

EXHIBIT F.3

Habitat Management Plan Prepared by Ecological Land Services



HABITAT MANAGEMENT PLAN

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Johnson Ridge PRD *Poulsbo, Washington*

Prepared for

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SIGNATURE

The information and data in this report were compiled and prepared under the supervision and direction of the undersigned.



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INTRODUCTION

Ecological Land Services, Inc. (ELS) has completed this Habitat Management Plan (HMP) on behalf of The Holt Group, Inc. for the Johnson Ridge Planned Residential Development (PRD). The HMP has been prepared to address the temporary grading impacts and the proposed trail at the outer edge of the Bjorgen Creek, 200-foot buffer. The 200-foot buffer is required from Bjorgen Creek because it is a Type F1 (fish bearing stream with salmonids). The subject property consists of parcel number 252601-2-004-2008. ELS biologists conducted a site visit on October 1, 2019 to inventory site conditions for preparation of this HMP as required under *Poulsbo Municipal Code (PMC) Section 16.20.040*.

PROJECT DESCRIPTION

PROJECT LOCATION

The property is located along Johnson Road at the east end of Poulsbo in Kitsap County, Washington. The property begins on the east side of Johnson Road and extends east to Bjorgen Creek (Figure 2). It is located within Section 25, Township 26 North, Range 1 East of the Willamette Meridian (Figure 1).

PROPOSED DEVELOPMENT ACTIVITIES

The Johnson Ridge project proposes a 61-lot PRD on the upland portion of the parcel south of the new section of Johnson Parkway (Figure 3). The stormwater facility was originally proposed in the southeast corner where it impacted about 33,311 square feet of the 200-foot stream buffer. The project has been revised to propose only temporary grading impacts at the back of Lots 1 through 5 that will total 8,772 square feet (Figure 3). A trail is proposed within the temporarily impacted buffer area and will comprise 1,474 square feet of the buffer. Restoration is proposed to compensate for the temporary impacts and will include installation of native trees and shrubs (Figure 8). Johnson Parkway has been designed to cross the north end of the property and downslope of the proposed development (Figures 3 and 4). It will partially be within the Bjorgen Creek buffer as it curves to the north and will continue north to the existing section of Johnson Parkway. The trail will be a 5-foot wide, gravel pedestrian trail within the outer edge of the 200-foot buffer per the PMC requirements.

SITE CONDITIONS

The property is rectangular and oriented west to east. An old homestead is located near the middle of the west half with an old orchard along the west property line (Figure 2). The above ground structures of the home and various outbuildings have been removed with concrete basements and stairs remaining, which will be removed during preliminary clearing and grading activities. Single-family homes are located south and northwest of the property that are also accessed from Johnson Road and State Highway 305. Undeveloped coniferous forest lies to the north and west of the property. About half of the property is composed of historic pasture with areas of upland forest at the east end and across the south half (Photoplates 1, 2, and 3). There is a somewhat isolated upland forest near the middle. The topography rises from the north property line to the east-west ridge across the middle of the property that slopes moderately down to the south property line. The east end of the ridge ends at the top of the very steep ravine through which Bjorgen Creek flows. There is a narrow terrace about half of the way down the stream slope that appears to have historically been used as a farm road (Photoplate 5).

Bjorgen Creek is confined to the bottom of the steep-sided ravine on the east side. There are terraces along the slope and very steep slopes down between the terraces (Photoplates 4, 5, and 6). The steepest section of the slope is the lowest section that extends down to Bjorgen Creek (Photoplate 6). The ravine slopes are composed of a mixed coniferous and deciduous forest with a sparse shrub layer and often nonexistent herbaceous layer (Photoplates 4 and 5).

BUFFER FUNCTIONS

This project site lies within the Poulsbo city limits and is composed of pasture and upland forest with critical areas on the north and east sides (Figure 2). The stream buffer area that will be impacted is on moderately to steeply sloping terrain and is forested. The forested conditions extend toward the western edge where blackberry thickets dominate (Photoplates 1, 2, and 3) and down the slope to Bjorgen Creek. The forest has a full canopy of coniferous and deciduous trees with somewhat sparse shrub and herbaceous layers.

The width of buffers necessary to protect a critical area from degradation is related to the functions of the critical area and the buffer itself (Castelle, et al. 1992). Buffers function to protect water quality of critical areas including streams and wetlands by removing sediment and nutrients from runoff and the function depends on the type of soils, vegetation, and characteristics of the runoff. The function of buffers is also based on width and slope. In some cases, buffers as low as 50 feet are effective in filtering pollutants when there is dense groundcover, no slope or a gradual slope, and runoff sheet flows across the buffer. The function of the buffer can be attributed both to the steep ravine slope, which ranges in depth from 60 feet at the south end to 85 feet at the north end so prevents direct noise and light impacts to the stream. The other factor contributing to the function of the buffer is the high canopy forested conditions. Restoration is proposed in the temporarily impacted buffer to encourage the development of dense buffer edge vegetation that is intended to reduce intrusion and provide additional noise and light screening for the riparian corridor. The remainder of the buffer will not be disturbed by the current project plans.

Buffers also function to limit human intrusion when there are dense vegetation communities which humans cannot penetrate. These dense vegetation communities also reduce indirect human impacts that noise and light can have on stream and wetland habitats. The value of the buffer to provide these functions is based on the condition and wildlife that are currently utilizing the critical area (Sheldon, et al. 2005). The buffer restoration plan proposes a dense, low shrub layer consisting of roses and Oregon grapes to reduce the intrusion by future residents. Sitka spruces will be planted in the tree layer and will provide another deterrent to residents while young.

POULSBO STREAM BUFFER REQUIREMENTS

The *PMC Section 300 Fish and Wildlife Habitat Conservation Critical Areas* (FWHCA) specifies buffer widths for FWHCA based on the water type for streams within the city of Poulsbo jurisdiction. Bjorgen Creek is considered a Type F1 water and requires a 200-foot buffer established from the ordinary high-water mark (OHWM) per *PMC Section 16.20.315.A(6), Table 16.20.315*. Temporary impacts are allowed per *PMC Section 16.20.315.B(3)*, which allow buffer alterations to accommodate utilities and water-dependent features. The alteration must be the least necessary and identifies and adequately protects any fish and wildlife habitat conservation areas. This project proposes temporary impacts to the buffer by a habitat management plan that

is reviewed by the Washington Department of Fish and Wildlife and the Suquamish Tribe and both agencies concur with the findings per *PMC Section 16.20.315.B(1)(a)*.

The project's pedestrian trail is proposed within the outer edge of the standard 200-foot buffer but does not propose to reduce the buffer. There will be temporary grading impacts within the same buffer area but will remain part of the buffer. Restoration will replace the buffer vegetation that is removed to accommodate the lots and future trail. Trails are allowed in FWHCA buffers, but they must be 5 feet or less in width and be constructed of pervious materials where possible. In addition, slight intrusions into the setback may be allowed to accommodate individual home features including fire escapes, open/uncovered porches, landing places, outside walkways, outside stairways, retaining walls fences, and patios.

HABITAT AND CRITICAL AREAS MAPPING

KITSAP COUNTY CRITICAL AREA AND HABITAT MAPPING

The Kitsap County GIS (KCGIS) viewed through the on-line mapping website was used to identify the presence of critical areas on and adjacent to the property (Kitsap County 2019). The critical areas map identifies a Type F1 stream along the east side of the property and wetland along the north edge (Figure 4). Bjorgen Creek is a Type F1 water because it has perennial flow within a channel greater than 2 feet at bankfull width and it flows on terrain that has a gradient of less than 16 percent. Because the stream is designated Type F1 water, the *PMC* requires a 200-foot buffer from the OHWM of the stream. The wetland mapping on the KCGIS was confirmed by the delineation conducted in January 2016 (ELS 2019), although it extends slightly further onsite than indicated (Figure 2).

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE, PRIORITY HABITATS AND SPECIES

The Washington Department of Fish and Wildlife Priority and Habitat and Species (PHS) website (WDFW 2019a) identifies Bjorgen Creek as a priority habitat with priority species occurrences (Figure 5). The mapping shows occurrence and migration of coho salmon (*Oncorhynchus kitsuch*) and coastal cutthroat and resident cutthroat trout (*Oncorhynchus clarki*) within Bjorgen Creek. Bjorgen Creek flows southerly and enters the north side of Liberty Bay after crossing through a culvert under State Route 305. The Washington Department of Transportation installed a fish friendly crossing under SR 305, which will likely facilitate use of Bjorgen Creek by steelhead.

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE, SALMONSCAPE

The Washington Department of Fish and Wildlife Salmonscape website (WDFW 2019b) maps the stream in the same location as the other mapping websites and indicates documented presence of coho salmon (Figure 6). Salmonscape also indicates that Bjorgen Creek is part of Distinct Population Segment (DPS) for winter and summer steelhead and is part of the Evolutionary Significant Unit (ESU) for Puget Sound/Strait of Georgia Coho (*Oncorhynchus kitsuch*) and Chum (*Oncorhynchus keta*) salmon. Salmonscape does not include Bjorgen Creek in the ESU for Chinook salmon.

WASHINGTON DEPARTMENT OF NATURAL RESOURCES-FPARS MAPPING

The Washington Department of Natural Resources (WDNR) Forest Practices Application Review System (FPARS) website was consulted to determine the stream location and water type (WDNR

2019a). The mapping indicates the stream is a Type F water on the east edge of the property (Figure 7). The Washington State Department of Transportation (WSDOT) replaced deteriorating culverts at State Highway 305 downstream of this property that now allow access to Bjorgen Creek by anadromous fish species. Additional blockages on private properties currently limit access to the upper reaches of Bjorgen Creek.

LISTED SPECIES AND HABITATS IN THE PROJECT VICINITY

The potential presence of listed species, including fish, bird, and mammals that have a primary association with the habitat of the unnamed stream was evaluated by multiple site visits (ELS 2019), aerial photographs, the WDFW Priority Habitats and Species website (WDFW 2019a), the U.S. Fish and Wildlife Service (USFWS 2020) website, the NOAA Fisheries website (NOAA 2020), and the Washington Department of Natural Resources Natural Heritage website (WDNR 2019b).

Table 1: Listed Species in the Project Vicinity

Species, ESU ¹ or DPS ²	State Status ³	Federal Status ⁵	Critical Habitat ⁵ in Project Vicinity
<i>Fish</i>			
Puget Sound ESU Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	Candidate	Threatened	No
Puget Sound DPS Steelhead (<i>Oncorhynchus mykiss</i>)	None	Threatened	Yes
Bull Trout (<i>Salvelinus confluentus</i>)	Candidate	Threatened	No
<i>Birds</i>			
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	Endangered	Threatened	No
Streaked Horned lark (<i>Eremophila alpestris strigata</i>)	Endangered	Threatened	No
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	Candidate	Threatened	No

1) ESU - Evolutionarily Significant Unit. A distinct group of Pacific salmon.

2) DPS – Distinct Population Unit.

3) Endangered - In danger of becoming extinct or extirpated; Threatened - Likely to become endangered within the foreseeable future throughout all or a significant portion of its range and that has been formally listed as such in the Federal Register under the Federal Endangered Species Act; Sensitive - Vulnerable or declining and could become Endangered or Threatened in the state; Species of Concern - An unofficial status, the species appears to be in jeopardy, but insufficient information to support listing. State candidate species include fish and wildlife species that the Department will review for possible listing as State Endangered, Threatened, or Sensitive. A species will be considered for designation as a State Candidate if sufficient evidence suggests that its status may meet the listing criteria defined for State Endangered, Threatened, or Sensitive.

4) Washington Department of Fish and Wildlife, PHS website 2019a

5) NOAA 2020, USFWS 2020

FISH

According to the NOAA Fisheries (NOAA 2020) website, there are four listed ESUs/DPSs of salmon and steelhead in which the Poulsbo area of Kitsap County. These species are found within the marine waters of Liberty Bay into which the Bjorgen Creek flows, but they are not found within this stream system. The species occurring within Bjorgen Creek include coho salmon, resident cutthroat, and coastal cutthroat trout (WDFW 2019a). The replacement of downstream culverts

appears to have opened Bjorgen Creek for use by Puget Sound steelhead but has not yet been confirmed by Salmonscape or PHS mapping.

BIRDS

Research conducted for this project shows that the property does not have habitat for marbled murrelet, streaked horned lark, and yellow-billed cuckoo (WDFW 2019a). The forested conditions onsite are not suitable for the bird species listed in Kitsap County and it does not appear that any known nesting or breeding sites are mapped in the Poulsbo area of Kitsap County (WDFW 2019b).

PLANTS

The Washington Department of Natural Resources, Natural Heritage Program website (WDNR 2019b) lists seven rare plant species that occur within Kitsap County. None of the listed species are found within forested or pasture communities on this property. This site is dominated by mixed pasture and weed species throughout with mixed coniferous and deciduous forested areas that have shrub layers of varying heights with occasional herbaceous forbs and ferns none of which appear on the rare plant list for Kitsap County.

CRITICAL HABITAT

Liberty Bay is considered critical habitat for Chinook salmon and steelhead (Federal Register 2005 and NOAA 2020) but Bjorgen Creek is only identified as critical habitat for steelhead.

IMPACT ANALYSIS

STREAM IMPACTS

The onsite stream will not be directly impacted by the proposed onsite activities because most of the buffer will remain intact. The buffer will be temporarily impacted during construction within 200 feet of the OHWM, but they are temporary and/or passive in nature (Figure 8). The proposed residential development will be situated slightly upslope and west of the stream ravine, which will prevent noise and light from penetrating into the stream area and the forest will provide shading for the entire riparian corridor. The development will include a drainage plan that will convey runoff into a stormwater facility at the southwest corner of the project site and there will be no discharge of runoff toward the stream.

STREAM BUFFER IMPACTS

The Johnson Ridge project was revised to remove the stormwater facility from the buffer eliminating 33,311 square feet of impact. The current proposal will include temporary impacts in the outer 25 feet of the 200-foot buffer caused by grading of the lots next to this area of buffer. A trail will be constructed within this section following grading activities. The temporary impacts total 8,772 square feet, which includes the trail area. The trail is a permanent feature within the buffer but will not affect the function of the buffer because it is at the outer edge and native vegetation will be planted on both sides. Restoration of vegetation will take place following construction activities to replace the functions lost and possibly increase functions by installing a diversity of species. The remainder of the 200-foot buffer will remain untouched.

SPECIAL MANAGEMENT RECOMMENDATIONS

Management recommendations for critical areas including stream corridors involve identifying measures that will preserve high quality conditions or rectify disturbed conditions that maintain or improve the function of the critical area. Buffers are one of the main management methods employed to protect the function of critical areas. In areas where buffer conditions are poor, enhancement is conducted to improve the buffer function, which also often enhances and improves the function of the critical area. Other special management recommendations are applied to aid in the preservation of special critical areas, wildlife species, and/or wildlife habitats that require additional protection measures to preserve their function and populations. They are often developed for endangered, threatened, sensitive, species of concern, rare habitat areas, etc. to preserve the critical area, habitat, or species. The stream is identified as fish-bearing but does not have confirmed use by listed salmonids (WDFW 2019a). Restoration is proposed to restore the edge vegetation removed during construction activities so that there is only temporary reduction in edge buffer function. Planting will take place after grading activities so there should be no invasive plant cover to be removed. Should there be any invasive plant cover, it will be removed prior to installation of the plants. A split rail fence will be installed along the edge of the stream buffer and critical area buffer signs will be placed on the fence following implementation of the restoration plan. No other special management recommendations are proposed at this time.

POTENTIAL EFFECTS OF THE PROJECT ON LISTED SPECIES AND HABITAT

DIRECT EFFECTS AND INDIRECT EFFECTS

The original project proposed 33,311 square feet of buffer reduction to accommodate the stormwater facility. The currently proposed project involves only temporary buffer impacts that total 8,772 square feet, which is significantly less than the original proposal. The project has minimized the buffer impacts but cannot completely avoid impacts because of the property configuration and slope concerns. There will be no direct effects to the stream because no activities will occur in or adjacent to the actual channel or within the riparian zone (WDFW 2018). The zone of influence, which lies outside the riparian zone, will be maintained, and enhanced to ensure the continued function of the existing buffer. No direct effects are proposed to the stream and there will be few indirect impacts because the buffer will be temporarily impacted and will be planted to rectify the impacts. There will be no indirect water quality impacts to the stream because the stormwater generated on the developed site will drain to the southwest and away from the stream and buffer (Figure 3). The temporary buffer impacts and construction of the proposed residential development will not have adverse impacts on the listed species, critical habitat, or suitable habitat for these species.

The indirect impacts represent the proposed buffer impacts necessary to develop this property, which will occur in outside the riparian zone and zone of influence where most of the buffer function is provided (WDFW 2018). Some recent research provides for special considerations for anadromous fish streams to protect the fish at all stages of life (WDFW 2018). Bjorgen Creek has anadromous fish use, which is limited to non-listed species, so the buffer impacts will not pose any impact to the critical habitat for listed species nor will it have impact on current fish species.

IMPACT AVOIDANCE AND MINIMIZATION MEASURES

The project has been designed to utilize most of the property, which is composed of open field with scattered forest. Portions of the development will be located downslope and west of the ravine so that when grading is completed, only five of the 61 lots will be located immediately along the buffer edge (Figure 3). Originally, this project proposed the stormwater facility within a 33,311 square foot area of the stream buffer. The project was redesigned to remove the pond from the buffer so eliminates the significant impact originally proposed. The current plan proposes encroachment into 8,772 square foot area of buffer at the north end to accommodate grading needed to construct Lots 1 through 5. The trail is also proposed within this buffer area. Most of the onsite buffer will remain intact and will not be impacted by the project or construction activities. The project cannot entirely avoid the proposed buffer impacts, but they have been minimized by reducing the original impacts and proposing only temporary impacts to the buffer. The impacts will be rectified by planting native trees and shrubs within the disturbed buffer and along both sides of the trail.

STREAM BUFFER RESTORATION PLAN

The project has minimized the temporary impacts and proposes restoration to replace the removed vegetation. The temporary impacts will affect 8,772 square feet near the buffer edge and are necessary to create the grades required for Lots 1 through 5. The vegetation removed will be replaced with native trees and shrubs to restore the area to native vegetation and to restore the temporarily impacted buffer function. Topsoil and mulch will be spread across this area to begin the restoration process. Fencing will be placed along the buffer edge to discourage intrusion into the buffer and critical area signs shall be placed along the entire length of the buffer. Monitoring is proposed for a period of 5 years to track the development of the desired vegetation community.

SPECIFICATIONS FOR SITE PREPARATION

1. Stake or flag the limits of the buffer restoration area to define areas.
2. Create soil conditions suitable for plant installation, including application of organic topsoil and woody mulch.
3. Install split rail fence at the edge of the buffer and place critical area boundary signs at the edge of the buffer identifying the critical area and buffer.

GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

Project Goal: Restore buffer functions to compensate for the temporary impacts to the FWCHA buffer.

Objective 1: Control invasive species.

Performance Standard 1 (a): During monitoring Years 1 through 5 (PMC 2018), invasive species will be removed and suppressed in the restoration area as often as necessary to meet a performance standard of no greater than 10 percent cover by invasive species. Invasive species include, but are not limited to, English ivy, Himalayan blackberry, English holly, and English laurel. Percent cover will be recorded annually and included in monitoring reports.

Objective 2: Improve native plant cover and buffer function.

Performance Standard 2 (a): The project will maintain 90 percent survival of plants during the first two years of the monitoring period. If the survival rate is not met at the end of two years,

installation of additional plants will be necessary. Additional survival rate monitoring may be required to ensure the survival rate meets the standard. Live plant species number will be recorded and compared with as-built conditions for inclusion with the monitoring reports.

Performance Standard 2 (b): The restoration area will have increasing cover over the 5 year monitoring period. Yearly percent cover standards will track the coverage increases and will include a minimum of 15 percent in Year 1, 20 percent in Year 2, 25 percent cover in Year 3, 35 percent in Year 4, and 50 percent in Year 5. Plant species and percent cover will be recorded annually and included in monitoring reports.

SPECIFICATIONS FOR PLANTING

The plants specified for installation are intended to replace the forest in the impact area to maintain the high function of the existing stream buffer. Plant installation can take place any time of the year, but winter installation is preferred because the plants will be dormant. The plants have been selected based on the existing native species in the onsite buffer and include those that have done well in similar onsite conditions.

Plant Materials

Potted Stock

1. 1-gallon potted plants will be purchased from a native plant nursery.
2. Potted stock will be a minimum size of 18- to 36-inches tall.
3. Potted stock will be kept in a shaded area prior to being planted.
4. The potted stock will have well-developed roots and sturdy stems with an appropriate root- to-shoot ratio.
5. No damaged or desiccated roots or diseased plants will be accepted.
6. The project biologist will be responsible for inspecting potted stock prior to and during planting and culling unacceptable plant materials.

Planting Specifications

Planting will begin at any time following completion of the construction activities but ELS recommends wintertime plant installation. The deciduous shrubs will be installed in small groups of 3 to 4 per species throughout the buffer restoration area to mimic the natural environment and to enhance species survival. Plantings will be spaced to allow for access around the planted species for removal of invasive plants and will be planted around the existing trees and shrubs.

Table 2 summarizes the total plant species, spacing, size, and quantities for the buffer restoration area. The plant total is based on the square footage of the restoration area. The planting plan does not show locations of individual plants but includes a typical diagram to document the proposed placement of individual plants around existing native trees and shrubs. The final location of the plants will be discussed in the as-built report prepared after completion of plant installation.

Table 2: Buffer Restoration Plant Specifications

Species	Spacing	Quantity	Size
TREE STRATUM			
Sitka spruce (<i>Picea sitchensis</i>)	10	30	1-gallon
Bigleaf maple (<i>Acer macrophyllum</i>)	10	25	
Cascara (<i>Frangula purshiana</i>)	10	20	1-gallon
Tree Total		75	
SHRUB STRATUM			
Beaked hazelnut (<i>Corylus cornuta</i>)	5	25	1-gallon
Indian plum (<i>Oemleria cerasiformis</i>)	5	25	1-gallon
Serviceberry (<i>Amelanchier alnifolia</i>)	5	25	1-gallon
Oceanspray (<i>Holodiscus discolor</i>)	5	25	1-gallon
Vine maple (<i>Acer circinatum</i>)	5	25	1-gallon
Woods rose (<i>Rosa pisocarpa</i>)	5	50	1-gallon
Oregon grape (<i>Mahonia nervosa</i>)	5	50	1-gallon
Shrub Total		225	
Plant Total		300	

Plant Installation Specifications

1. Plant the specified trees and shrubs at any time during the year as listed in Table 2. Space the plants somewhat irregularly and in groups to create dense heterogeneity in the planting area, leaving enough space between each group to allow for access during weed removal. Plant the potted stock with a tree shovel or comparable tool.
2. Place the potted species in the planting holes and position the root crowns so that they are at, or slightly below, the level of the surrounding soil. Planting just below the surrounding soil will create a shallow depression around each plant for retention of water.
3. Firmly compact the soil around the planted species to eliminate air spaces.
4. Install anti-herbivory devices, such as seedling protection tubes or mesh protection netting, around the stems of planted species when appropriate, and secure them with stakes.
5. Irrigate all newly installed plants as site and weather conditions warrant.

MAINTENANCE PLAN

Maintenance of the restoration area will occur for five years and will involve removing invasive plant species, irrigating planted species, and reinstalling failed plantings, as necessary. The maintenance may include the following activities:

1. Remove and control invasive vegetation around all newly installed plants a minimum of two times during the growing season for the first five years. Use of herbicides may aid in the suppression of invasive plants in the restoration area and elsewhere on the site but only as a last resort. Herbicides must be approved for use in critical area buffers and applied by licensed applicators.
2. Irrigate planted species as necessary during the dry season, approximately July 1 through October 15. ELS recommends that watering occur at least every two weeks during the dry

season for the first three years. The most successful method of watering plants is using a temporary above-ground irrigation system set to a timer to ensure the plants are regularly watered. However, watering can be conducted by hand.

3. Replace dead or failed plants as described for the original installation to meet the minimum annual survival rate and percent cover performance standards. Plant replacement will take place in the first dormant season after the low percent survival rate is recorded.

MONITORING PLAN

The *PMC Section 16.20.745* specifies monitoring of buffer restoration projects for a minimum of 5 years and a maximum of 10 years. Monitoring of the buffer restoration area is proposed for a period of 5 years following plant installation, which is typical for buffer planting projects. Monitoring will occur at the end of the growing season in all 5 years. Monitoring reports will be submitted to the Poulsbo Planning Department (PPD) by December 31st of each monitored year. The goal of monitoring is to determine if the previously stated performance standards are being met. The restoration area will be monitored once during the growing season, preferably during the same two-week period each year to better compare the data. Individual monitoring units will be established within the restoration area to track the changes occurring over the monitoring period.

Vegetation

Vegetative monitoring will document the developing tree sub-canopy and shrub layer in the restored buffer. The following information will be collected in the restoration area:

- Percent cover and frequency of native volunteer herbaceous species (3.28-foot quadrant).
- Percent cover and frequency of sapling/shrub species (10-foot radius).
- Percent cover and frequency of tree species (30-foot radius).
- Species composition of herbs, shrubs, and trees, including non-native, invasive species.
- Photo documentation of vegetative changes over time.

Monitoring Report Contents

The annual monitoring reports will contain at least the following:

- Location map and representational drawing.
- Historic description of project, including dates of plant installation, current year of monitoring, and restatement of goals, objectives, and performance standards.
- Description of monitoring methods.
- Documentation of plant cover and overall development of plant communities.
- Assessment of non-native, invasive plant species and recommendations for management.
- Photographs from permanent photo points.
- Summary of maintenance and contingency measures proposed for the next season and completed for the past season.

CONTINGENCY PLAN

If the performance standards are not met at any time during the five-year monitoring period, as low survival rate and percent cover warrants, a contingency plan will be developed and implemented. All contingency actions will be undertaken only after consulting and gaining

approval from the PPD. The applicant will be required to complete a contingency plan that describes (1) the causes of failure, (2) proposed corrective actions, (3) a schedule for completing corrective actions, and (4) whether additional maintenance and monitoring are necessary.

SITE PROTECTION

The project proposes to set aside the critical area represented by Bjorgen Creek and the 200-foot buffer within a separate open space tract. Fencing will be placed along the outer edge of the buffer to demarcate the limits of the critical area. Buffer signs will be added to the fence.

LIMITATIONS

ELS bases this report's determinations on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with our determinations. However, the information contained in this report should be considered preliminary and used at your own risk until it has been approved in writing by the appropriate regulatory agencies. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report.

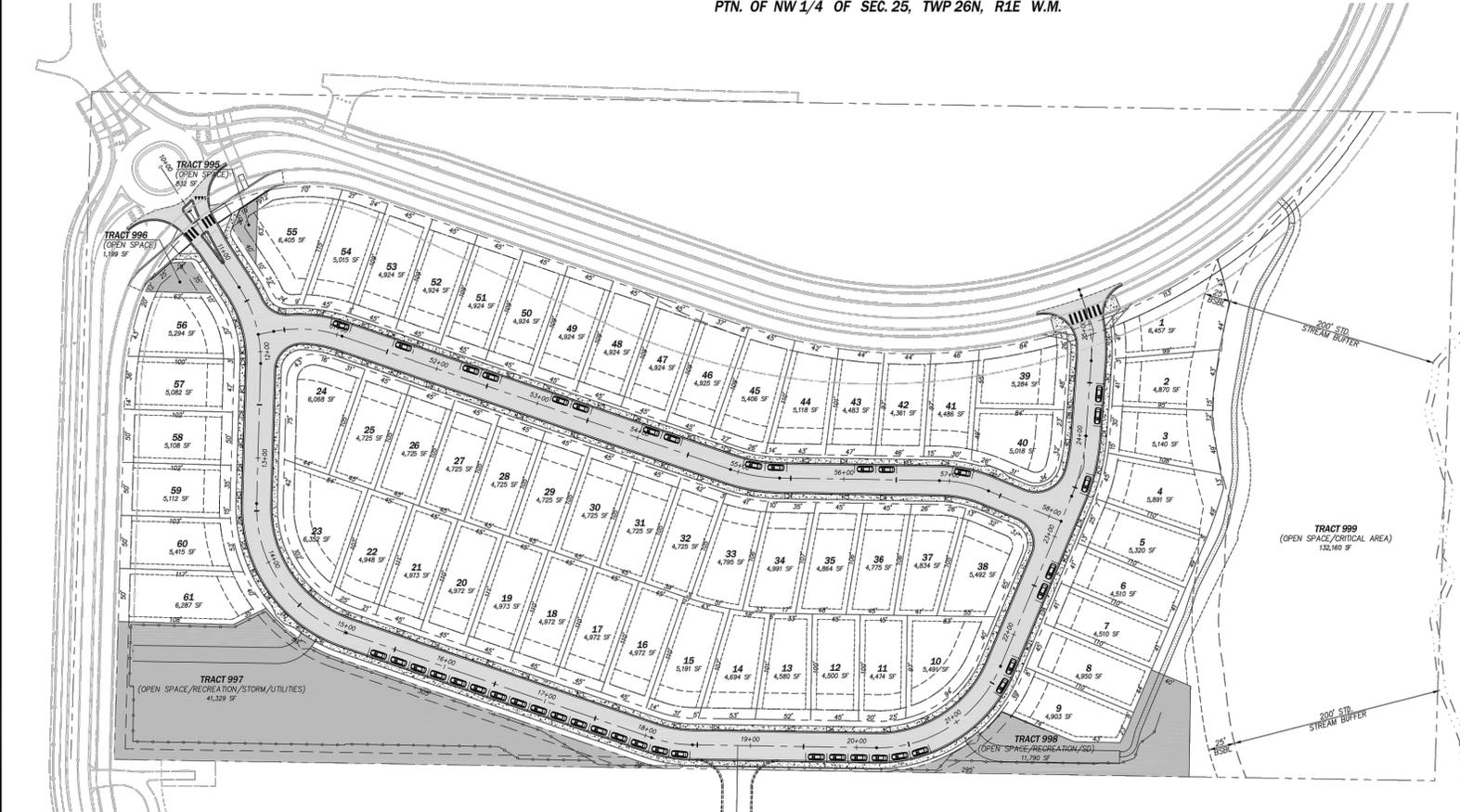
REFERENCES

- Camp, Pamela and John G. Gamon, Editors (Camp). 2011. *Field Guide to The Rare Plants of Washington*. University of Washington Press for Washington Natural Heritage Program.
- Castelle, A.J., C. Conolly, M. Emers, E.D. Metz, S. Meyer, M. Witter, S. Maurermann, T. Erickson, S.S. Cooke (Castelle, et. al). 1992. *Wetland Buffers: Use and Effectiveness*. Adolfson Associates, Inc., Shorelands and Coastal Zone Management Program, Washington Department of Ecology. Olympia. Pub. No. 92-10.
- Ecological Land Services, Inc. (ELS). 2019. *Wetland Delineation Report for Johnson Ridge, Poulsbo, WA*. May 2, 2019.
- Federal Register. 2005. *Endangered and Threatened Species; Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho; Final Rule*. Volume 70. Number 170. 50 CFR Part 226. September 2013.
- Kitsap County Parcel Search (KC). 2019. <https://ags.kitsapgov.com/psearch/index.html>.
- Knutson, L. Lea and Virginia L. Naef. *Management Recommendations for Washington's Priority Habitats: Riparian*. Washington Department of Fish and Wildlife. Olympia. 181 pp.
- NOAA Fisheries (NOAA). 2019. *West Coast Region Website*. <https://www.fisheries.noaa.gov/region/west-coast>. Website accessed March 2020.
- NOAA Fisheries (NOAA). 2020. *Protected Resources App, West Coast Region*. <https://www.webapps.nwfsc.noaa.gov/portal/apps/webappviewer/index.html?id=7514c715b8594944a6e468dd25aaacc9>
- Poulsbo Municipal Code. 2012. *Title 16.20 Critical Areas Ordinance, Section 300. Fish and Wildlife Habitat Conservation Areas (FWHCA), and Sections 16.20.740, 16.20.745, and 16.20.755*. Poulsbo, Washington.
- Sheldon, D. T. Hrubby, P. Johnson, K. Harper, A. McMillan, T. Granger, S. Stanley, and E. Stockdale. March 2005. *Wetlands in Washington State – Volume 1: A Synthesis of the Science*. Washington State Department of Ecology. Publication #05-06-006. Olympia, WA.
- U.S. Fish and Wildlife Service (USFWS). March 2017. Washington Fish and Wildlife Office, Pacific Region. IPaC Website http://www.fws.gov/wafwo/species_new.html. Accessed October 2019.
- Washington Department of Fish and Wildlife (WDFW). 2013. *Threatened and Endangered Wildlife in Washington: 2012 Annual Report*. Listing and Recovery Section, Wildlife Program, Washington Department of Fish and Wildlife, Olympia. 251 pp.

- Washington Department of Fish and Wildlife (WDFW). 2018. *Riparian Ecosystems Volume 2: Management Recommendations*. Amy Windrope, Timothy Quinn, Keith Folkerts, and Terra Rentz. A Priority Habitats and Species Document of the Washington Department of Fish and Wildlife, Olympia.
- Washington Department of Fish and Wildlife (WDFW). 2019a. *Priority Habitats and Species Map Website*. <http://apps.wdfw.wa.gov/phsontheweb/>. Accessed September 2019.
- Washington Department of Fish and Wildlife (WDFW). 2019b. *SalmonScape Mapping Tool*, Online document <http://apps.wdfw.wa.gov/salmonscape/map.html> Accessed September 2019
- Washington State Department of Natural Resources (WDNR). 2019a. Forest Practices Application Review System (FPARS). *Stream Typing Map*. Online document <https://fortress.wa.gov/dnr/protectiongis/fpamt/default.aspx> Accessed September 2019.
- Washington Department of Natural Resources (WDNR). 2019b. Washington Natural Heritage Information System List of Known Occurrences of Rare Plants in Washington, November 2010 Kitsap County. Natural Heritage Program. <http://www1.dnr.wa.gov/nhp/refdesk/plants.html>. Accessed September 2019.

Figures and Photoplates

PTN. OF NW 1/4 OF SEC. 25, TWP 26N, R1E W.M.



GENERAL
 SITE ADDRESS: 3704 JOHNSON RIDGE RD, POULSBO, WA 98290
 TRACT PARCEL NO.: 202006-2-009-2009

SITE AREA
 GROSS SITE AREA: 13.74 AC 89822.51 SF

CRITICAL AREAS
 STREAM AND 150' STANDARD BUFFER (w/in TRACT 997): 2.06 AC 8065 SF
 ADDITIONAL BUFFER (w/in TRACT 997): 1.04 AC 4020 SF
 TRACT 997 (Critical Area and Open Space): 3.10 AC 13385 SF

FLAT ROADS AND STORM AREAS
 FLAT ROAD ROW: 2.40 AC 10440 SF
 PRIVATE ACCESS TRACT: 0.00 AC 0 SF
 STORM DRAINAGE EXEMPT AREAS: 0.89 AC 3000 SF
 TOTAL FLAT ROADS AND SF PAVEMENT: 3.29 AC 14440 SF

LANDSCAPE AND OPEN SPACE AREAS
 TRACT 996 (Open Space): 0.04 AC 1605 SF
 TRACT 997 (Recreation, Open Space, SD, and Utilities): 0.95 AC 4280 SF
 TRACT 997 (Open Equipment Area): 0.69 AC 3000 SF
 TRACT 998 (Open Space): 0.09 AC 393 SF
 TRACT 998 (Open Space): 0.02 AC 83 SF
 TRACT 999 (Private Area, 40% Allowable Paving): 0.83 AC 3646 SF
 TRACT 999 (Public Storm Area, 40% Allowable Paving): 1.04 AC 4521 SF
 TOTAL LANDSCAPE AND OPEN SPACE: 2.21 AC 9620 SF

BASE DENSITY AND LOT STANDARDS (PMC 18.70.040, TABLE 18.70.050)
 ZONING DESIGNATION: RL-RPD
 MINIMUM LOT AREA: 5000 SF
 MINIMUM LOT WIDTH: 30 FT
 MINIMUM LOT DEPTH: 70 FT
 GROSS SITE AREA: 13.74 AC
 NET DEVELOPABLE AREA: 7.55 AC
 MINIMUM DENSITY (PMC 18.70.040): 4 RPD/AC
 MINIMUM LOT YIELD REQUIRED: 30 DU
 MINIMUM DENSITY (PMC 18.70.040): 5 RPD/AC
 MINIMUM LOT YIELD ALLOWED: 49 DU
 MINIMUM LOT COVERAGE: 30%
 FRONT YARD SETBACK OF BUILDING FOOTING: 30 FT
 FRONT YARD SETBACK AT GARAGE: 25 FT
 REAR YARD SETBACK: 30 FT
 SIDE YARD SETBACK: 5 FEET/FE
 STREET CORNER SETBACK: 30 FT
 MINIMUM BALCONY HEIGHT: 35 FT

PROPOSED LOT STANDARDS
 PROPOSED MAX. SINGLE-FAMILY LOTS: 41 DU
 PROPOSED DENSITY (DENSITY): 4.4 D/AC
 MINIMUM LOT AREA: 4000 SF
 AVERAGE LOT AREA: 5900 SF
 MINIMUM LOT AREA: 5200 SF
 MINIMUM LOT WIDTH: 45 FT
 MINIMUM LOT DEPTH: 70 FT
 PROPOSED LOT MIX:

AVERAGE LOT SIZE < 4,500	1 DU	3.0%
AVERAGE LOT SIZE 4,500 TO 5,499	31 DU	76.0%
AVERAGE LOT SIZE 5,500 TO 6,499	9 DU	21.0%

PRO STANDARDS AND DENSITY BONUS
 PROPOSED DENSITY BONUS (PMC 18.200.020.D): NONE
 OPEN SPACE PROVIDED (PMC 18.200.020.D):

AVERAGE LOT SIZE < 4,500	20%	0.65 AC
AVERAGE LOT SIZE 4,500 TO 5,499	35%	1.32 AC
AVERAGE LOT SIZE 5,500 TO 6,499	50%	0.83 AC
TOTAL		2.80 AC

OPEN SPACE PROVIDED (EXCL. PARKING AND SD AREA): 2.31 AC 8600 SF

PERMITS REQUIRED (PMC 18.260.000)
 GROUP 1: 1
 GROUP 2: 1

PRIVATE PARKING, OFF-STREET REQUIRED (PMC 18.70.040): 2 SPACES 122 SPACES
PRIVATE PARKING, OFF-STREET PROVIDED: 2 SPACES 122 SPACES
2.00% BONUS - 18 SPACES
TOTAL: 183 SPACES

PUBLIC PARKING, ON-STREET REQUIRED: 0.5 SPACES 31 SPACES
PUBLIC PARKING, ON-STREET PROVIDED: 34 SPACES

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 Site Planning • Civil Engineering
 Land Use Consulting • Project Management
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 Bellevue, WA 98002
 Phone: (206) 305-5500 | Fax: (206) 365-2999
 www.cph-consultants.com
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April 23, 2020

Johnson Ridge
 Preliminary Site Plan
 61 Lots



NOT TO SCALE

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Figure 3
 SITE PLAN
 Johnson Ridge Habitat Management Plan
 Holt Homes
 Poulsbo, Kitsap County, WA
 Section 25, Township 26N, Range 1E, W.M.

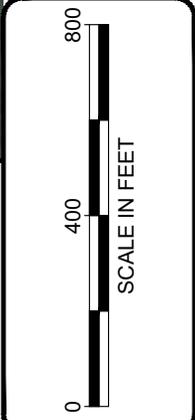


SITE

LEGEND:

- Coho, *Oncorhynchus kisutch*, Occurrence
- Cutthroat, *Oncorhynchus clarki*, Occurrence
- Resident Coastal Cutthroat, *Oncorhynchus clarki*, Occurrence/Migration
- Coho, *Oncorhynchus kisutch*, Occurrence/Migration

NOTE: Map provided on-line by Washington State
 Department of Fish & Wildlife at web address:
<http://apps.wdfw.wa.gov/phsontheweb/>



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Figure 5
PRIORITY HABITAT AND SPECIES MAP
 Johnson Ridge Habitat Management Plan
 Holt Homes
 Poulsbo, Kitsap County, WA
 Section 25, Township 26N, Range 1E, W.M.

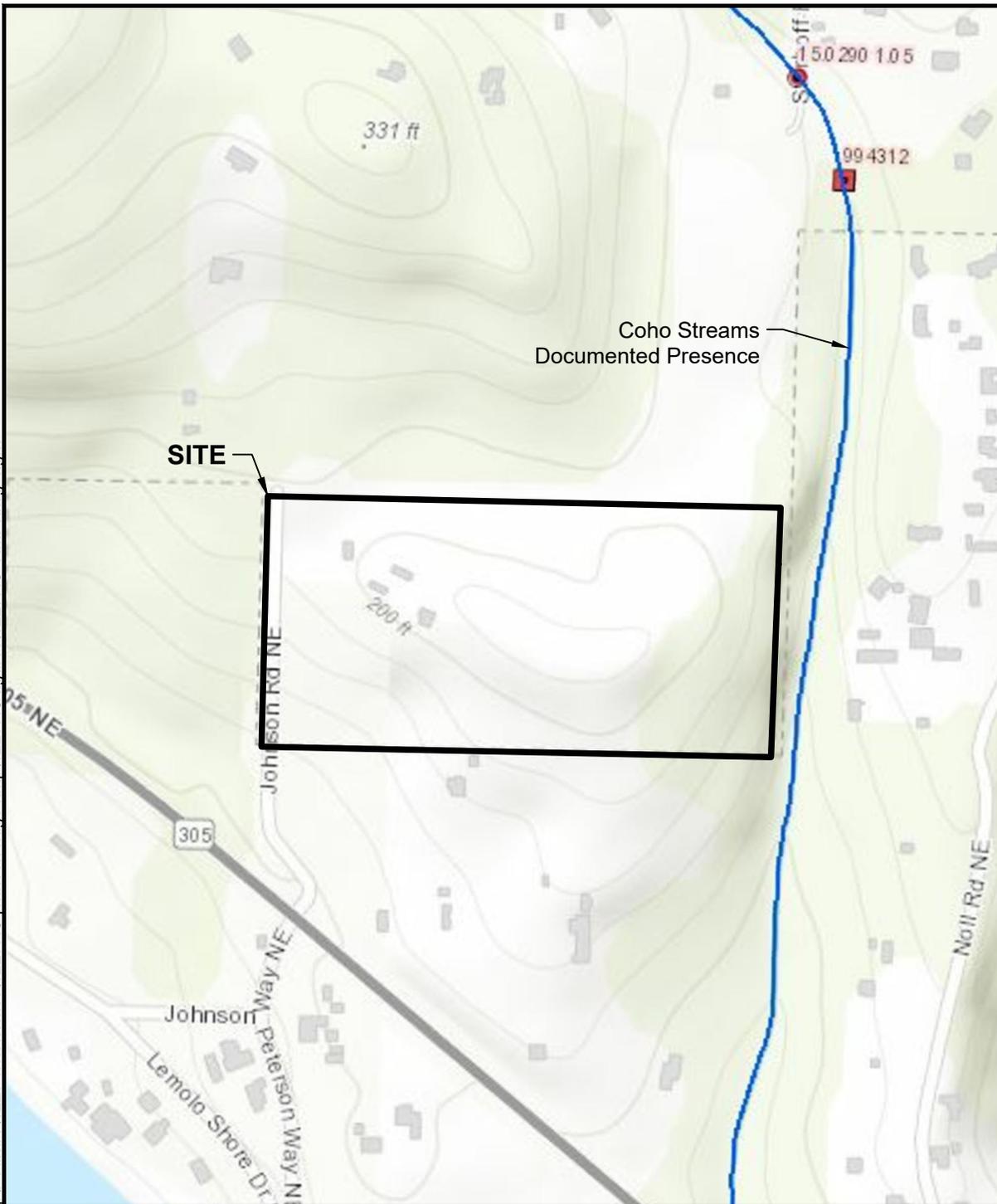
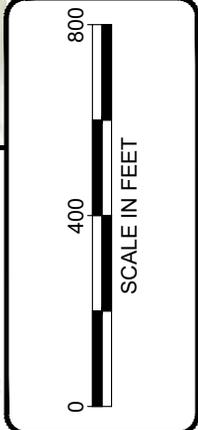


Figure 6
SALMONSCAPE MAP
 Johnson Ridge Habitat Management Plan
 Holt Homes
 Poulsbo, Kitsap County, WA
 Section 25, Township 26N, Range 1E, W.M.

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Fish Passage

Culverts

- Total Blockage
- Total Blockage, Fishway Present
- Partial Blockage
- Partial Blockage, Fishway Present
- Unknown Blockage
- Unknown Blockage, Fishway Present

Dams

- Total Blockage
- Total Blockage, Fishway Present
- Partial Blockage
- Partial Blockage, Fishway Present
- Unknown Blockage
- Unknown Blockage, Fishway Present

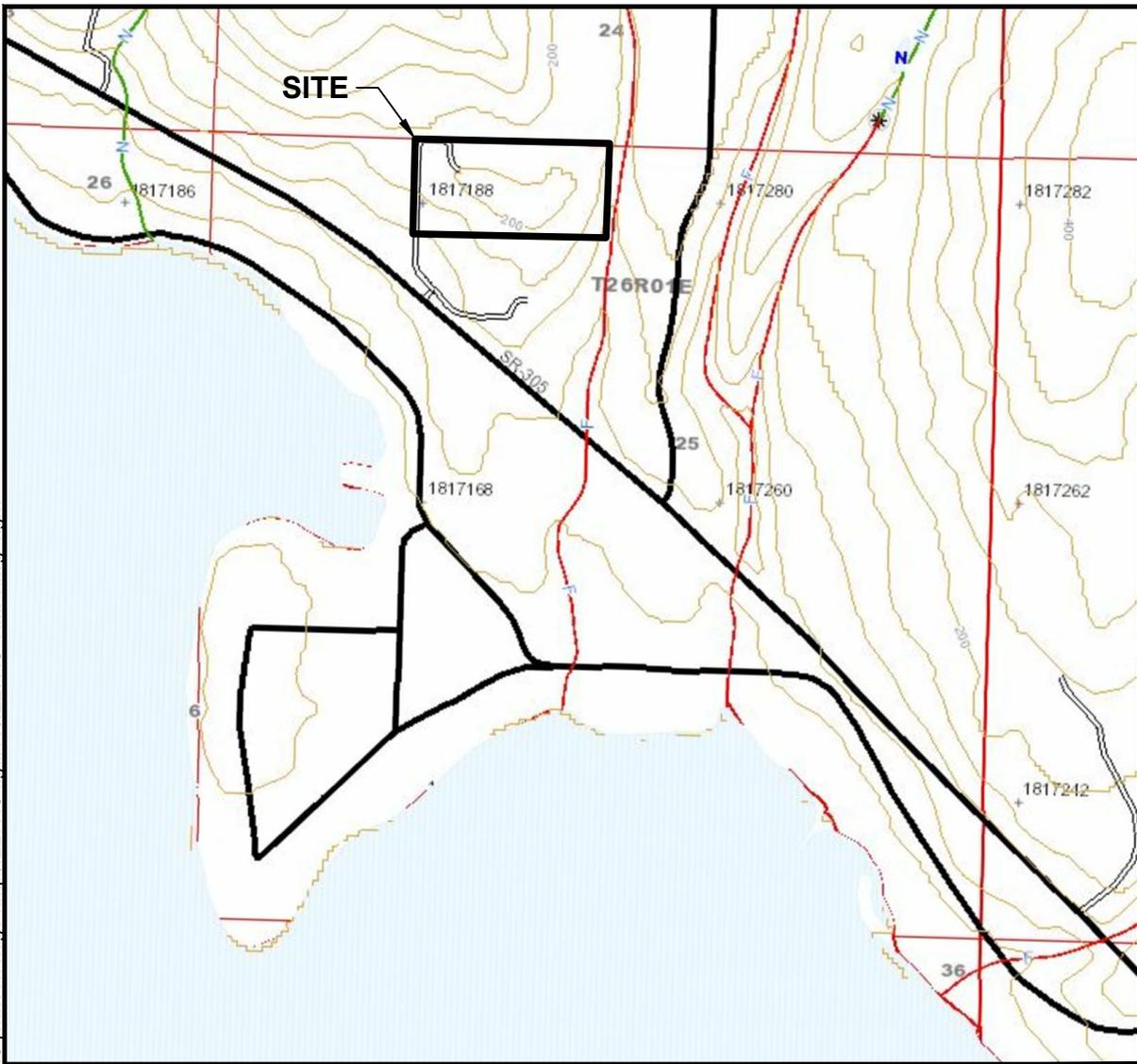
Other Barriers

- Total Blockage
- Total Blockage, Fishway Present
- Partial Blockage
- Partial Blockage, Fishway Present
- Unknown Blockage

Fish Distribution

All SalmonScape Species

NOTE: Map provided on-line by Washington State
 Department of Fish & Wildlife at web address:
<http://apps.wdfw.wa.gov/salmonscape/map.html#>



No mapped streams indicated onsite by the Washington State Department of Natural Resources (DNR).

County Boundary

County Boundary

Tribal Cultural Resources Contacts

Tribal Cultural Resources Contacts

Contours - 40ft. Interval

Contours - 40ft. Interval

Fire Shutdown Zones

Fire Shutdown Zones

Water Bodies

- Water Bodies
- Flats/Gravel Bars
- Ice
- Man Made Features
- Open Water
- Wet Area

Streams

- Streams
- Type S
- Type F
- Type N, Np, Ns
- U, unknown
- X, non-typed per WAC 222-16

WRIA

- WRIA
- WRIA
- WUA
- WUA

Trails and Railroads

- Trails and Railroads
- Trail
- Railroad
- Railroad Grade

Roads

- Roads
- Unpaved Road/Surface Unknown
- Paved Road

Water Type Break

- Water Type Break
- Water Type Break

Section Survey Lines

- Section Survey Lines
- Section Survey Lines

Townships

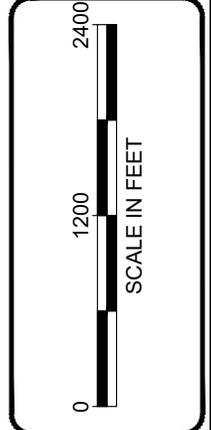
- Townships
- Townships

NOTE: Map provided on-line by Washington State Department of Natural Resources at web address:
<http://fortress.wa.gov/dnr/app1/Fpars/viewer.htm>

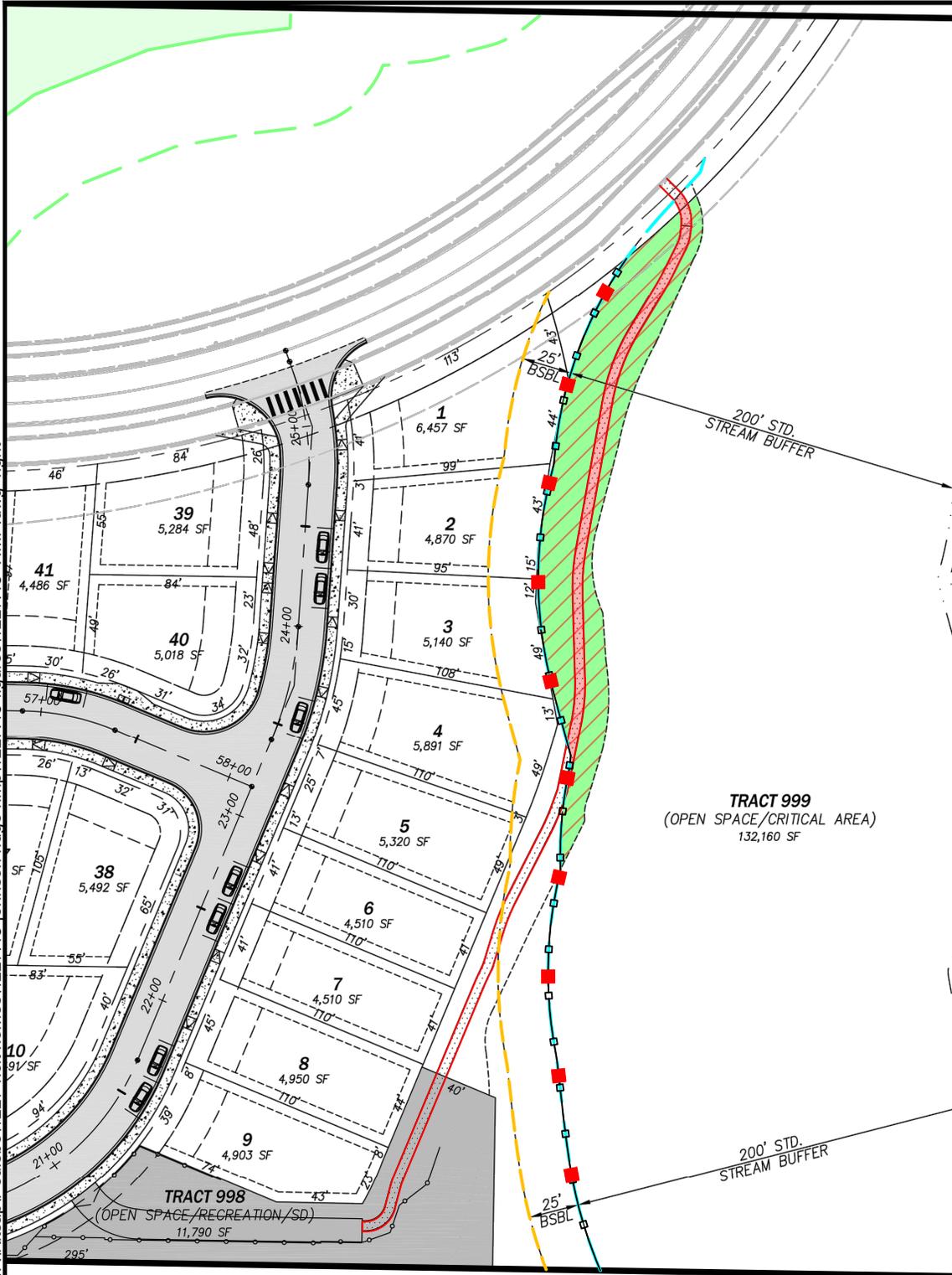
Figure 7
 DNR FPARS MAP
 Johnson Ridge Habitat Management Plan
 Holt Homes
 Poulsbo, Kitsap County, WA
 Section 25, Township 26N, Range 1E, W.M.

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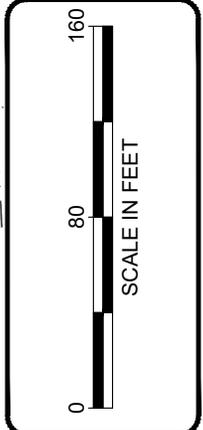
LEGEND:

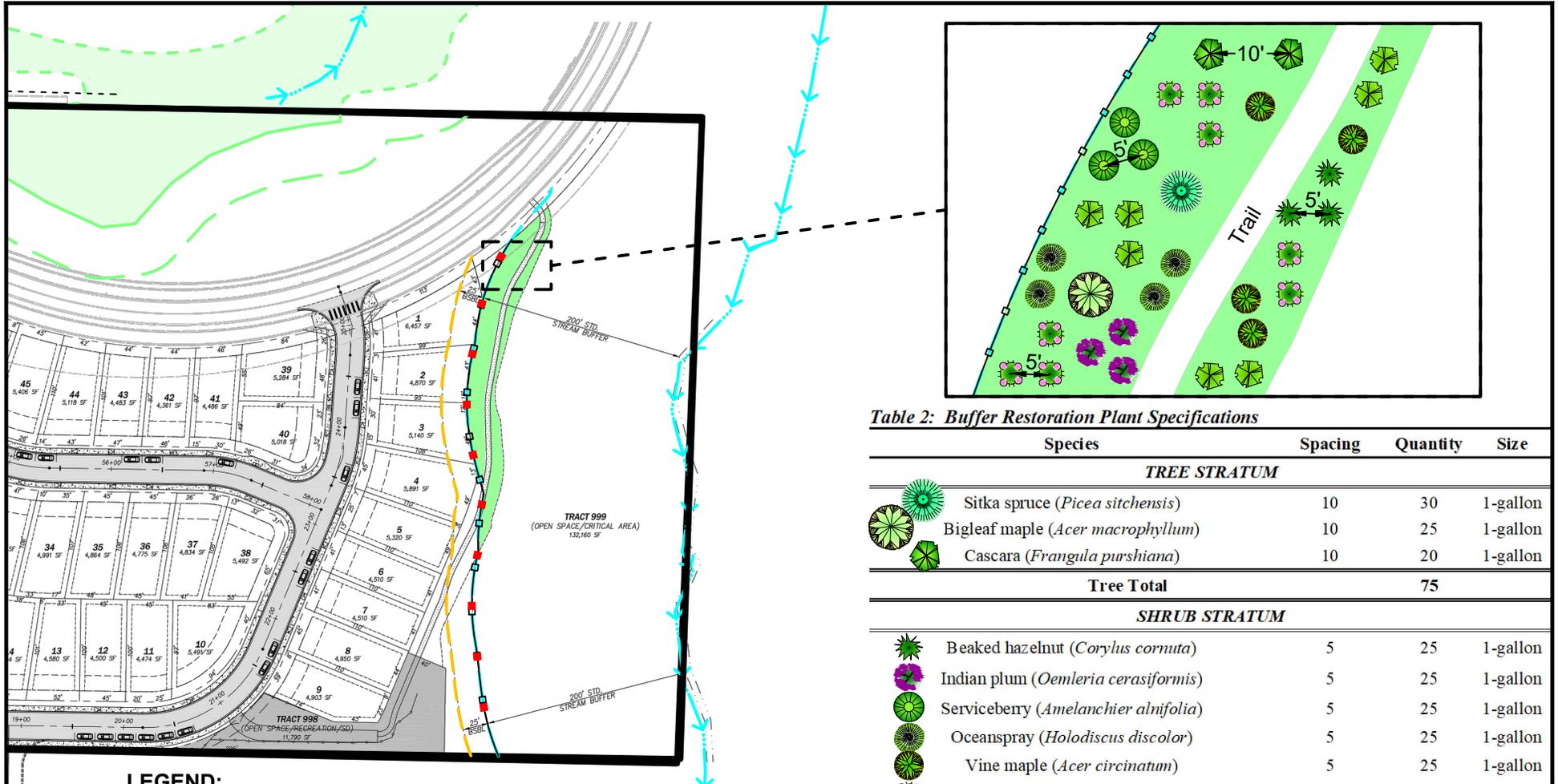
- Site Boundary
- Wetland Boundary
- Wetland Buffer
- Stream w/ Flow Direction
- Stream Buffer (200')
- 25' Building Setback
- Fence
- Wetland Buffer Sign (50')
- Temporary Buffer Impacts (8,772 sq.ft.)
- Trail Impacts (1,474 sq.ft.)
- Buffer Restoration Area (7,329 sq.ft.)

Figure 8
BUFFER IMPACT ASSESSMENT
 Johnson Ridge Habitat Management Plan
 Holt Homes
 Poulsbo, Kitsap County, WA
 Section 25, Township 26N, Range 1E, W.M.

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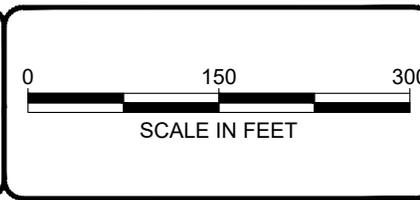


LEGEND:

- Site Boundary
- Wetland Boundary
- Wetland Buffer
- Stream w/ Flow Direction
- Stream Buffer (200')
- 25' Building Setback
- Fence
- Wetland Buffer Sign (50')
- Buffer Restoration Area (7,329 sq.ft.)

Table 2: Buffer Restoration Plant Specifications

Species	Spacing	Quantity	Size
TREE STRATUM			
Sitka spruce (<i>Picea sitchensis</i>)	10	30	1-gallon
Bigleaf maple (<i>Acer macrophyllum</i>)	10	25	1-gallon
Cascara (<i>Frangula purshiana</i>)	10	20	1-gallon
Tree Total		75	
SHRUB STRATUM			
Beaked hazelnut (<i>Corylus cornuta</i>)	5	25	1-gallon
Indian plum (<i>Oemleria cerasiformis</i>)	5	25	1-gallon
Serviceberry (<i>Amelanchier alnifolia</i>)	5	25	1-gallon
Oceanspray (<i>Holodiscus discolor</i>)	5	25	1-gallon
Vine maple (<i>Acer circinatum</i>)	5	25	1-gallon
Woods rose (<i>Rosa pisocarpa</i>)	5	50	1-gallon
Oregon grape (<i>Mahonia nervosa</i>)	5	50	1-gallon
Shrub Total		225	
Plant Total		300	



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Figure 9
BUFFER RESTORATION PLANTING PLAN
 Johnson Ridge Habitat Management Plan
 Holt Homes
 Poulsbo, Kitsap County, WA
 Section 25, Township 26N, Range 1E, W.M.



Photo 1 was taken from the centerline of the new Noll Road alignment on the east end of the Johnson Ridge PRD. It looks north across the field and blackberry thickets occupying the northeast corner.



Photo 2 was taken from the same location as Photo 1 and looks east toward the stream ravine. The blackberry thickets continue to a small Douglas fir tree visible on the right edge.



Photo 3 was taken from the same location as Photos 1 and 2. It looks southeast toward the transition from the field and blackberry thickets to the forested buffer area.



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Photoplate 1
Project Name: Johnson Ridge
HMP
Client: Holt Homes
Kitsap County, Washington



Photo 4 was taken from the same location as Photos 1, 2, and 3. It looks south up the north facing slope at the transition between the field portions of the property to the forested slope down to Bjorgen Creek.



Photo 5 was taken from the top of the slope shown in Photo 4. It looks north across the plateau that begins at the top of the slope. Blackberry thickets run along the entire edge of the forest that extends down the slope toward the stream.



Photo 6 was taken from the same location as Photo 5. It looks easterly toward the top of the ravine slope into the start of the existing forest.



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Photoplate 2
Project Name: Johnson Ridge
HMP
Client: Holt Homes
Kitsap County, Washington



Photo 7 was taken from the same location as Photos 5 and 6. It looks easterly toward the top of the forested ravine.



Photo 8 was taken from the same location as Photo 7 and looks south along the forest/blackberry edge.



Photo 9 was taken from near the southeast corner of the property. Forested conditions are present along the south edge of the property (to the left).



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Photoplate 3
Project Name: Johnson Ridge
HMP
Client: Holt Homes
Kitsap County, Washington



Photo 10 was taken from within the existing forest that begins at the top of the ravine slope. This photo looks back up the slope where there is minimal shrub and herbaceous plant cover.



Photo 11 was taken from the same location as Photo 10 and looks north along the ravine slope. The shrub layer is slightly denser further down the slope than the area pictured in Photo 10. The herbaceous layer is still fairly bare.



Photo 12 was taken from the same location as Photos 10 and 11. It looks down the slope toward the stream where the shrub layer is sparsely vegetated by the herbaceous layer is thicker with sword fern.



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Photoplate 4
Project Name: Johnson Ridge
HMP
Client: Holt Homes
Kitsap County, Washington



Photo 13 was taken from further down the slope at the edge of the terrace about halfway down the ravine. There is increasing cover in the shrub and herbaceous layers.



Photo 14 was taken from the same location as Photo 13 and it looks easterly to the east edge of the terrace. The trees in the background are growing on the slope below.



Photo 15 was taken from the same location as Photos 13 and 14. It provides another view of the edge of the terrace and the start of the vegetation growing on the slope below.



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Photoplate 5
Project Name: Johnson Ridge
HMP
Client: Holt Homes
Kitsap County, Washington



Photo 16 was taken from the edge of the terrace pictured in Photos 13, 14, and 15. It looks northeasterly down the slope below which is Bjorgen Creek.



Photo 17 was taken from the same location as Photo 16 and looks east northeast down the slope. There is a fairly dense forest canopy and herbaceous layer with a sparsely vegetated shrub layer.



Photo 18 was taken from the same location as Photos 16 and 17. It looks easterly down the slope where there is a denser shrub layer.



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Photoplate 6
Project Name: Johnson Ridge
HMP
Client: Holt Homes
Kitsap County, Washington