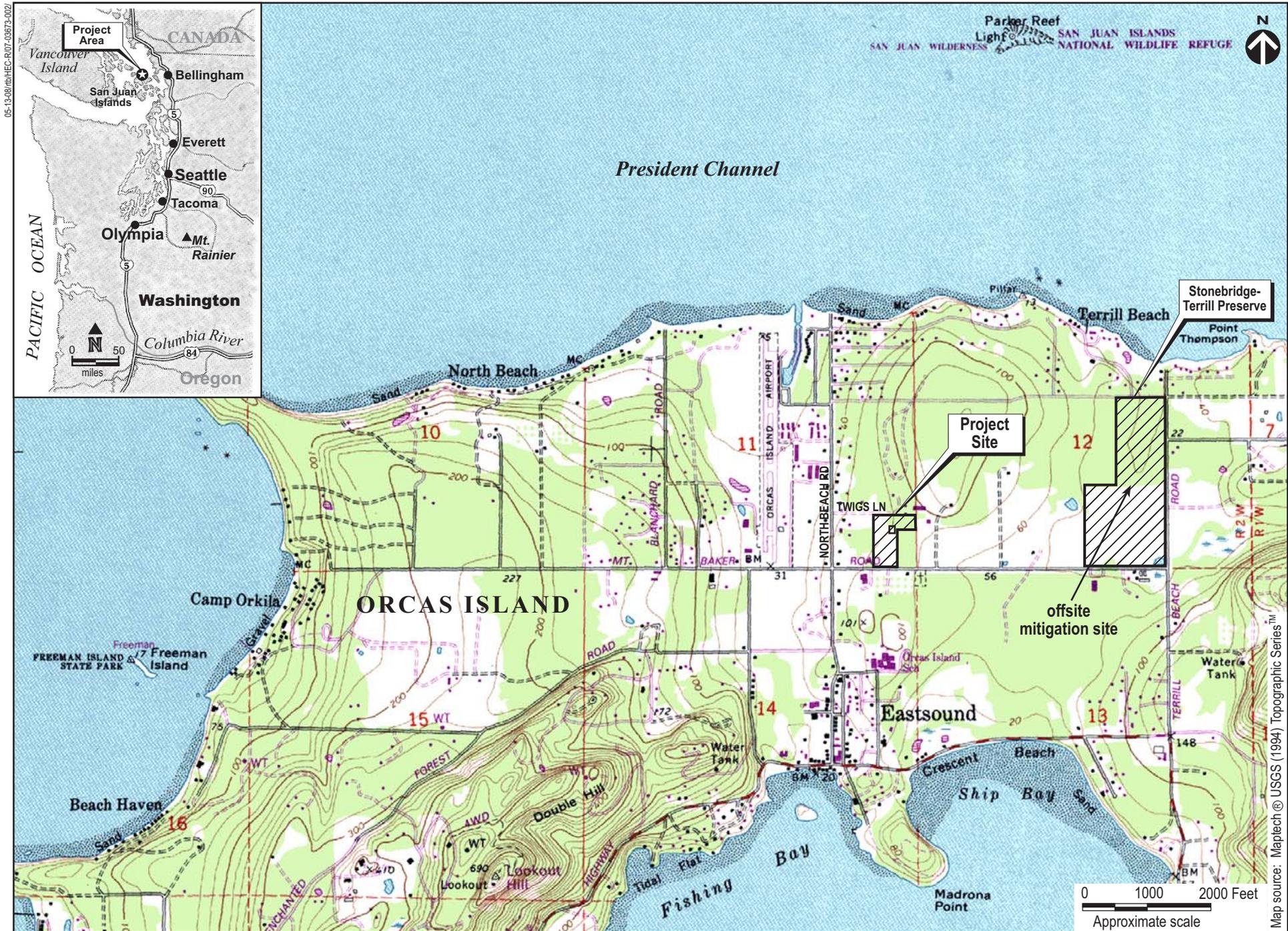


Figure 1. Vicinity map of the Mount Baker Road single-family housing project site and Stonebridge-Terrill Preserve in Eastsound, Washington.

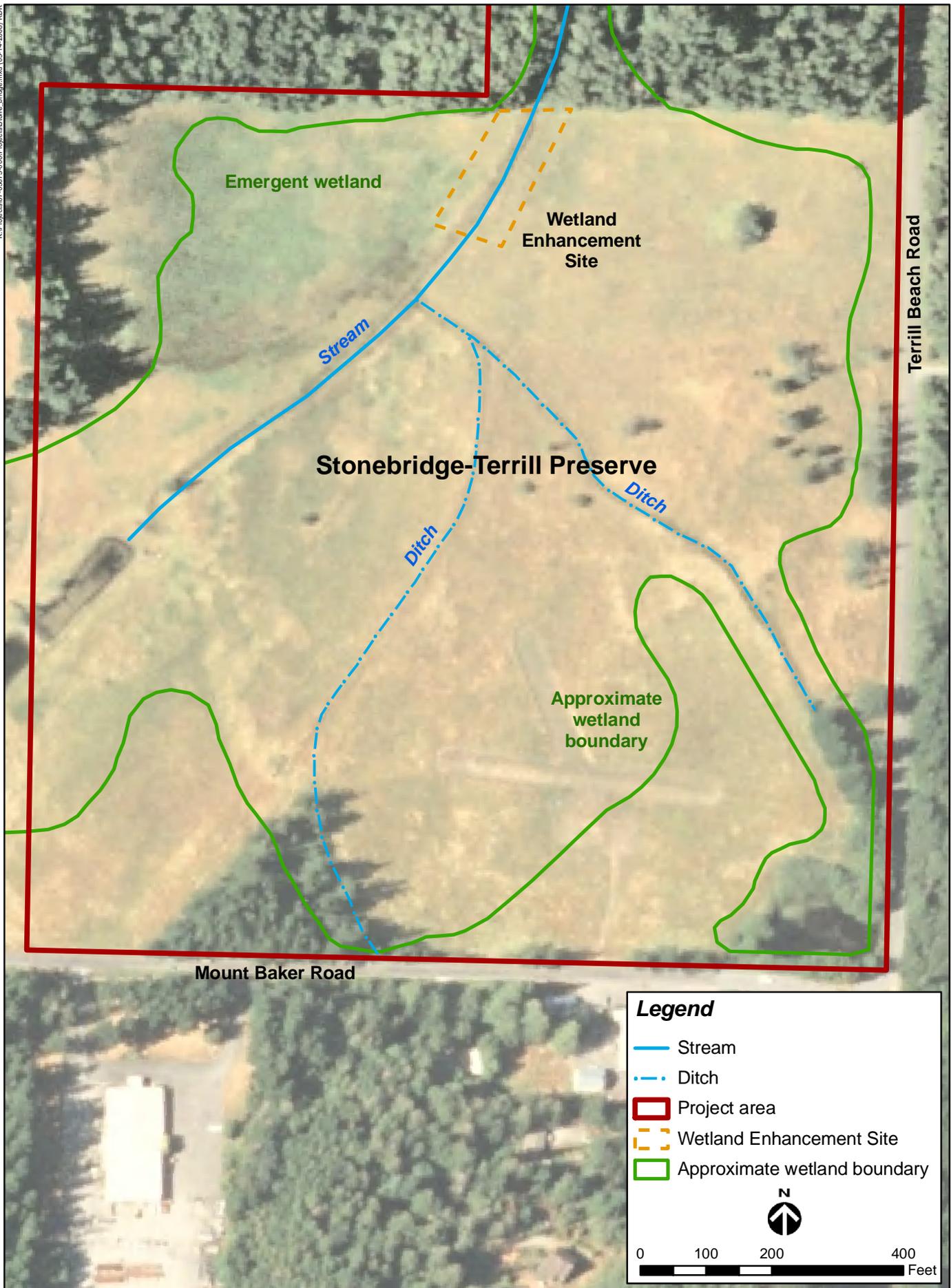
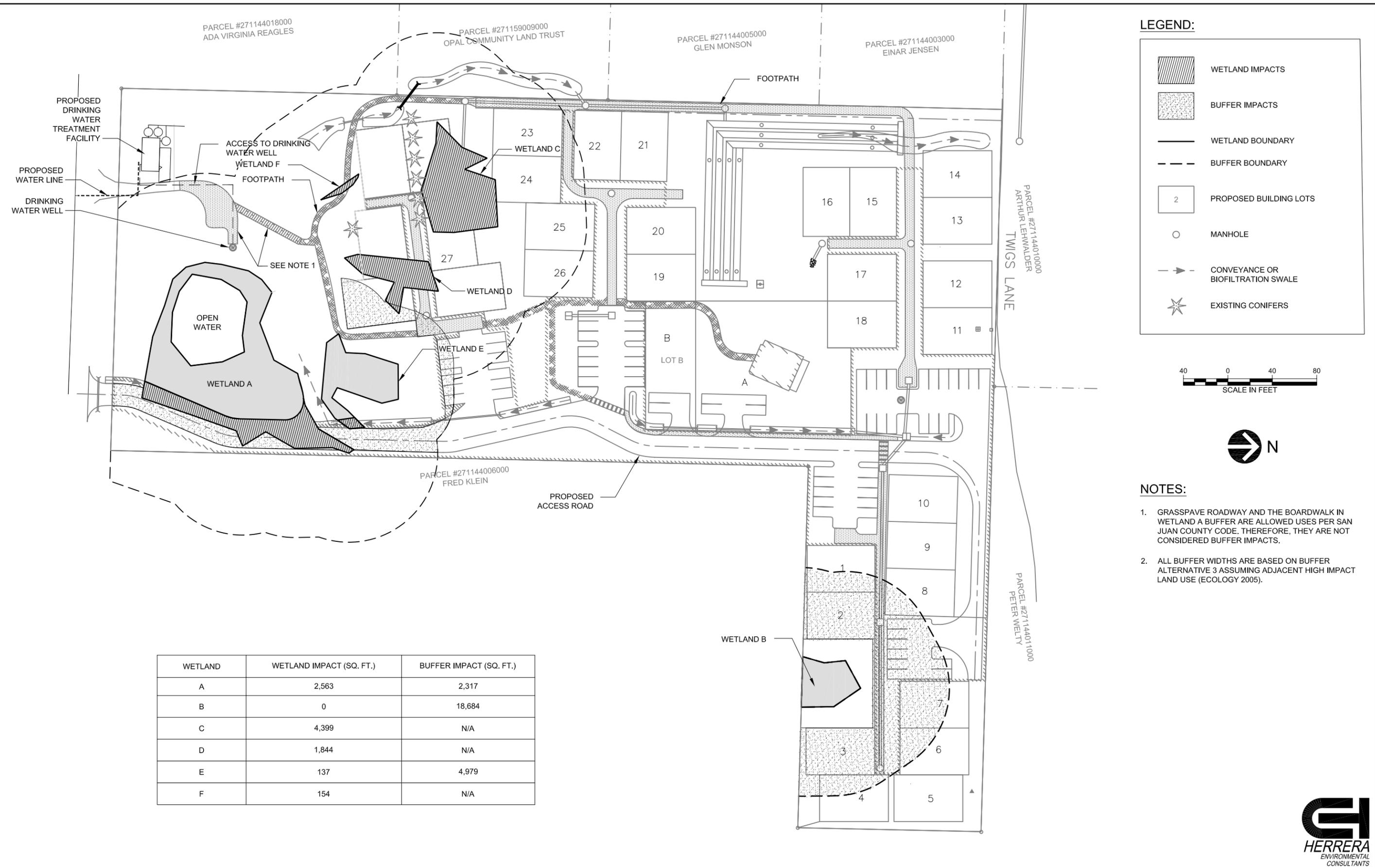


Figure 2. Proposed offsite wetland enhancement site for the Mount Baker Road single-family housing project in Eastsound, Washington.



LEGEND:

- WETLAND IMPACTS
- BUFFER IMPACTS
- WETLAND BOUNDARY
- BUFFER BOUNDARY
- PROPOSED BUILDING LOTS
- MANHOLE
- CONVEYANCE OR BIOFILTRATION SWALE
- EXISTING CONIFERS



NOTES:

1. GRASSPAVE ROADWAY AND THE BOARDWALK IN WETLAND A BUFFER ARE ALLOWED USES PER SAN JUAN COUNTY CODE. THEREFORE, THEY ARE NOT CONSIDERED BUFFER IMPACTS.
2. ALL BUFFER WIDTHS ARE BASED ON BUFFER ALTERNATIVE 3 ASSUMING ADJACENT HIGH IMPACT LAND USE (ECOLOGY 2005).

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Figure 3. (revised) Wetland and buffer impacts on the Mount Baker Road single-family housing project site in Eastsound, Washington.

Mitigation Sequencing

Impact Minimization, Reduction, and Elimination

The site plan for the Mount Baker Road single-family housing project was revised to provide additional buffer width surrounding the north side of Wetland E, thereby reducing potential indirect impacts on the wetland. By moving a parking lot north, the proposed buffer width on the north side of the wetland increased from approximately 5 feet to approximately 40 feet. With this revision, the proposed 32-lot site plan reduces impacts on wetlands and their buffers to the maximum practicable extent.

Compensation for Impacts

At this time, further reductions in impacts on wetlands or buffers would result in reducing the number of proposed lots, which is not financially feasible for OPAL. As a result, minimum buffer widths recommended by the Washington State Department of Ecology (Ecology) are not proposed surrounding Wetlands B and E.

The recommended buffer width for Wetland B is 80 feet when adjacent to high-impact land use, and 60 feet when adjacent to moderate-impact land use. The Mount Baker Road single-family housing project represents a high-impact land use; however, measures are proposed to reduce the land use impact to a moderate level (e.g., porous pavement, split-rail fencing). On average, an approximate 20-foot buffer is proposed surrounding Wetland B.

The recommended buffer width for Wetland E is 50 feet when adjacent to high-impact land use, and 40 feet when adjacent to moderate-impact land use. Measures are proposed to reduce the land use impact to a moderate level (e.g., split-rail fencing, screening of light from vehicle headlights, diverting stormwater away from wetland). On average, an approximate 25-foot buffer is proposed surrounding Wetland E.

To mitigate for potential indirect impacts on Wetlands B and E resulting from reduced buffer widths, OPAL proposes the enhancement of offsite wetlands.

Buffer Mitigation

Based on the revised site plan, the project will still result in unavoidable impacts on portions of recommended buffers surrounding Wetlands B and E, totaling 25,980 square feet (0.60 acres). In addition to previously proposed buffer mitigation measures on site (i.e., buffer enhancement), OPAL proposes to provide 20,000 square feet (0.46 acres) of wetland enhancement at the Stonebridge-Terrill Preserve located off site.

Goals, Objectives, and Performance Standards

OPAL proposes a 10-year monitoring period for the onsite wetland mitigation areas (previously, a 5-year monitoring period was proposed). In addition, OPAL proposes 10-year monitoring of wetland enhancement measures proposed at the Stonebridge-Terrill Preserve. The following goals, objectives, and performance standards were revised to reflect a 10-year monitoring plan for onsite and offsite mitigation measures. Performance standards will be evaluated during monitoring visits to the sites in Years 1, 2, 3, 5, 7, and 10 following construction. Following each monitoring visit, a report presenting the results of the site inspections will be provided to San Juan County and Ecology.

Final success standards for release of the project from regulatory purview are included at the end of this section. If these standards are not met by the end of the 10th year of monitoring, OPAL will make the necessary modifications to the mitigation sites and will continue to monitor the sites until these final success standards are met.

Goal 1

Goal 1 is to replace wetland acreage lost as a result of the development of the project site.

Objective

The objective is to create and re-establish approximately 10,929 square feet (0.25 acres) of wetland area associated with Wetland A. The total area of existing, created, and re-established wetland associated with Wetland A will be at least 20,207 square feet (0.46 acres).

Performance Standard 1

The total area of existing, created, and re-established wetland associated with Wetland A will be saturated in the root zone for at least 30 consecutive days during the growing season. The achievement of this performance standard will be verified by observing shallow groundwater conditions throughout the wetland during the early portion of the growing season. Observations of surface water and groundwater conditions will be included in reports to San Juan County and Ecology in Years 1, 2, 3, 5, 7, and 10.

Performance Standard 2

A wetland delineation will be conducted on the site during the Year 5 monitoring to determine if the wetland is at least 20,207 square feet (0.46 acres) in size. The wetland delineation will be conducted in accordance with the *Washington State Wetlands Identification and Delineation Manual* (Ecology 1997).

Goal 2

Goal 2 is to create vegetation communities with diverse and native plant composition within created wetlands, re-established wetlands, enhanced wetlands, and enhanced buffers.

Objective

The objective is to plant a variety of native emergent, shrub, and tree species that will develop into mature vegetation communities with adequate cover and native species composition.

Performance Standard 1

By the end of the first growing season, 100 percent of the planted native emergent, shrub, and/or tree species will have survived or will be replaced. The contractor responsible for planting will be required to replant all plants that have died following 1 year after initial planting.

Performance Standard 2

Designated emergent planting zones in the created wetland area should consist of at least three native species with a combined minimum percent cover of 20 percent by the end of Year 2, 30 percent by the end of Year 3, 50 percent by the end of Year 5, 60 percent by the end of Year 7, and 75 percent by the end of Year 10.

Performance Standard 3

Native tree and shrub species within the designated forested and shrub wetland and buffer communities should consist of at least five native species with a combined minimum percent cover of 20 percent by the end of Year 2, 30 percent by the end of Year 3, 50 percent by the end of Year 5, 60 percent by the end of Year 7, and 75 percent by the end of Year 10.

Performance Standard 4

Nonnative invasive species, including but not limited to reed canarygrass (*Phalaris arundinacea*), Himalayan blackberry (*Rubus armeniacus*), Japanese knotweed (*Polygonum cuspidatum*), English ivy (*Hedera helix*), purple loosestrife (*Lythrum salicaria*), Scot's broom (*Cytisus scoparius*), thistles (*Cirsium* sp.), and other species identified during monitoring, should not cover more than 15 percent of the wetland and buffer mitigation areas during any period of monitoring.

Goal 3

Goal 3 is to replace the wetland functions lost as a result of impacts resulting from the development of the project site.

Objective

The objective is to replace lost functions at an overall ratio greater than one-to-one. These lost functions consist of water quality, hydrologic, and habitat functions.

Performance Standard 1

Wetland functions will be assessed during each monitoring year visit (Years 1, 2, 3, 5, 7, and 10). The functions will be assessed using the *Washington State Rating System for Western Washington* (Hruby 2004).

Final Success Standards

The following performance standards must be met by Year 10 of the monitoring period as a prerequisite to releasing the project from regulatory purview by San Juan County and Ecology.

Performance Standard 1

The onsite mitigation area will contain a minimum of 10,929 square feet (0.25 acres) of created and re-established wetlands and will replace functions lost at an overall ratio greater than one-to-one.

Performance Standard 2

The onsite and offsite mitigation areas will exhibit a minimum of 75 percent cover of native tree and shrub species in forest and shrub communities.

Performance Standard 3

Nonnative invasive species, including but not limited to reed canarygrass, Himalayan blackberry, Japanese knotweed, English ivy, purple loosestrife, Scot's broom, thistles, and other species identified during monitoring, should not cover more than 15 percent of the wetland and buffer mitigation areas.

Proposed Mitigation Sites

In addition to onsite wetland and buffer mitigation, OPAL proposes offsite wetland enhancement at the Stonebridge-Terrill Preserve, which will involve enhancing emergent wetlands with forested vegetation. The following sections include information related to the wetland enhancement site at the Stonebridge-Terrill Preserve, including location, property ownership, rationale for site selection, and results of an ecological assessment of the site. Information related to the onsite mitigation is provided in the *Draft Revised Wetland Mitigation Plan—Mount Baker Road Single-Family Housing* (Herrera 2008).

Property Location

The Stonebridge-Terrill Preserve is located directly northwest of the intersection of Mount Baker Road and Terrill Beach Road on Orcas Island, Washington (Figures 1 and 2). The preserve is

located in the northwest and southwest quarters of the southeast quarter of Section 12, Township 37 North, Range 2 West of the Willamette Meridian (USGS 1994). The preserve is located approximately 0.5 miles east of the proposed Mount Baker Road single-family housing project. Two properties were purchased by the San Juan County Land Bank to create the preserve including the 39.5-acre Stonebridge Farms property and the 20-acre Terrill Beach wetlands property.

Additional mitigation for the Mount Baker Road single-family housing project is proposed on the Stonebridge Farms portion of the preserve within a fallow pasture. The site chosen for wetland enhancement is along both sides of a low-gradient, unnamed stream that flows through a large emergent wetland. At the northern border of the Stonebridge Farms parcel, this stream enters a forested wetland on the adjacent Terrill Beach wetland property. The intent of the proposed wetland enhancement is to extend this forested community south along both sides of the stream channel. The stream continues north and eventually drains into a brackish marsh and marine waters at Terrill Beach.

Property Ownership

The San Juan County Land Bank owns the Stonebridge-Terrill Preserve. An agreement between OPAL and the San Juan County Land Bank allows for 20,000 square feet (0.46 acres) of existing wetlands to be enhanced on the site.

Rationale for Site Selection

The site selection process for the Stonebridge–Terrill Preserve involved a review of existing information and site reconnaissance. Information on the property that was reviewed included the following:

- Wetland Analysis Report for the Stonebridge Farm Parcels, Orcas Island, Washington (Rozewood 2006).
- Stonebridge–Terrill Preserve Draft Stewardship and Management Plan (San Juan County Land Bank 2007).

The rationale for selecting the Stonebridge–Terrill Preserve as a mitigation site included the following:

- The preserve contains expansive emergent wetlands suitable for wetland enhancement because they were degraded by previous agricultural practices.
- The preserve is located within the same drainage basin as the proposed Mount Baker single-family housing project.

Ecological Assessment of Existing Conditions

The wetland enhancement site at the Stonebridge–Terrill Preserve consists of 20,000 square feet (0.46 acres) of emergent wetland within a larger emergent wetland that comprises most of the Stonebridge Farms portion of the preserve. The portion of wetland proposed for enhancement is a depressional wetland based on the hydrogeomorphic (HGM) classification system (Brinson 1993). The overall wetland rates as a Category II wetland based on the Ecology rating system (Hruby 2004; Rozewood 2006). Photographs of the wetland enhancement site are attached to this addendum report (Attachment 1).

Dominant vegetation at the wetland enhancement site includes slough sedge (*Carex obnupta*), soft rush (*Juncus effusus*), and pasture grasses including tall fescue (*Festuca arundinacea*), red fescue (*Festuca rubra*), and bentgrass (*Agrostis* sp.).

The wetland enhancement site is mapped as containing two soil series, including the Sholander-Spieden complex and the Bazal-Mitchellbay complex (NRCS 2007). Sholander soils are somewhat poorly drained, occur in valleys, and consist of gravelly loam and gravelly sandy loam in the surface horizons. Spieden soils are poorly drained, occur in drainage ways, and consist of mucky silt loam, silt loam, and gravelly loamy sand in the surface horizons. Bazal soils are poorly drained, occur in drainage ways, and consist of mucky loam and loam in the surface horizons. Mitchellbay soils are somewhat poorly drained, occur on valley sides, and consist of gravelly sandy loam and sandy loam in the surface horizons. According to the national hydric soils list, Spieden and Bazal soils are classified as hydric soils (NRCS 2008).

Hydrology in the wetland at the wetland enhancement site is supported by a high groundwater table that is influenced by the streams and ditches flowing through the wetland.

Final Site Plan for the Offsite Wetland Enhancement Site

This section includes information related to the site plan for the wetland enhancement site located at the Stonebridge-Terrill Preserve. Information related to the onsite mitigation site plan is provided in the *Draft Revised Wetland Mitigation Plan—Mount Baker Road Single-Family Housing* (Herrera 2008).

Vegetation

A forested vegetation community is proposed for the wetland enhancement site at the Stonebridge-Terrill Preserve (Figure 2). A combination of planted trees and shrubs will form a dense, forested community. Trees and shrubs will be planted among the existing emergent and herbaceous vegetation.

Suitable plants have been identified on the basis of observations of plants that are successful in the project area, the wetland indicator status of plants, the water and light requirements of plants, and deer resistance properties. The wetland enhancement site will be planted with tree and shrub species selected from the following table.

Table 1. Native plant species proposed for planting in the wetland enhancement site at Stonebridge–Terrill Preserve, Orcas Island, Washington.

| Vegetation Stratum | Scientific Name | Common Name |
|--------------------|---------------------------|---------------------|
| Trees | <i>Alnus rubra</i> | Red alder |
| | <i>Betula papyrifera</i> | Paper birch |
| | <i>Fraxinus latifolia</i> | Oregon ash |
| | <i>Malus fusca</i> | Pacific crabapple |
| | <i>Pinus contorta</i> | Shore pine |
| | <i>Rhamnus purshiana</i> | Cascara |
| | <i>Thuja plicata</i> | Western red cedar |
| Shrubs | <i>Acer circinatum</i> | Vine maple |
| | <i>Cornus sericea</i> | Red-twig dogwood |
| | <i>Ribes divaricatum</i> | Straggly gooseberry |
| | <i>Rosa nutkana</i> | Nootka rose |
| | <i>Rosa pisocarpa</i> | Swamp rose |

Individual trees will be planted among shrubs that are planted in clusters of the same species. Spacing will be a minimum of 10 feet on center for trees and 5 feet on center for shrubs. Planting will occur during the dormant season (November through February).

Monitoring

OPAL proposes a 10-year monitoring period for the onsite wetland mitigation areas, whereas previously a 5-year monitoring period was proposed. In addition, OPAL proposes 10-year monitoring of wetland enhancement measures at the Stonebridge–Terrill Preserve. OPAL will arrange for a qualified biologist to monitor both the onsite and offsite wetland mitigation sites during Years 1, 2, 3, 5, 7, and 10 following construction and planting of the sites.

The monitoring visits for the first year will be conducted to inspect the plantings, identify mortality, and identify the quantity and locations of plants that need to be replaced. In addition, the wetland mitigation sites will be inspected for the presence of invasive plant species. Upon completion of the site visits, OPAL will submit to San Juan County and Ecology a memorandum summarizing monitoring results and necessary maintenance measures. The memorandum for the first year will include an inventory of plants that need replacement in accordance with the landscaping contractor’s first-year warranty for survival of all plants installed during construction. During the first monitoring site visit, approximately five permanent photo stations will be established on site, four permanent photo stations will be established off site, and a photo station log will be developed.

Monitoring reports will be submitted to San Juan County and Ecology for the second, third, fifth, seventh, and tenth years. The reports will describe the monitoring methods, performance

standards, results, and contingency measures. Each memorandum and monitoring report will include photographic documentation, including a panoramic photograph of the sites as well as photographs taken from the established photo points.

References

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Rozewood. 2006. Wetland Analysis Report for the Stonebridge Farm Parcels, Orcas Island, Washington. Prepared for San Juan County Land Bank by Rozewood Environmental Services, Inc., Lopez Island, Washington. March 2006.

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USGS. 1994. Topographic map. Scale 1:24,000. U.S. Geological Survey.

ATTACHMENT 1

Photographic Documentation

**Mount Baker Road Single Family Housing
Stonebridge-Terrill Preserve Wetland Enhancement Site
Photographic Log**

| Photo Number | Photo Description |
|--------------|--|
| 1 | Facing south at proposed buffer enhancement site on east side of stream. |
| 2 | Facing south at proposed buffer enhancement site on west side of stream. |
| 3 | Facing east along northern border of Stonebridge-Terrill Preserve. |
| 4 | Facing north at forested uplands and wetlands adjacent to the Stonebridge Farms portion of preserve. |

