



# CRITICAL AREAS REPORT AND STREAM BUFFER MITIGATION PLAN

May 22, 2018



**Phelps Road Property**  
*City of Bainbridge Island,  
Washington*

Prepared for  
**Fidalgo Bay Homes**  
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SEP 20 2018

*Planning and  
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**SIGNATURE**

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

*Joanne Bartlett*

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## **INTRODUCTION**

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Ecological Land Services, Inc. (ELS) has completed this Critical Areas Report (CAR) on behalf of Fidalgo Bay Homes, for the planned single-family residence and septic system within a portion of the 200-foot buffer of a Fish and Wildlife Habitat Conservation Area (FWHCA). The FWHCA to the south of this property is Coho Creek, which is identified as a Type F water. The subject property consists of Kitsap County Tax Parcel Number 032502-1-069-2008, which totals 0.15 acres. ELS biologists conducted a site visit on August 3, 2017 to inventory site conditions for preparation of this CAR as required under *Bainbridge Island Municipal Code (BIMC) Section 16.20.180.F and G*.

## **PROJECT DESCRIPTION**

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### **PROJECT LOCATION**

The subject property is located east of Phelps Road NE, across from the Bainbridge Island Little League Hidden Cove Ballfields, south of the Port Madison area of Bainbridge Island, Washington, within Section 3, Township 25 North, Range 2 East of the Willamette Meridian (Figure 1). Coho Creek flows from east to west approximately 50 feet south of the property.

### **CONSTRUCTION ACTIVITIES**

A single-family home and septic drainfield is proposed on the property with a driveway across the road right-of-way from Phelps Road (Figure 3). The project will require clearing most of the property to construct the house and install the drainfield.

## **SITE CONDITIONS**

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The property is located on the east side of Phelps Road NE just north of NE Cambridge Crest Way in the Hidden Cove area of Bainbridge Island (Figure 1). It is a trapezoid-shaped property that slopes up from Phelps Road NE to a relatively level plateau. There is a moderate slope down to the south that ends at Coho Creek, a seasonal stream that was dry during the summer site visit (Photoplate 1). Coho Creek is confined to a narrow channel and no associated wetlands were observed. The property is currently undeveloped, with a mixed forest canopy and semi-dense understory of shrubs and herbaceous plants (Photoplates 2 and 3). The wildlife using the stream and buffer are typical of common mammals such as deer and coyotes, and some bird species.

### **Critical Areas**

No wetlands are mapped on or near this property and the ELS biologists did not observe hydrophytic vegetation, hydric soils, or wetland hydrology on the property or adjacent to the stream.

A mixed forest dominates the property and extends down the slope into Coho Creek. The dominant vegetation includes bigleaf maple (*Acer macrophyllum*, FACU), western red cedar (*Thuja plicata*, FAC), Douglas fir (*Pseudotsuga menziesii*, FACU), and western hemlock (*Tsuga heterophylla*, FACU) in the canopy. Salmonberry (*Rubus spectabilis*, FAC), Oregon grape (*Mahonia nervosa*, FACU), red huckleberry (*Vaccinium parvifolium*, FACU), and beaked hazelnut (*Corylus cornuta*, FACU) dominates the shrub strata. The herbaceous layer was dominated by sword fern (*Polystichum munitum*, FACU), stinging nettle (*Urtica dioica*, FAC), and English ivy (*Hedera helix*, FACU).

The dominant vegetation found onsite is recorded on the attached wetland determination data forms (Appendix A). The indicator status, following the common and scientific names, indicates how likely a species is to be found in wetlands. Listed from most likely to least likely to be found in wetlands, the indicator status categories are:

- **OBL** (obligate wetland) – Almost always occur in wetlands.
- **FACW** (facultative wetland) – Usually occur in wetlands, but may occur in non-wetlands.
- **FAC** (facultative) – Occur in wetlands and non-wetlands.
- **FACU** (facultative upland) – Usually occur in non-wetlands, but may occur in wetlands.
- **UPL** (obligate upland) – Almost never occur in wetlands.
- **NI** (no indicator) – Status not yet determined.

Test plots were conducted along the slope into Coho Creek to verify the absence of wetland conditions along the stream. The observed soils consisted of very dark greyish brown (10YR 3/3) to yellowish brown (10YR 5/4) matrix colors and contained no redoximorphic features, meeting none of the hydric soil indicators. Hydrology was not present during the field visit and there was no evidence of wetland hydrology in any of the test plots. Data collected at the test plot are presented on data forms in Appendix A.

Coho Creek, which flows south of the property, meets the requirements of a Type F water because the stream is wider than 2 feet at bankfull width and it flows on terrain with a gradient of less than 16 percent. Because the stream is designated a Type F water, the *BIMC* requires a 200-foot buffer from the ordinary high water mark (OHWM) of Coho Creek. Coho Creek itself has limited, if any, use by fish because of downstream culverts that represent full to partial blockages to spawning salmon or cutthroat trout. In addition, the stream also flows through a ditched channel along the east side of Phelps Road on its way to Hidden Cove, which does not appear to have fish use and may represent a fish passage barrier.

### **Buffer Functions**

This property lies within a residential area south of Hidden Cove that is zoned R-0.4 with larger parcels to the north and south, where the residences are 50 to 100 feet from the stream. The outer limits of the buffer extend onto the property offsite to the north, which is composed of forested pasture that lies along the edge of this property (Photoplate 4). A fence is present along the north property line, which functions as a pasture fence as well as demarcation of the property line. The fence and pasture represent a break in the buffer so only the onsite portion of buffer is included in the assessment of buffer functions and impact. The onsite buffer is undeveloped and functions to protect the water quality of Coho Creek by removing sediment and nutrients from runoff, though minimal runoff is generated by the existing residential land use to the north.

## **HABITAT AND CRITICAL AREAS MAPPING**

### **BAINBRIDGE ISLAND CRITICAL AREA AND HABITAT MAPPING**

The Bainbridge Island GIS (BIGIS) viewed through the on-line mapping website was used to identify the presence of critical areas on and adjacent to the property (Bainbridge Island 2017). No wetlands are mapped on the property, but the critical areas map identifies Coho Creek flowing south of the property and wetlands both upstream near the headwaters, and downstream

on the west side of Phelps Road (Figure 3). There is also a wetland mapped upslope of the stream, northeast of the property, and two to the northwest.

#### **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 2017) identifies the potential presence of priority habitat and species areas that include streams, wetlands, and wildlife habitat. The PHS website mapping indicates no priority habitat on or near this property. The lower portion of Coho Creek, closest to Hidden Cove, is mapped as having Coho salmon and Cutthroat trout occurrence, but does not extend into the section of stream adjacent to this property.

#### **WASHINGTON DEPARTMENT OF FISH AND WILDLIFE, SALMONSCAPE**

The Washington Department of Fish and Wildlife SalmonScape website (WDFW 2017) does not map the presence of endangered, threatened, or sensitive fish species as occurring within this section of stream.

### **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 Coho Creek was evaluated by a site visit, aerial photographs, the WDFW Priority Habitats and Species website (WDFW 2017), the U.S. Fish and Wildlife Service (USFWS 2017) website, the National Marine Fisheries Service website (NMFS 2017), and the Washington Department of Natural Resources Natural Heritage website (WDNR 2017).

**Table 1: Listed Species in the Project Vicinity**

<b>Species, ESU<sup>1</sup> or DPS<sup>2</sup></b>	<b>State Status<sup>3</sup></b>	<b>Federal Status<sup>3</sup></b>	<b>Critical Habitat<sup>4</sup> in Project Vicinity</b>
<b><i>Fish</i></b>			
Puget Sound ESU Chinook Salmon ( <i>Onchorhynchus tshawytscha</i> )	Candidate	Threatened	No
Puget Sound DPS Steelhead ( <i>Onchorhynchus mykiss</i> )	None	Threatened	No
<b><i>Birds</i></b>			
Marbled murrelet ( <i>Brachyramphus marmoratus</i> )	Threatened	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.

4) NOAA 2017



## **FISH**

According to the National Marine Fisheries Service (NMFS) website, there are two listed ESUs/DPSs of salmon and steelhead within Puget Sound in which Bainbridge Island is a part. The WDFW SalmonScape website indicates there is no use of Coho Creek by endangered, threatened, or sensitive fish species.

## **BIRDS**

Research conducted for this project shows that the property does not represent habitat for marbled murrelet, streaked horned lark, and yellow-billed cuckoo (WDFW-PHS 2017). The forested conditions adjacent to the site 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 on Bainbridge Island (WDFW 2017).

## **PLANTS**

The Washington Department of Natural Resources, Natural Heritage Program website (WANHP 2017) lists seven rare plant species that occur within Kitsap County. None of the listed species were identified during the field visit.

## **CRITICAL HABITAT**

Hidden Cove is a breeding area for Pacific Herring and the mouth of Coho Creek is part of the critical habitat for Coho salmon and Cutthroat trout (WDFW-PHS 2017). Coho Creek does not appear to provide habitat for federally listed Chinook salmon or steelhead.

## **IMPACT ANALYSIS**

### **STREAM IMPACTS**

Coho Creek will not be directly impacted by the proposed onsite activities because the home and drainfield will be maintained at least 40 feet from the OHWM of the stream. The project includes no crossing or other impact to the stream and it will remain as it exists with all of the offsite forested buffer vegetation remaining. Noise generated during home construction, which will include use of heavy equipment and workers, may temporarily influence use of Coho Creek by wildlife species. Typical use of the single-family residence after construction will result in a minor increase in noise and light, which will be blocked by the existing buffer vegetation.

### **STREAM BUFFER IMPACTS**

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 shorelines by removing sediment and nutrients from runoff. 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 the runoff sheet flows across the buffer.

The buffer is composed of mixed forested and understory vegetation (Photoplates 1 and 2). The proposed reduction will allow for construction of the house, driveway and septic system on this small property. Onsite buffer plantings will increase the function of the onsite portion of buffer so that the house is not visible from the stream and more of the noise and light generated on the developed site will be screened. The forest offsite to the south will remain and will be sufficient

to buffer the onsite activities from impacting the use of the stream by fish and local wildlife species. The driveway from Phelps Road crosses the right-of-way and has been designed to minimize removal of vegetation including the large western red cedar tree near the northwest corner of this property.

## **POTENTIAL EFFECTS OF THE PROJECT ON LISTED SPECIES AND HABITAT**

### **DIRECT EFFECTS AND INDIRECT EFFECTS**

The construction activities are proposed within the 200-foot buffer required from Coho Creek as measured from the ordinary high water mark (OHWM). The proposed construction activities will have no direct or indirect effects on listed species and habitat as none exist onsite.

### **MITIGATION SEQUENCING**

**Avoid the Impact:** The entire property lies within the required 200-foot buffer; therefore the project cannot avoid the impacts to the required buffer.

**Minimize the Impact:** This project will minimize the impacts to the buffer by placing the house and drainfield as far from the stream as possible and proposes a variance to the side and front yard setbacks to achieve this goal (Figure 7). In addition, the septic tanks have been moved to the south side of the house because once they are installed, the planted and existing vegetation can grow around them and provide additional buffer for the offsite stream thereby further minimizing the impacts of onsite development. Moving the home as close as 5 feet from the north property line allows additional buffer for the offsite stream as does placing the less impactful septic tanks closer to the stream. By implementing these minimization measures, this project will retain as much forest as possible and will facilitate removal of as few onsite trees as needed to construct the home. The driveway will cross the Phelps Road right-of-way, which is composed of forested upland, and will remain undeveloped except to construct the driveway. Maintaining the forest in the right-of-way will provide a continuous buffer for the stream where it flows adjacent to this property and into offsite areas.

**Rectifying the Impacts.** The home and drainfield represent permanent features within this area of buffer so the impacts cannot be fully rectified.

**Reducing or Eliminating the Impacts through Preservation or Maintenance.** The project cannot eliminate the impacts by preservation and maintenance.

**Compensate for the Impact:** Buffer mitigation is proposed to compensate for the impacts to the buffer and will include installation of native plants.

**Monitor the Affects of the Impact:** The mitigation plan will be monitored for a period of 5 years to ensure that the plan meets the goals, objectives, and performance standards of the mitigation.



## **BUFFER MITIGATION PLAN**

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The project proposes to impact 2,852 square feet of the buffer in order to build the single-family house, driveway, and septic drainfield (Figure 7). Options for offsite mitigation were explored within the watershed to determine if any opportunities are available. The Bainbridge Island Metro Parks and Recreation District was contacted to determine if there was an opportunity for mitigation within Hidden Cove Park, which lies at the downstream end of the Coho Creek watershed. Opportunities were not available because the parks department does not currently have a program to accept monies or assistance with restoration or enhancement projects and there are no current opportunities within the park itself.

Mitigation for impacts to the buffer will therefore include removal of invasive plants on the property, including but not limited to Himalayan blackberry and English ivy, and replacement with native plants in areas where invasives are removed and beyond, for a total of 2,852 square feet of mitigation, for a 1:1 mitigation ratio. The plan focuses on maintaining existing areas of native vegetation revealed during removal of invasives and installation of additional native plants to supplement the vegetation within the offsite portion of the riparian corridor (Figure 8). The plan proposes to mostly install evergreen plant species so that the onsite planting area provides year round screening of noise and light from within Coho Creek. In addition, the drainfield areas will be planted with suitable native herbaceous plants. Runoff generated on the roof of the single-family home will not impact the water quality of the stream as the new and existing vegetation will act to slow down and filter the water.

### **SPECIFICATIONS FOR SITE PREPARATION**

The tasks listed below will achieve the buffer mitigation goals and objectives. These tasks are listed in the order they are anticipated to occur; however, some tasks may occur concurrently or may precede other tasks due to site and procedural constraints.

#### ***Buffer Mitigation Area***

1. Define extent of mitigation area onsite following construction of the home and drainfield.
2. Remove invasive species.
3. Install plantings according to specifications proposed herein.
4. Place woody mulch or organic compost around plants after installation to minimize regrowth of invasives and to allow soil moisture retention.

### **GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS**

**Project Goal:** Improve buffer functions to compensate for construction within the stream buffer.

**Objective 1:** Control invasive species.

*Performance Standards 1 (a):* During monitoring Years 1 through 5, invasive species will be removed and suppressed within the planting areas as often as necessary to meet a performance standard of no greater than 10 percent cover by invasive species. Invasive species may include, but are not limited to, Himalayan blackberry and English ivy. Percent cover will be recorded annually and include in monitoring reports.

**Objective 2:** Improve native plant cover and buffer function.

*Performance Standard 2 (a):* The project will maintain 100 percent survival of plants during the entire 5-year monitoring period. Plant species number will be recorded annually and compared with as-built conditions for inclusion with the monitoring reports.

*Performance Standard 2 (b):* Native installed and volunteer species in the buffer mitigation areas will provide a minimum of 10-percent cover in Year 1, 10 to 15-percent cover in Year 2, 15 to 25 percent cover in Year 3, and 25 to 40 percent cover in Year 5. It should be noted that the planting maxim states that the first year plants sleep, second year they creep, and third year they leap (Munts 2014) and the yearly percent cover standards reflect this maxim. 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 create a naturally vegetated riparian corridor that will both screen noise and light from the developed upland and provide shade and wildlife habitat for Coho Creek. Most of the plants will be potted plants, 1 gallon in size, from local nurseries stocking native plants. The herbaceous plants installed on the drainfield will be 3.5 inch potted individuals also obtained from a local nursery. Plant installation shall take place following construction and installation of the development features. Additional plants may be transplanted from other onsite locations, and propagated by the landowner.

***Plant Materials***

1. Plants will be purchased from local nurseries.
2. Potted plants will be 1 gallon in size.
3. Transplanted plants can be used but must be collected in areas outside the required stream buffer.
4. No damaged or desiccated roots or diseased plants will be accepted.

***Planting Specifications***

Plants will be installed per the attached buffer mitigation plan around existing trees and native shrubs. Table 1 provides a list of plants proposed for installation within the stream buffer as well as around the drainfield. Plantings will be spaced to allow for access around the planted species for the continual need for removal of invasive plants.

Table 1 summarizes the total plant species, spacing, size, and quantities for the buffer mitigation area. Small stature trees are proposed for installation to supplement the existing tree cover. The spacing of plants will allow for healthy mature growth of individual species and range from 3 feet on center for lower stratum plants to 6 feet on center for the high stratum shrub species. Plants indicated on the planting plan are subject to availability from regional native plant nurseries and may be substituted with similarly performing native plants. The final location of the plants may differ from the planting plan, as site conditions dictate, and any changes will be documented on the as-built drawing prepared after completion of plant installation.

**Table 1. Plant specifications**

Species	Spacing (feet)	Quantity	Size
<b><i>TREE/HIGH STATURE SHRUBS STRATUM</i></b>			
Vine maple ( <i>Acer circinatum</i> )	As shown	10	1 gallon pots
<b><i>LOW STATURE SHRUB STRATUM</i></b>			
Nootka rose ( <i>Rosa nutkana</i> )	As shown	20	1 gallon pots
Rhododendron ( <i>Rhododendron macrophyllum</i> )	As shown	20	1 gallon pots
Evergreen huckleberry ( <i>Vaccinium ovatum</i> )	As shown	20	1 gallon pots
Tall Oregon grape ( <i>Mahonia nervosa</i> )	As shown	50	1 gallon pots
<b>Total</b>		<b>120</b>	
<b><i>DRAINFIELD PLANTINGS</i></b>			
Snowberry ( <i>Symphoricarpos albus</i> )	As shown	14	1 gallon pots
Sword fern ( <i>Polystichum munitum</i> )	10"	6	1 gallon pots
Deer fern ( <i>Blechnum spicant</i> )	10"	12	3.5" pots
Fringecup ( <i>Tellima grandiflora</i> )	10"	12	3.5" pots
False Solomon's seal ( <i>Smilacina racemosa</i> )	10"	12	3.5" pots
<b>Total</b>		<b>56</b>	

***Plant Installation Specifications***

1. Plant the specified trees and shrubs at any time during the year following construction of the home and drainfield as listed in Table 1. Space the plants somewhat irregularly and in groups to create eventual dense heterogeneity in the planting area, leaving enough space between each group to allow for access for weed removal. Plant the potted stock with a tree shovel or comparable tool.
2. Place the plants 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 stream buffer mitigation 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.
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.
3. Replace dead or failed plants as described for the original installation to meet the minimum annual survival rate and percent cover performance standards.

## **MONITORING PLAN**

The buffer mitigation area will be monitored annually for a 5-year period following plant installation. Monitoring is proposed at the end of the growing season in Years 1, 2, 3, and 5 (Year 4 skipped). Monitoring reports will be submitted to the Bainbridge Island Department of Community Development (BIDCD) by December 31<sup>st</sup> of each monitored year. The goal of monitoring is to determine if the previously stated performance standards are being met. The mitigation 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 may be established within the mitigation area to track the changes occurring over the monitoring period.

### ***Vegetation***

Vegetative monitoring will document the developing shrub and low stature tree layers. The following information will be collected in the buffer mitigation area:

- Percent cover and frequency of herbaceous species
- Percent cover and frequency of sapling/shrub species
- Percent cover and frequency of tree species
- 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 being met during the 5-year monitoring period, contingency measures will be implemented to achieve the standard by the next monitoring season. The contingency measures utilized will depend on the failure of the plants or maintenance activities and will include but are not limited to replacement of dead plants (with the same or a similar species) when the survival rate standard is not met, addition of plants when the yearly percent cover standard is not met, and more intensive maintenance if the invasive plant cover exceeds 10 percent. All contingency actions will be undertaken only after consulting and gaining approval from the BIDCD. 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.

## **CONCLUSIONS**

Coho Creek flows east to west approximately 60 feet south of the property. It is mapped as a Type F stream that requires a 200-foot buffer. This project involves constructing a single-family home within the 200-foot stream buffer. The proposed house lies at the northwestern corner of the property to maximize distance from the stream. Mitigation is proposed to compensate for the proposed buffer impacts. There will be an increase in function of the remaining buffer through removal of invasives which will allow the spread of native volunteers and installed native plants. The drainfield will be planted with suitable native herbaceous and shrub plants to provide additional native plant cover within the buffer. The project will not directly effect federal or state listed plants or animals because there are no species or habitat identified within the vicinity of the property. The project will not directly affect the condition or habitat available within the Coho Creek watershed and will not remove or reduce habitat features available to local wildlife species. There will be no negative effect on the stream system or its use by potential fish species.

## **LIMITATIONS**

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. There are no other warranties, express or implied. The services performed were consistent with our agreement with our client. This report is prepared solely for the use of our client and may not be used or relied upon by a third party for any purpose. Any such use or reliance will be at such party's risk.

The opinions and recommendations contained in this report apply to conditions existing when services were performed. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report. ELS does not warrant the accuracy of supplemental information incorporated in this report that was supplied by others.

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- Washington Department of Fish and Wildlife (WDFW). 2017. *Priority Habitat and Species Website*. <http://www.lwdfw.wa.gov/conservation/phs.html>. Accessed August 2017.



Washington Department of Natural Resources. 2017. *Washington Natural Heritage Program website Field Guide to Selected Rare Plants*.

<http://www1.dnr.wa.gov/nhp/refdesk/fguide/htm/fgmain.htm>. Accessed August 2017.

## **FIGURES AND PHOTOPLATES**

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9/17/2018 8:47 AM s:\ELSWAKitsap\Bainbridge Island\2590.01-phelps road property\2590.01-figures\2590.01 MT.dwg right

WASHINGTON

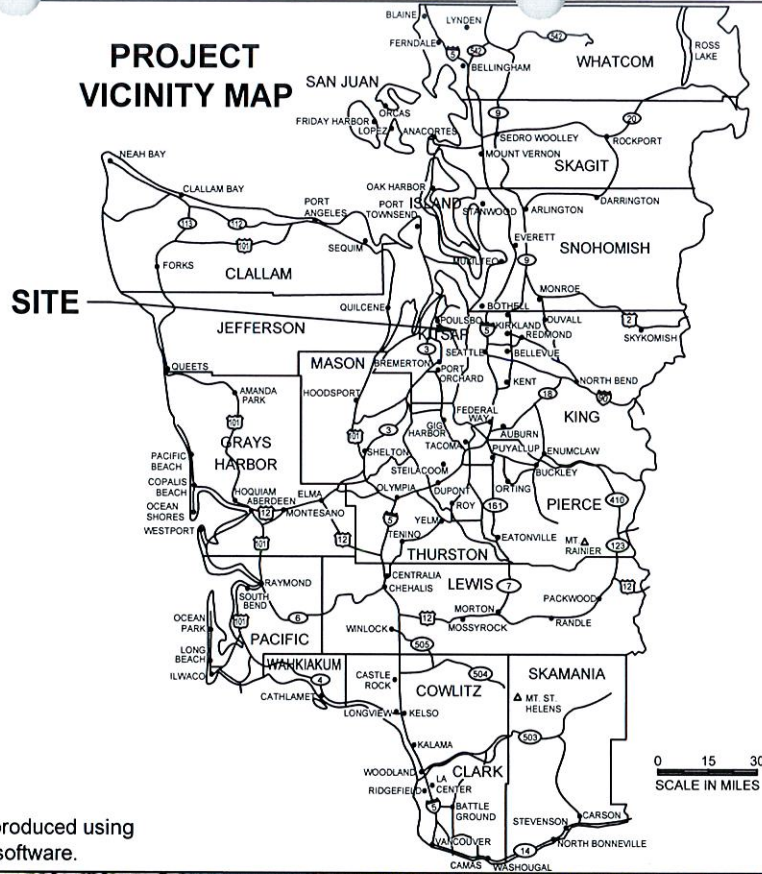


47.6899° Latitude  
-122.5295° Longitude

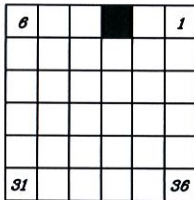
LOCATION MAP

## PROJECT VICINITY MAP

SITE



R 2 E



T  
25N  
N

### NOTE:

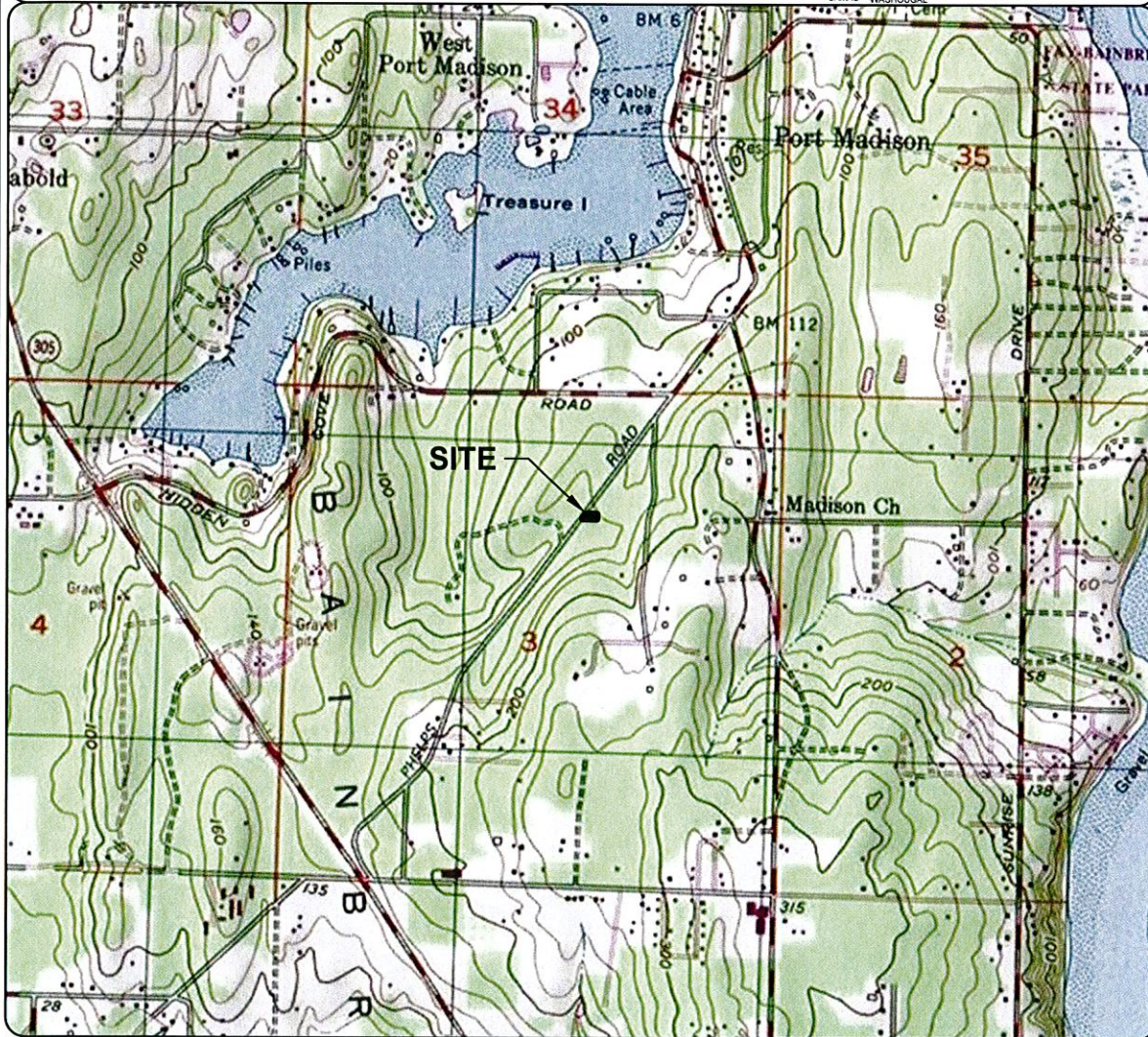
USGS topographic quadrangle map reproduced using  
MAPTECH Inc., Terrain Navigator Pro software.

Figure 1  
VICINITY MAP

Phelps Road Property  
Fidalgo Bay Homes  
City of Bainbridge Island, Kitsap County, WA  
Section 3, Township 25N, Range 2E, W.M.

DATE: 9/17/18  
DWN: JLL  
REQ. BY:  
PRJ. MGR: JB  
CHK:  
PROJECT NO:  
2590.01

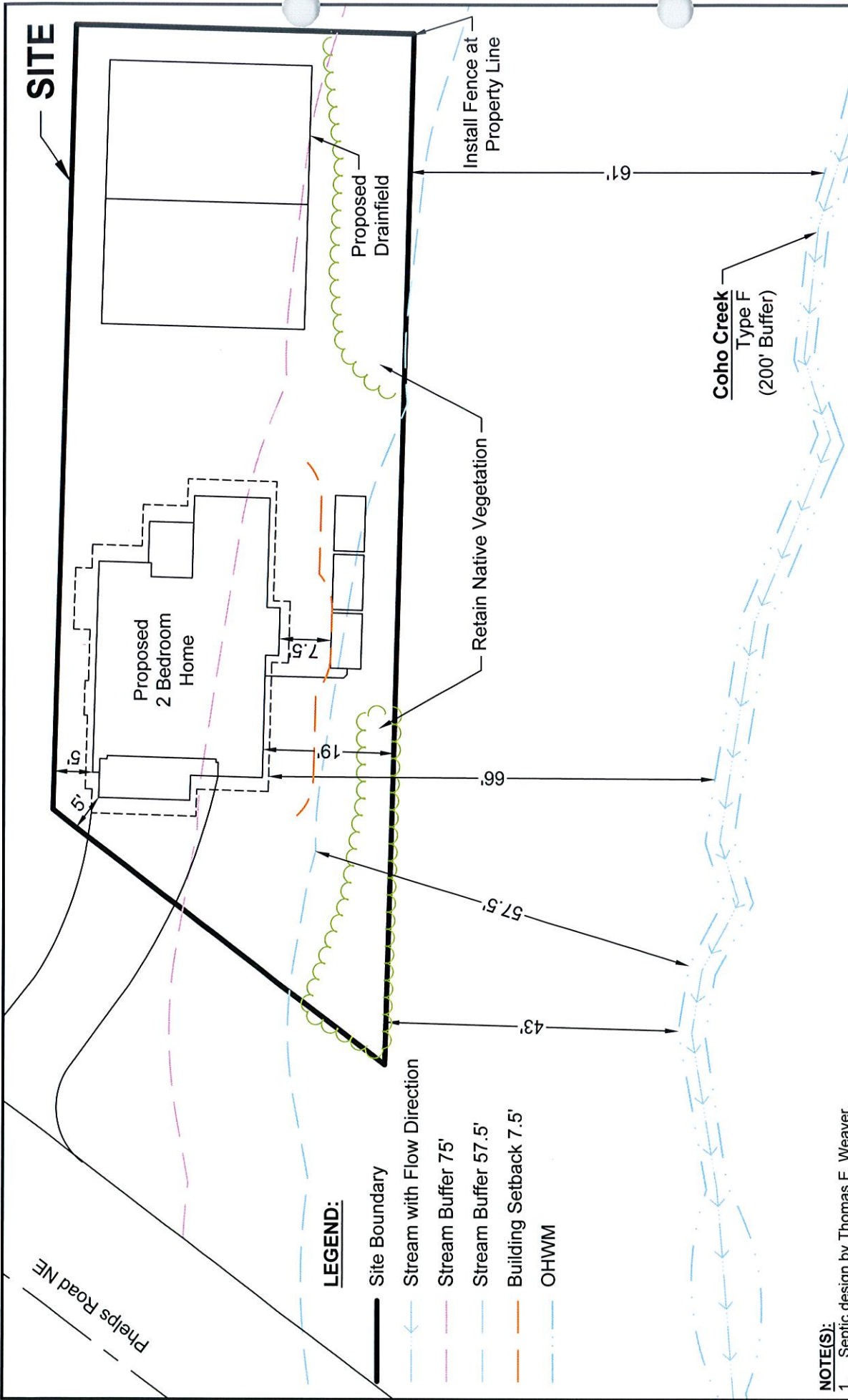
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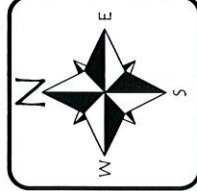


**LEGEND:**

- Site Boundary
- Stream with Flow Direction
- - - Stream Buffer 75'
- - - Stream Buffer 57.5'
- - - Building Setback 7.5'
- - - OHWM

**NOTE(S):**

1. Septic design by Thomas E. Weaver.

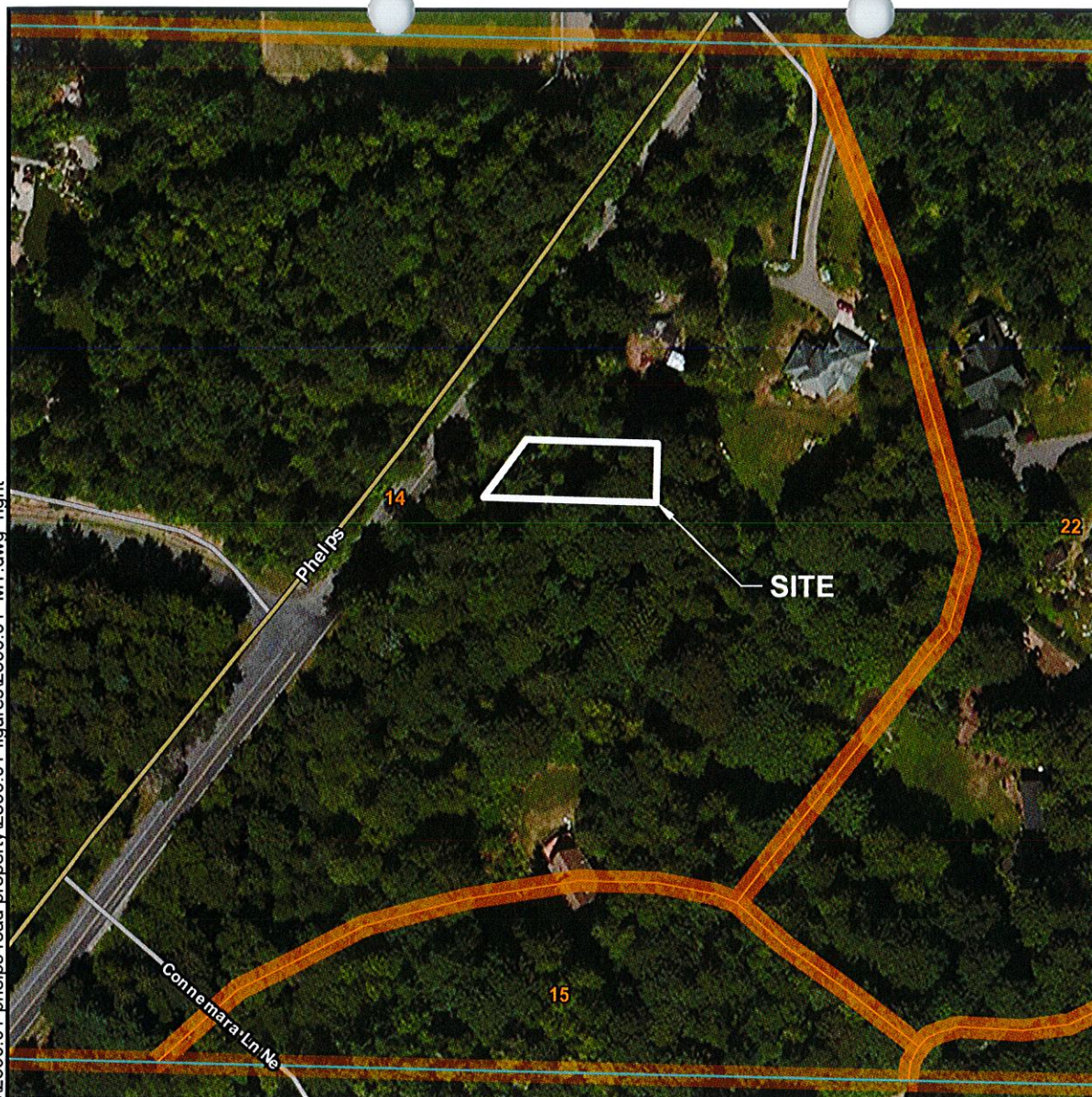


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 REQ. BY:  
 PRJ. MGR: JB  
 CHK:  
 PROJECT NO: 2590.01

**Figure 3**  
**SITE PLAN**  
 Phelps Road Property  
 Fidalgo Bay Homes  
 City of Bainbridge Island, Kitsap County, WA  
 Section 3, Township 25N, Range 2E, W.M.





**LEGEND:**

- 14 Harstine gravelly ashy sandy loam, 0 to 6 percent slopes. Not hydric.

**NOTE(S):**

- Map provided on-line by NRCS at web address:  
<http://websoilsurvey.nrcs.usda.gov/app/>

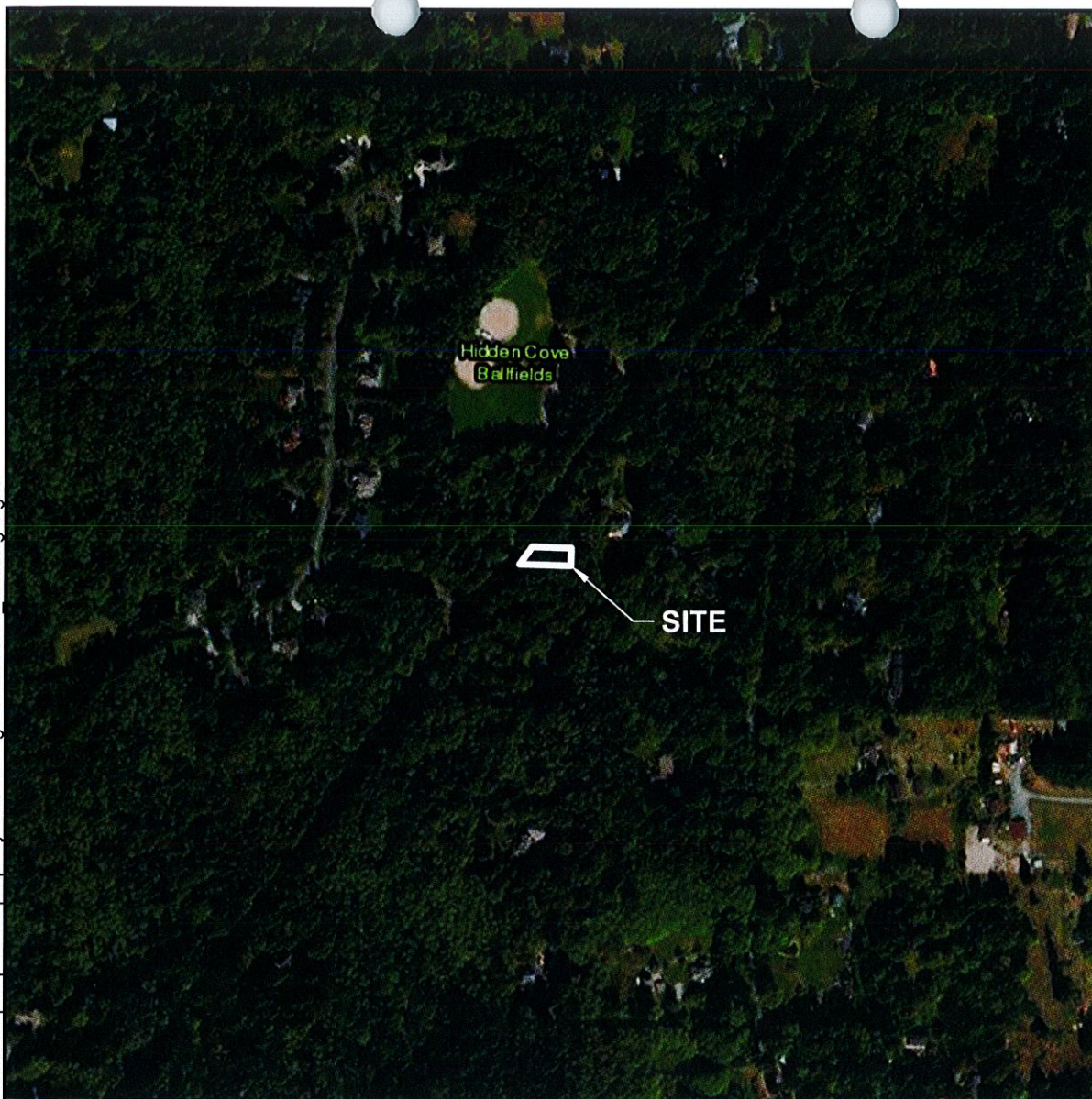


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PROJECT NO: 2590.01

Figure 4  
SOIL SURVEY MAP  
Phelps Road Property  
Fidalgo Bay Homes  
City of Bainbridge Island, Kitsap County, WA  
Section 3, Township 25N, Range 2E, W.M.

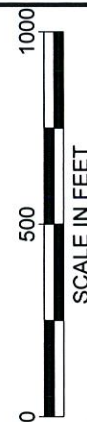
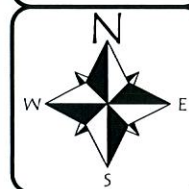




No mapped wetlands indicated onsite by US Fish & Wildlife Service.

**NOTE(S):**

1. Map provided on-line by US Fish & Wildlife Service at web address: <http://www.fws.gov/wetlands/data/index.html>

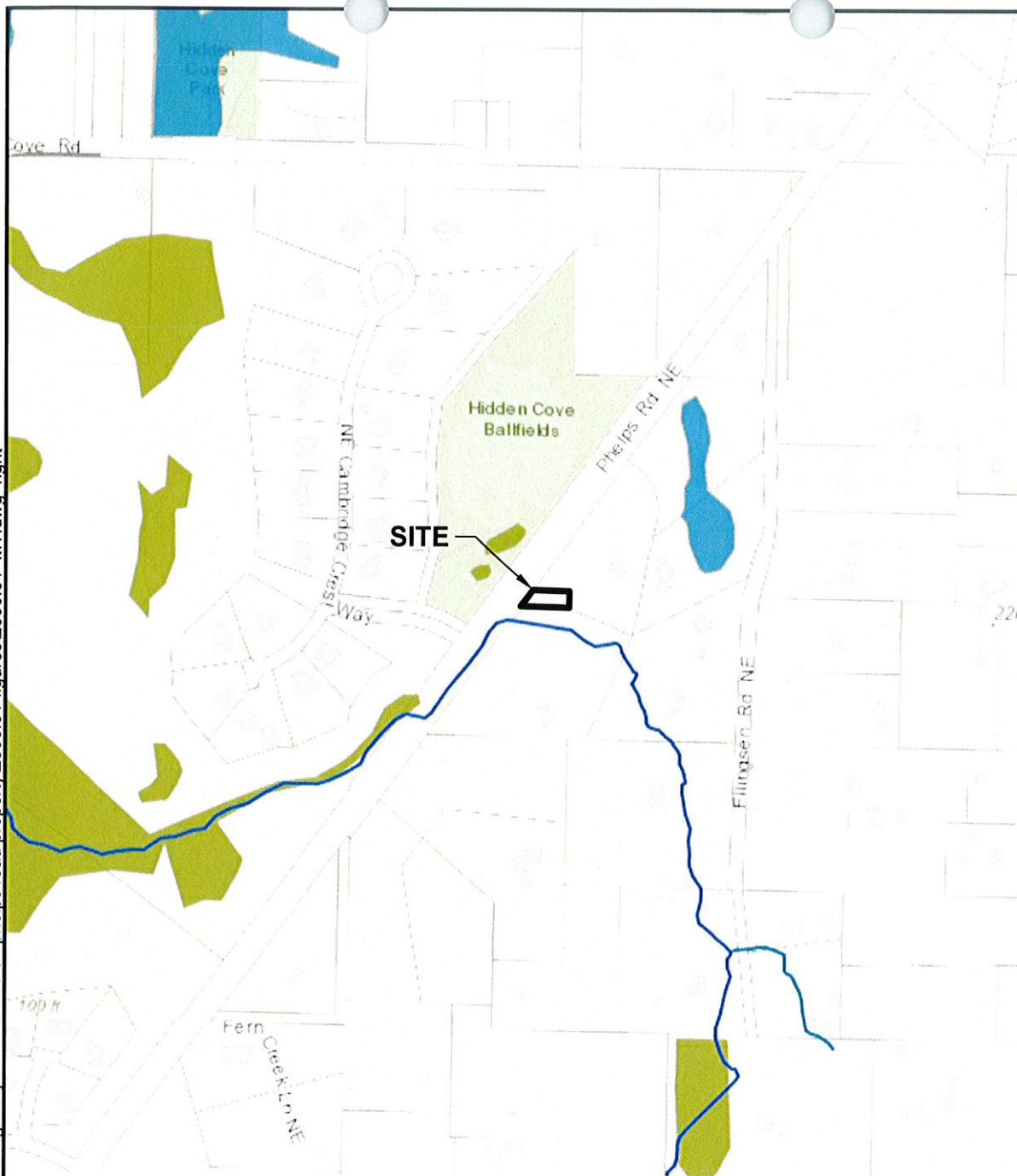


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CHK:  
PROJECT NO:  
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Figure 5  
NATIONAL WETLANDS INVENTORY MAP  
Phelps Road Property  
Fidalgo Bay Homes  
City of Bainbridge Island, Kitsap County, WA  
Section 3, Township 25N, Range 2E, W.M.





# **LEGEND:**

Wetlands

- Delineated
- No Delineation
- Not a Wetland
- Shoreline

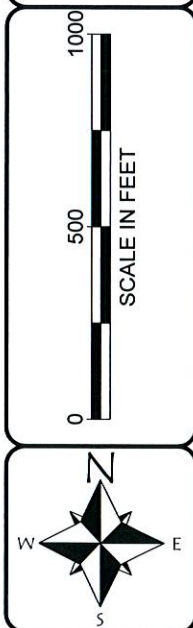
Streams

- Fish
- Non-Fish Seasonal
- Non-Fish Perennial
- Shoreline
- Other

FEMA Flood Hazard

- A = Low Flood Risk
- AE = High Flood Risk
- VE = High Flood Risk

Kitsap County Parcels



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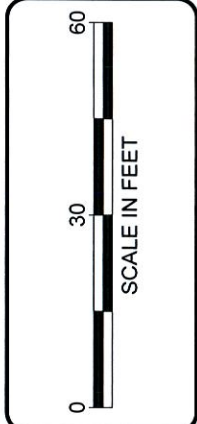
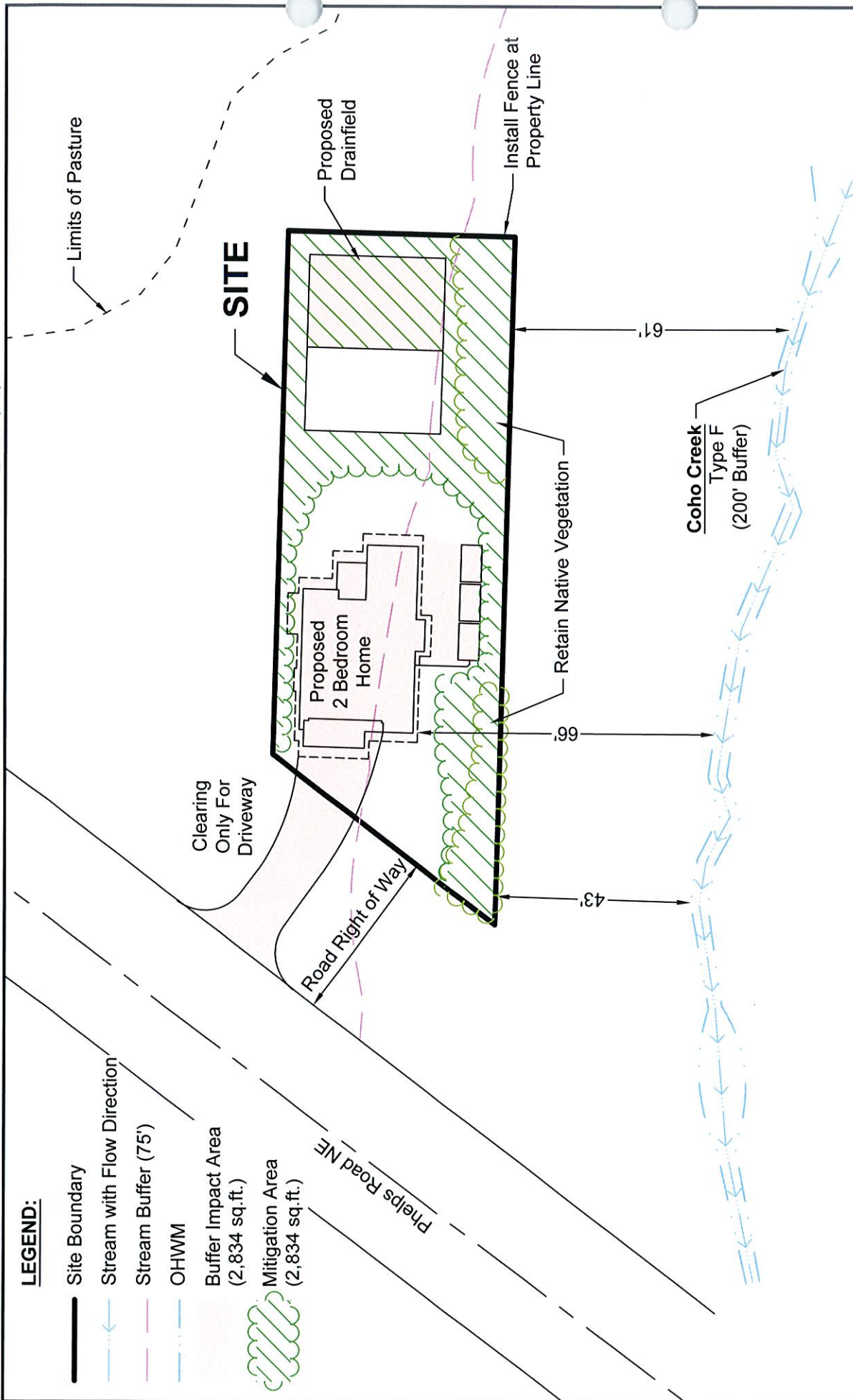
**Figure 6**  
**BAINBRIDGE ISLAND CRITICAL AREAS MAP**  
 Phelps Road Property  
 Fidalgo Bay Homes  
 City of Bainbridge Island, Kitsap County, WA  
 Section 3, Township 25N, Range 2E, W.M.

## **NOTE(S):**

- Map provided on-line by the City of Bainbridge Island at web address:  
<https://cityofbi.maps.arcgis.com/home/index.html>

# **LEGEND:**

- Site Boundary
- Stream with Flow Direction
- Stream Buffer (75')
- OHWM
- Buffer Impact Area (2,834 sq. ft.)
- Mitigation Area (2,834 sq. ft.)



**Ecological Land Services**

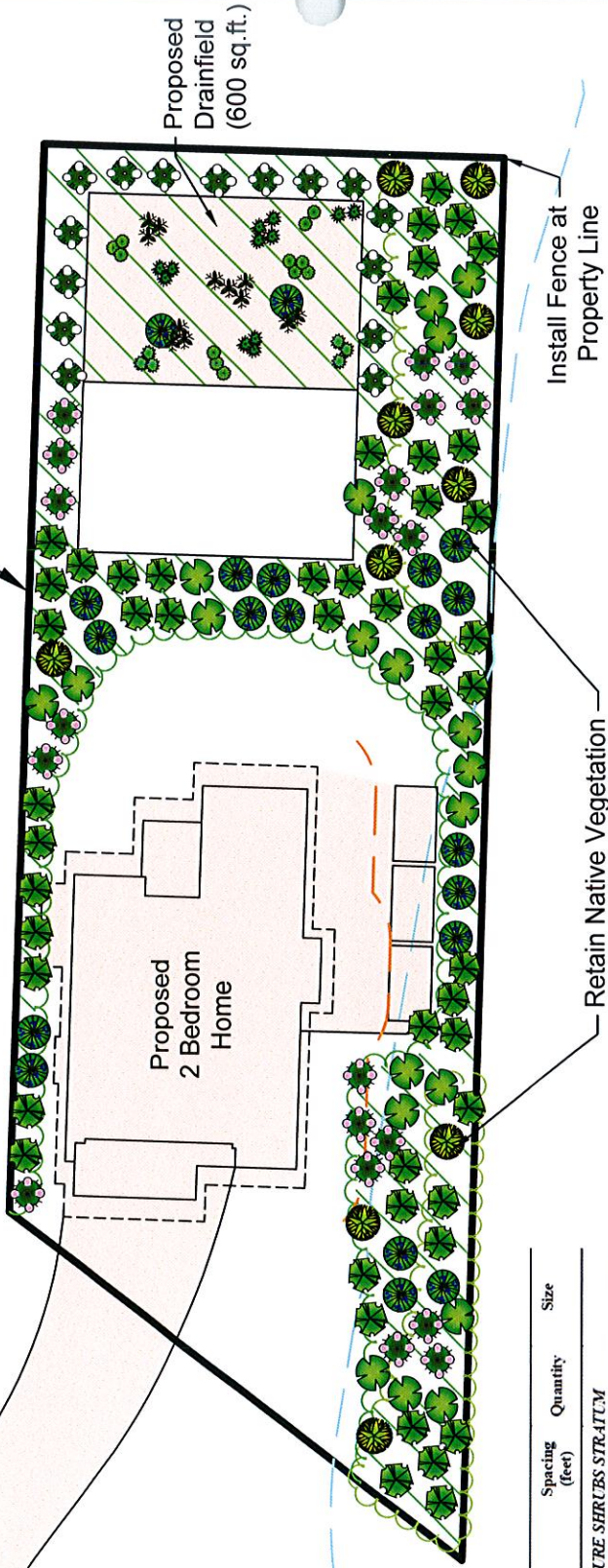
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 PRJ. MGR: JB  
 CHK:  
 PROJECT NO: 2590.01

**Figure 7**  
**MITIGATION PLAN OVERVIEW**  
 Phelps Road Property  
 Fidalgo Bay Homes  
 City of Bainbridge Island, Kitsap County, WA  
 Section 3, Township 25N, Range 2E, W.M.



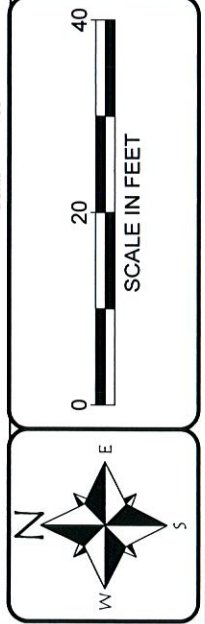
# SITE



**NOTE:** Plants are not to scale and locations are approximate as shown. Actual planting locations will be determined in the field, with consideration to the listed spacing and density to produce the most natural appearance possible.

Species	Spacing (feet)	Quantity	Size
<b>TREE/HIGH STATURE SHRUBS STRATUM</b>			
Vine maple ( <i>Acer circinnatum</i> )	As shown	10	1 gallon pots
<b>LOW STATURE SHRUB STRATUM</b>			
Nootka rose ( <i>Rosa nutkana</i> )	As shown	20	1 gallon pots
Rhododendron ( <i>Rhododendron macrophyllum</i> )	As shown	20	1 gallon pots
Evergreen huckleberry ( <i>Vaccinium ovatum</i> )	As shown	20	1 gallon pots
Tall Oregon grape ( <i>Mahonia nervosa</i> )	As shown	50	1 gallon pots
<b>Total</b>		<b>120</b>	

<b>DRAINFIELD PLANTINGS</b>			
Snowberry ( <i>Symphoricarpos albus</i> )	As shown	14	1 gallon pots
Sword fern ( <i>Polystichum munitum</i> )	10"	6	1 gallon pots
Deer fern ( <i>Blechnum spicant</i> )	10"	12	3.5" pots
Fringecup ( <i>Tellima grandiflora</i> )	10"	12	3.5" pots
False Solomon's seal ( <i>Smilacina racemosa</i> )	10"	12	3.5" pots
<b>Total</b>		<b>56</b>	



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REQ. BY:  
PRJ. MGR: JB  
CHK:  
PROJECT NO: 2590.01

**Figure 8**

**MITIGATION PLANTING PLAN**

Phelps Road Property  
Fidalgo Bay Homes  
City of Bainbridge Island, Kitsap County, WA  
Section 3, Township 25N, Range 2E, W.M.

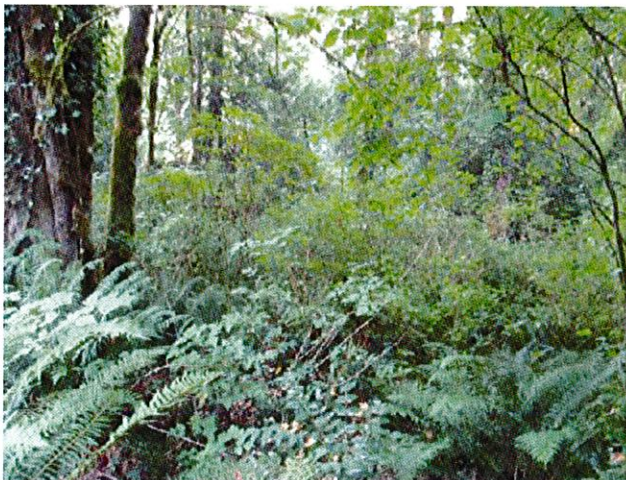




**Photo 1** shows the dry stream bed of Coho Creek, which is a Type F stream that runs east to west approximately 50 feet south of the property.



**Photo 2** was taken from the top of the slope at the south end of the property, looking south east at the forest that dominates the buffer that lies between Coho Creek and the property. The area has a tall canopy of big leaf maple and semi-dense understory of shrubs and herbaceous plants.



**Photo 3** was taken from the same location as Photo 2, looking south at the forested buffer conditions between Coho Creek and the property.



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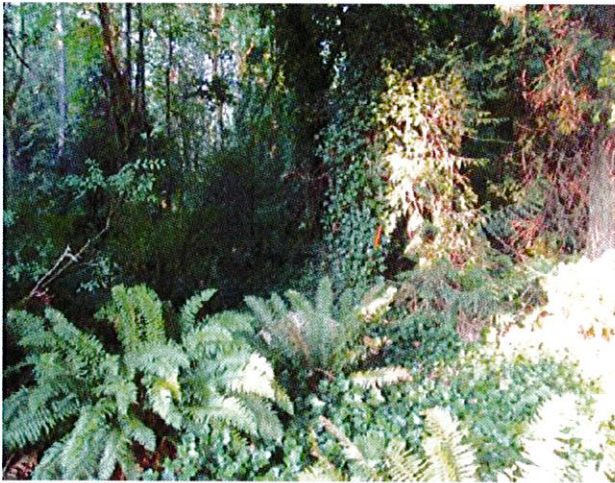
DATE: 8/10/17  
DWN: KB  
PRJ. MGR JB  
PROJ.#: 2590.021

Photoplate 1  
Project Name: Phelps Road  
Property  
Client: Fidalgo Bay Homes  
Kitsap County, Washington





**Photo 4** shows the area where Test Plot 1 was conducted. This area is located on the slope between Coho Creek and the property.



**Photo 5** shows the area where Test Plot 2 was conducted. This area is in the southeast part of the property, close to the southern property line and the existing fence. Soil Log 1 was used to examine the soil colors and texture.



**Photo 6** shows the area where Test Plot 3 was conducted. This area is close to the northwest corner of the property. Old Soil Log 2 was used to examine the soil colors and texture.



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PRJ. MGR JB  
PROJ.#: 2590.021

Photoplate 2  
Project Name: Phelps Road  
Property  
Client: Fidalgo Bay Homes  
Kitsap County, Washington





**Photo 7** was taken from across Phelps Road, looking east toward the northwest corner of the property.



**Photo 8** was taken from the same location as Photo 7, showing the southwest corner of the property closest to Phelps Road. The proposed driveway would enter the property here.



**Photo 9** shows the dry roadside ditch along Phelps Road, near where the dry stream channel enters the ditch.



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DWN: KB  
PRJ. MGR JB  
PROJ.#: 2590.021

Photoplate 3  
Project Name: Phelps Road  
Property  
Client: Fidalgo Bay Homes  
Kitsap County, Washington





**Photo 10** was from along the north property line, which is represented by the fence on the right side. This photo looks west along the north line with the onsite area to the left and offsite pasture to the right.



**Photo 11** was taken from the same location as Photo 10 and looks south back onto the property from the fence line.



**Photo 12** was taken from near the northwest corner and looks east along the property line, which is represented by the fence on the left.



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DATE: 8/10/17  
DWN: KB  
PRJ. MGR JB  
PROJ.#: 2590.021

Photoplate 4  
Project Name: Phelps Road  
Property  
Client: Fidalgo Bay Homes  
Kitsap County, Washington



## **APPENDIX A**

---

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Phelps Road Property City/County: Bainbridge Island/Kitsap Sampling Date: 8-3-17  
 Applicant/Owner: Fidalgo Bay Homes State: WA Sampling Point: TP1  
 Investigator(s): Joanne Bartlett, Katie Boa Section, Township, Range: S3 T25 R2E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): MLRA 2 Lat: 47.6898960635794 Long: -122.52958254664 Datum: WA84-SF  
 Soil Map Unit Name: Harstine gravelly ashy sandy loam, 0 to 6 percent slopes NWI classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <b>The property is located on the east side of Phelps Road and is a narrow property with level topography that slopes down to the south into a seasonal stream. Test Plot 1 is located midway up the slope from the dry streambed, just south of the property.</b>		

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		<b>Prevalence Index worksheet:</b> <table style="width: 100%;"> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: 15)</b>																				
1. <u>Rubus spectabilis</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Corylus cornuta</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = <u>20</u> , 20% = <u>8</u>	<u>40</u>	= Total Cover																		
<b>Herb Stratum (Plot size: 5)</b>																				
1. <u>Polystichum munitum</u>	<u>55</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Tellima grandiflora</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = <u>30</u> , 20% = <u>12</u>	<u>60</u>	= Total Cover																		
<b>Woody Vine Stratum (Plot size: 15)</b>																				
1. <u>Hedera helix</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																
2. _____	_____	_____	_____																	
50% = <u>5</u> , 20% = <u>2</u>	<u>10</u>	= Total Cover																		
% Bare Ground in Herb Stratum <u>35</u>																				

Remarks: **The hydrophytic vegetation criterion is not met because there is less than 50% dominance by FAC species.**

**SOIL**Sampling Point: TP1**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/3	100					gr sa lo	no redoximorphic concentrations
								gr - gravel
								sa - sand
								lo - loam

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix, RC=Root Channel

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soils Present?** Yes ☐ No ☒

Remarks: The soil layer does not meet the definition of a depleted matrix so this soil profile is determined to meet none of the hydric soil indicators.

**HYDROLOGY****Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology was not present during the field visit and there was no evidence of wetland hydrology.

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Phelps Road Property City/County: Bainbridge Island/Kitsap Sampling Date: 8-3-17  
 Applicant/Owner: Fidalgo Bay Homes State: WA Sampling Point: TP2  
 Investigator(s): Joanne Bartlett, Katie Boa Section, Township, Range: S3 T25 R2E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 0  
 Subregion (LRR): MLRA 2 Lat: 47.6899831664411 Long: -122.52927201608 Datum: WA84-SF  
 Soil Map Unit Name: Harstine gravelly ashy sandy loam, 0 to 6 percent slopes NWI classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>The property is located on the east side of Phelps Road and is a narrow property with level topography that slopes down to the south into a seasonal stream. Test Plot 2 is located near Soil Log 1, which is next to the fence that bisects the property and in a nearly level area near the center of the property.</b>			

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>8</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
1. <u>Acer macrophyllum</u>	<u>15</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Tsuga heterophylla</u>	<u>15</u>	<u>yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
50% = <u>15</u> , 20% = <u>6</u>	<u>30</u>	= Total Cover		
<b>Sapling/Shrub Stratum (Plot size: 15)</b>				
1. <u>Rubus spectabilis</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u>Mahonia nervosa</u>	<u>5</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Vaccinium parvifolium</u>	<u>5</u>	<u>yes</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% = <u>7.5</u> , 20% = <u>3</u>	<u>15</u>	= Total Cover		
<b>Herb Stratum (Plot size: 5)</b>				
1. <u>Polystichum munitum</u>	<u>15</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 – Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 – Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 – Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Urtica dioica</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = <u>10</u> , 20% = <u>4</u>	<u>20</u>	= Total Cover		
<b>Woody Vine Stratum (Plot size: 15)</b>				
1. <u>Hedera helix</u>	<u>75</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
50% = <u>37.5</u> , 20% = <u>15</u>	<u>75</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>10</u>				

Remarks: **The hydrophytic vegetation criterion is not met because there is less than 50% dominance by FAC species.**

**SOIL**Sampling Point: **TP2****Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	duff							
4-5	10YR 4/4	100					gr sa lo	no redoximorphic concentrations
5-11	10YR 4/6	100					gr sa lo	no redoximorphic concentrations
11-16	2.5Y 5/4	100					gr sa lo	no redoximorphic concentrations
								gr - gravel
								sa - sand
								lo - loam

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix, RC=Root Channel**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**

Yes

☐

No

☒

Remarks: None of the soil layers meet the definition of a depleted matrix so this soil profile is determined to meet none of the hydric soil indicators.

**HYDROLOGY****Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                     |
| <input type="checkbox"/> High Water Table (A2)                     | <b>(except MLRA 1, 2, 4A, and 4B)</b>                                  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Salt Crust (B11)                              |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                   |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                 |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A)       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (2 or more required)

- |  |
|--|
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |
| <b>(MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> FAC-Neutral Test (D5)                     |
| <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)            |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                 |

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?**

Yes

☐

No

☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology was not present during the field visit and there was no evidence of wetland hydrology.

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Phelps Road Property City/County: Bainbridge Island/Kitsap Sampling Date: 8-3-17  
 Applicant/Owner: Fidalgo Bay Homes State: WA Sampling Point: TP3  
 Investigator(s): Joanne Bartlett, Katie Boa Section, Township, Range: S3 T25 R2E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 0  
 Subregion (LRR): MLRA 2 Lat: 47.6900879247207 Long: -122.52958504207 Datum: WA84-SF  
 Soil Map Unit Name: Harstine gravelly ashv sandy loam, 0 to 6 percent slopes NWI classification: NOne  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <b>The property is located on the east side of Phelps Road and is a narrow property with level topography that slopes down to the south into a seasonal stream. Test Plot 3 is located near the old Soil Log 2 near the northwest corner of the property.</b>			

## VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. <u><i>Tsuga heterophylla</i></u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>6</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>17</u> (A/B)
4. _____	_____	_____	_____		
50% = <u>10</u> , 20% = <u>4</u>	<u>20</u>	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15)				Prevalence Index worksheet:	
1. <u><i>Rubus spectabilis</i></u>	<u>20</u>	<u>yes</u>	<u>FAC</u>	Total % Cover of:	Multiply by:
2. <u><i>Mahonia nervosa</i></u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	OBL species _____	x1 = _____
3. <u><i>Corylus cornuta</i></u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
50% = <u>20</u> , 20% = <u>8</u>	<u>40</u>	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot size: 5)				Column Totals: _____ (A)	_____ (B)
1. <u><i>Polystichum munitum</i></u>	<u>15</u>	<u>yes</u>	<u>FACU</u>	Prevalence Index = B/A = _____	
2. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:	
3. _____	_____	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
4. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
5. _____	_____	_____	_____	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
6. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
7. _____	_____	_____	_____	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>	
8. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
9. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
50% = <u>10</u> , 20% = <u>4</u>	<u>20</u>	= Total Cover			
Woody Vine Stratum (Plot size: 15)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
1. <u><i>Hedera helix</i></u>	<u>35</u>	<u>yes</u>	<u>FACU</u>		
2. _____	_____	_____	_____		
50% = <u>17.5</u> , 20% = <u>7</u>	<u>35</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>45</u>					

Remarks: **The hydrophytic vegetation criterion is not met because there is less than 50% dominance by FAC species.**

**SOIL**Sampling Point: TP3**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-5</u>	<u>10YR 3/2</u>	<u>100</u>	_____	_____	_____	_____	<u>sa lo</u>	<u>no redoximorphic concentrations</u>
<u>5-16</u>	<u>10YR 5/4</u>	<u>100</u>	_____	_____	_____	_____	<u>gr sa lo</u>	<u>no redoximorphic concentrations</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	<u>gr - gravel</u>
_____	_____	_____	_____	_____	_____	_____	_____	<u>sa - sand</u>
_____	_____	_____	_____	_____	_____	_____	_____	<u>lo - loam</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix, RC=Root Channel**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soils Present?**Yes ☐ No ☒

Remarks: None of the soil layers meet the definition of a depleted matrix so this soil profile is determined to meet none of the hydric soil indicators.

**HYDROLOGY****Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9)                        |
| <input type="checkbox"/> High Water Table (A2)                     | <b>(except MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Salt Crust (B11)                                 |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                      |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                       |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)    |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                    |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)       |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                       |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |

Secondary Indicators (2 or more required)

- |  |
|--|
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |
| <b>(MLRA 1, 2, 4A, and 4B)</b>                                     |
| <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Geomorphic Position (D2)                  |
| <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> FAC-Neutral Test (D5)                     |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )   |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                 |

**Field Observations:**Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): \_\_\_\_\_**Wetland Hydrology Present?**Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology was not present during the field visit and there was no evidence of wetland hydrology.