



WETLAND BUFFER MODIFICATION & MITIGATION PLAN

July 8, 2025



Village at North Shore
Camas, Washington

Prepared for

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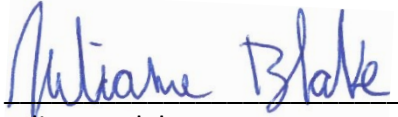
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The information and data in this report was compiled and prepared under the supervision and direction of the undersigned.



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TABLE OF CONTENTS

Introduction	1
Responsible Parties	1
Project Description	2
PROPOSED DEVELOPMENT	2
Existing Conditions	3
EXISTING AND SURROUNDING LAND USES	3
EXISTING CRITICAL AREAS	3
Wetland A	3
Wetland B	4
Wetland Buffers	4
Stream A	4
Stream Buffers	4
Ditch A	5
Landscape Position	5
Oregon White Oak	5
Herbaceous Bald Habitat	6
Standard Wetland Buffer Modifications	6
WETLAND BUFFER REDUCTION	7
Lower Impact Land Uses	7
Restoration	8
WETLAND BUFFER AVERAGING	9
Avoidance and Minimization	10
BEST MANAGEMENT PRACTICES	10
Unavoidable Impacts	11
Oak Mitigation Discussion	12
OAK MITIGATION REQUIREMENTS	12
Oak Woodland Determination	12
Physical Impacts	12
Temporal Impacts	13
Oregon White Oak Mitigation Bank Selection Rationale	14
Functions Provided at Oak Bank	15
WILDLIFE HABITAT	15
Anticipated Functional Lift	15
Proposed Mitigation Credits	16
Credit Purchase or Transfer Timing	16
Confirmation of Mitigation Credit Availability	17
Onsite Enhancement Plan	17
MITIGATION GOALS AND DISCUSSION	17
Wetland Buffers	17

Oak and Herbaceous Bald Habitat	18
OBJECTIVES AND PERFORMANCE STANDARDS	18
PLANTING SPECIFICATIONS	20
PLANTING PLAN	22
MONITORING, MAINTENANCE, AND CONTINGENCY MEASURES	23
Limitations	24
References	25

TABLES (IN TEXT)

Table 1. Wetland and Stream Summary	5
Table 2. Impact Summary	11
Table 3. Oak Woodland Determination	12
Table 4. Oak Mitigation to Offset Physical Impacts	13
Table 5. Mitigation for Temporal Impacts	14
Table 9. Proposed Credit Purchase Summary	16
Table 6. Proposed Impacts and Onsite Mitigation	21
Table 7. Wetland Buffer Planting Specifications	21
Table 8. Seed Mix Specifications	22

FIGURES

Figure 1	Vicinity Map
Figure 2	Existing Conditions
Figure 3	Habitat Areas Detail
Figure 4	Proposed Conditions
Figure 5	Impact Detail – Habitat Areas
Figure 6	Mitigation Plan
Figure 7	Planting Plan
Figure 8	Terrace Oak Mitigation Bank Service Area
Figure 9	Terrace Oak Mitigation Bank Site Design

APPENDIX

Appendix A – WDFW Functional Assessments for Individual Oaks and Mitigation Calculations
Appendix B – Offsite Protected Wetland Area

INTRODUCTION

Ecological Land Services, Inc. (ELS) was contracted by the applicant, HSR Capital, LLC, to address impacts to the buffers of two Category III wetlands and impacts to Oregon white oak (*Quercus garryana*; oak) and herbaceous bald habitat associated with the proposed Village at North Shore (VANS) subdivision. The project will include 102 single-family lots, 4 multi-family buildings with 96 apartment units, and 3 mixed-use building(s) with 30,250 square feet of commercial use and 44 apartment units, within Clark County parcel numbers 177885000 and 178175000. The approximately 36-acre site is located just south of the terminus of NE 252nd Avenue in Camas, Washington within a portion of Section 34, Township 2 North, Range 3 East of the Willamette Meridian (Figure 1). This wetland buffer modification and mitigation plan has been prepared in accordance with *City of Camas Municipal Code (CMC) Title 16 – Environment* (June 2025) and *Management recommendations for Washington's priority habitats: Best management practices for mitigating impacts to Oregon white oak priority habitat* (Guidance; Nolan and Azerrad 2024).

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PROJECT DESCRIPTION

PROPOSED DEVELOPMENT

The project will include 102 single-family lots, 4 multi-family buildings with 96 apartment units, and 3 mixed-use building(s) with 30,250 square feet of commercial use and 44 apartment units, over the approximately 36.03-acre site. Residential lot sizes range from approximately 2,280 to 6,500 square feet. Construction of the subdivision will include clearing, grading, lot preparation, and construction of supporting infrastructure including parking areas, stormwater facilities, interior circulation roads, sidewalks, utilities, streetlights, and open space areas (Figure 4). All interior roads will be designed to meet minimum emergency vehicle circulation requirements and City of Camas North Shore Subarea design standards. Access to the subdivision will be provided by extending NE 252nd Avenue southerly at the northern site boundary. Construction of a new arterial road (North Shore Blvd.) extending northwest from the eastern boundary of the site is required to comply with the mandated public road alignment. This roadway supports broader City transportation goals established in the municipal code and has been closely coordinated with City staff. Several alignment alternatives were evaluated, including the City's initial proposal to route the boulevard through Wetland B. The final proposed alignment was selected by the City to avoid critical areas, meet long-term transportation objectives, and comply with roadway design standards for this higher classification roadway to ensure the safe and efficient movement of traffic. While the City may complete construction of the roadway as part of a larger transportation improvement project, the development will, at a minimum, dedicate the necessary right-of-way to accommodate future construction. If the City does not proceed with its transportation project, the applicant will construct the roadway as shown in the proposed plans.

Stormwater generated from new impervious surfaces will be managed according to the *2019 Stormwater Management Manual for Western Washington* and City of Camas stormwater design requirements. Stormwater runoff from the western and southwestern portions of the site will be collected and directed to an onsite mechanical water quality treatment facility, where it will receive basic treatment for pollutants and phosphorous treatment prior to being discharged to Lacamas Lake, which has a large water body direct discharge exemption. Runoff from the eastern portion of the site will be collected and conveyed to water quality treatment facilities prior to entering detention facilities for flow control management. Three stormwater detention facilities will be located in low-lying areas in the eastern and north-central portions of the site for detaining stormwater prior to discharge to Wetland A and Stream A and eventually Lacamas Lake.

The proposed project will remove eleven Oregon white oak trees in Oak Cluster 1, each with a diameter at breast height (DBH) of 10 inches or less for a combined dripline impact of 0.048 acres (2,077 sq. ft.). Approximately 0.088 acres (3,852 sq. ft.) of herbaceous bald habitat and 0.184 acres (8,001 sq. ft.) of Wetland B's buffer will also be impacted (Figure 5). All direct wetland impacts will be avoided and impacts to wetland buffers will be minimized through the use of low impact strategies, combined with buffer averaging. Wetland buffer impacts will be mitigated by enhancing approximately 0.184 acres (8,001 sq. ft.) of wetland buffer onsite. Herbaceous bald impacts and a portion of temporal oak impacts will be mitigated by preserving and enhancing

approximately 0.15 acres (6,522 sq. ft.) of existing oak and herbaceous bald habitat onsite. The remaining oak impacts will be mitigated by purchasing 1.063 credits from Terrace Oak Mitigation Bank (Terrace). Additionally, two vegetated corridors will be established and protected in perpetuity to offset wetland impacts, achieve an overall net gain in ecological functions onsite, and further protect critical areas from the surrounding developments.

EXISTING CONDITIONS

EXISTING AND SURROUNDING LAND USES

The approximately 36-acre site consists of Clark County Tax Parcel Numbers 177885000 and 178175000 and is accessed by a gravel road off SE 252nd Avenue from the north. The site is zoned as North Shore Lower Density Residential (LD-NS), North Shore Higher Density Residential (HD-NS), Mixed Use (MX-NS), and North Shore Commercial (C-NS). The properties surrounding the site consist of single-family homes, farmland, undeveloped forested land, and two subdivisions with construction in progress. The northwest portion of the site has a single-family residence and fenced area for livestock. Topography on parcel 178175000 is generally level in the north and northeast, with a depressional area in the northwest corner of the parcel that corresponds to the location of Wetland B. Topography in the remainder of the parcel consists of moderate to steep slopes that descend towards the onsite portions of Wetland A and Stream A. Topography on parcel 177885000 consists of moderate slopes downward to the south, undulating hills throughout the parcel, and several low-lying areas to the north and northeast. Shallow bedrock and rock outcroppings are also present in some locations. General vegetation consists of grasses, weedy herbs, and forbs in the northern portions of each parcel, and the remainder of the site consists of a forested canopy containing a mix of coniferous and deciduous trees with a multi-layered subcanopy. Two wetlands (Wetlands A and B), one stream (Stream A), two oak clusters consisting of a total of 20 oak trees, and two herbaceous balds (Herbaceous Bald 1 and Herbaceous Bald 2; HB-1 and HB-2) are located onsite. An agricultural ditch (Ditch A) was also mapped onsite (Figure 2).

EXISTING CRITICAL AREAS

The site was assessed for critical areas by ELS in 2022, 2023, and 2024. The *Critical Areas Report for ICG 252nd Property* was completed by ELS on May 19, 2025, and addresses critical areas on parcel 178175000 (ELS 2025a). The *Critical Areas Report for Mills Property* was also completed by ELS on May 19, 2025, and addresses critical areas on parcel 17885000 (ELS 2025b).

WETLAND A

Wetland A is Category III, depressional, emergent (EM), forested (FO), seasonally flooded (SF) and saturated only (SO) wetland with a seasonally flowing stream (SFS) within the wetland, with approximately 2.26 acres onsite and a total area of approximately 10.06 acres (Figure 2). Portions of Wetland A's offsite boundary were approximated using lidar and topographic maps along with visual observations of noticeable changes in elevation and vegetation. Wetland A's onsite vegetation is dominated by Oregon ash (*Fraxinus latifolia*), common rush (*Juncus effusus*), and reed canarygrass (*Phalaris arundinacea*). Hydrology is supported by seasonal overbank flooding from Stream A, which serves as Wetland A's outlet, a shallow groundwater table, precipitation,

and surface runoff. According to the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Rating System), Wetland A is a Category III wetland, scoring 7 points for water quality functions, 4 points for hydrologic functions, and 7 points for habitat functions, for a total score of 18 points.

WETLAND B

Wetland B is a Category III, depressional, EM, FO, SF wetland, with approximately 0.81 acres onsite and a total area of approximately 0.84 acres. Wetland B's vegetation is dominated by Oregon ash, black cottonwood (*Populus trichocarpa*), Scouler's willow (*Salix scouleriana*), Nootka rose (*Rosa nutkana*), reed canarygrass, and water smartweed (*Persicaria amphibia*). Hydrology is supported by a shallow groundwater table, precipitation, and runoff from adjacent uplands. Wetland B does not have an outlet. According to the Rating System, Wetland B is a Category III wetland, scoring 6 points for water quality functions, 5 points for hydrologic functions, and 7 points for habitat functions, for a total score of 18 points.

WETLAND BUFFERS

Standard wetland buffers are based on wetland category and habitat score from the Rating System, in conjunction with the proposed land use intensity (*CMC 16.53.040(B)(2)*). Wetland A and Wetland B are both Category III wetlands, each with a habitat score of 7 points. According to *CMC Table 16.53.040-3*, the standard buffer widths for both wetlands adjacent to proposed high land use intensity is 150 feet. According to *CMC 16.53.040(B)(4)(b)(i)*, functionally isolated buffer areas are areas that do not protect the wetland from adverse impacts, such as preexisting roads and structures, and shall be excluded from buffer requirements. Portions of the wetland buffers are functionally isolated due to existing impervious surfaces (Figure 2). Wetlands and buffers are summarized in Table 1.

STREAM A

Stream A is mapped as Type-U by Washington Department of Natural Resources (WDNR 2025). According to WAC 222-16-031, Stream A meets the definition of a Type 3 water based on a defined channel of 2 feet or greater within the bankfull width, a gradient of 16 percent or less, and the absence of any fish passage barriers (WDFW 2025a). As such, Stream A is considered a Type-F (fish-bearing) stream. Onsite hydrology is supported by a shallow groundwater table, precipitation, and runoff from upslope areas.

STREAM BUFFERS

According to Washington State Fish Passage online mapping, Stream A may have the potential presence of resident fish (WDFW 2025a). According to *CMC 16.61.040(D)*, non-anadromous Type-F streams require a 75-foot stream buffer. The buffer of Stream A is primarily vegetated with reed canarygrass, slough sedge, and a mixture of mature coniferous and deciduous trees with a multi-layered subcanopy. Stream A is summarized in Table 1.

Table 1. Wetland and Stream Summary

Identifier	Classification	Cowardin, Hydroperiod ⁴	Habitat Score/Category ⁵	Proposed Land Use Intensity	Buffer Width ^{6,7}
Wetland A (2.26 acres onsite)	Depressional ¹	EM/FO, SF/SO/SFS	III/7	High	150 feet
Wetland B (0.81 acres onsite)		EM/FO, SF			
Stream A	Type F, non-anadromous ²	--			75 feet

¹NRCS 2008; ²WAC 222-16-031; ³WDNR 2025b; ⁴FGDC 2013; ⁵Hruby and Yahnke 2023; ⁶CMC Table 16.53.040-3; ⁷CMC 16.61.040(D).

DITCH A

Ditch A is an agricultural ditch that appears to have been created within uplands for the purpose of diverting upslope runoff into Stream A (Figure 2). According to CMC 16.53.010(C)(2)(b), Ditch A is exempt from buffers as detailed below:

Artificial. Wetlands created from non-wetland sites including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, stormwater facilities, farm ponds, and landscape amenities; provided, that wetlands created as mitigation shall not be exempted.

Ditch A is not classified as a fish and wildlife habitat conservation area per CMC 16.61.010(A)(5) which defines “Water of the State” as omitting, “man-made ditches or bio-swales that have been created from areas not meeting the definition of waters of the state.”

LANDSCAPE POSITION

According to the Washington State Department of Ecology’s Water Quality Atlas, the site is in the Lacamas Creek 12-digit hydrologic unit code (HUC) 170800050305 and Watershed Resource Inventory Area (WRIA) 28 Salmon – Washougal. Onsite hydrology generally flows downslope to the east into the wetlands and stream.

OREGON WHITE OAK

The Washington Department of Fish and Wildlife (WDFW) identifies which oak communities are considered priority habitats through its Priority Habitats and Species (PHS) program. The Washington Natural Heritage Program (WNHP) defines a North Pacific Oak Woodland as a community dominated or co-dominated by oak and associated with dry, low-elevation sites or those with frequent fires pre-settlement. Oregon white oak woodlands are associated with eight different plant communities, including a wide variety of native herbaceous and shrub species. Oak woodlands provide a mix of feeding, nesting, and breeding habitat for many wildlife species (Nolan and Azerrad 2024). In addition to oak woodlands, individual oak trees can be considered a priority habitat if they provide considerable value to wildlife. In addition to woodland communities, oaks are also associated with prairies and savannas in Washington. These

communities are considered wooded grasslands and are an association of upland grassland and meadows (Rocchio and Crawford 2015).

Two oak clusters were identified onsite, with sixteen oaks in Cluster 1 and four oaks in Cluster 2. The total dripline of Cluster 1 is approximately 0.10 acres and the total dripline of Cluster 2 is approximately 0.05 acres. Although PHS mapping identifies each cluster as an oak woodland, these areas do not meet woodland size requirements, and each oak shall be considered an individual (Figure 3). Details for Oaks 2-12 will be discussed in this report, as these oaks will be impacted by the proposed project. For more details on other oaks onsite, see the *Critical Areas Report for Mills Property* (ELS 2025b).

HERBACEOUS BALD HABITAT

According to CMC 16.61.010(A)(2), priority habitats and species are identified by WDFW; however, CMC 16.61.010(A)(1) states that lists, categories, and definitions of species promulgated by WDFW are provided to the City to be used for guidance only. According to the WDFW Priority Habitat and Species Program (WDFW 2025b) herbaceous balds are defined as:

“...variable-sized patches of grass and forb vegetation located on shallow soils over bedrock that commonly is fringed by forest or woodland. Typically consists of low-growing vegetation adapted for survival on shallow soils amid seasonally dry conditions, and is often on steep slopes. Dominant flora includes herbaceous vegetation, dwarf shrubs, mosses, and lichens. Rock outcrops, boulders, and scattered trees are often present, especially Douglas-fir, Pacific madrone, and Oregon white oak. Balds occur within mid-montane to lowland forest zones. On slopes near saltwater shorelines in the northern Puget Trough, herbaceous balds and herbaceous bluffs can sometimes be difficult to differentiate. Balds typically are smaller than 5 ha (12 ac), although some can be up to about 100 ha ($\cong$ 250 ac)” (WDFW 2008).

ELS biologists identified two areas onsite that meet herbaceous bald criteria (HB-1 and HB-2). These areas are defined by shallow soils with vegetation dominated by grasses and forbs. Dominant vegetation found on herbaceous bald locations included Camas lily (*Camassia quamash*), licorice fern (*Polypodium glycyrrhiza*), various grasses, moss, and blackberry species. Although Camas lily was observed on the entirety of both herbaceous balds, it comprises less than 0.25 acres and is not considered a priority habitat itself. Douglas fir (*Pseudotsuga menziesii*) trees were rooted near herbaceous bald locations but not directly on the balds. All observed oaks were rooted within herbaceous bald boundaries and many displayed stunted crowns and curled leaves, likely from stress related to shallow soils and shading by Douglas fir trees. Herbaceous bald boundaries were delineated based on vegetation and the presence of bedrock under shallow soils.

STANDARD WETLAND BUFFER MODIFICATIONS

According to CMC 16.53.050.C(1), standard wetland buffer widths may be reduced under certain conditions, provided the project results in no net loss or a net gain in ecological functions and values provided by the wetland. The section also specifies that buffer width reductions allowed

under subsections (C)(1)(a) and (C)(1)(b) may be combined, provided that minimum buffer widths shall never be less than fifty feet for Category III wetlands. In *italic* font are excerpts from CMC detailing the criteria required to utilize the buffer reductions, with a description of how this project will meet the criteria in regular font.

WETLAND BUFFER REDUCTION

LOWER IMPACT LAND USES

According to CMC 16.53.050.C(1)(a), buffer widths recommended for proposed land uses with high-intensity impacts to wetlands can be reduced to those recommended for moderate-intensity impacts if both the following criteria are met:

i. A relatively undisturbed, vegetated corridor at least one hundred feet wide is protected between the wetland and any other priority habitats that are present as defined by the Washington State Department of Fish and Wildlife.

Wetland A: Wetland A extends onto the adjacent parcel to the east (parcel 178171000), which was permitted for the Enclave development in June 2025 (NWS-2025-263). A vegetated corridor, ranging in width between approximately 141 feet to 491 feet from Wetland A's eastern boundary to the eastern parcel boundary, will be established and protected in perpetuity through a conservation covenant or similar (Figure 6). Protection and enhancement of Wetland A and its buffer on the Enclave parcel are mandated by the permit (NWS-2025-263), providing an additional corridor width of approximately 300 feet to the adjacent development (Appendix B). This additional corridor width will increase the ecological functions of critical areas on- and offsite and further minimize impacts caused by the proposed project. The *Buffer Modification and Onsite Mitigation Plan for Enclave Property* (ELS 2025) details the offsite mitigation and protection measures.

Wetland B: A corridor ranging between approximately 66 feet and 260 feet will be established between Wetland B and the location of HB-1 and Oak Cluster 1. Wetland B's buffer will be increased and enhanced in this area to provide more protection for nearby habitats and to create continuity between the wetland and other priority habitat areas in the vicinity.

ii. Measures to minimize the impacts of the land use adjacent to the wetlands are applied, such as infiltration of stormwater, retention of as much native vegetation and soils as possible, direction of noise and light away from the wetland, and other measures that may be suggested by a qualified wetland professional.

Wetland A and B: Infiltration is not feasible due to the shallow soils present over solid bedrock; however, runoff impacts to wetlands and buffers from the development will be minimized by collecting stormwater for detention and treatment prior to regulated discharge toward the wetlands, to maintain hydrologic input to the wetlands. Where possible, disturbed vegetated areas will be restored by placing topsoil that meets Ecology standards on top of the grading slopes to allow for reestablishment of native vegetation. Many areas onsite are composed of shallow soils over solid bedrock. If solid bedrock is present as anticipated, cut slopes will be minimized to

the greatest extent practicable by control blasting near vertical slopes to limit disturbance from the development toward the wetland. These near vertical slopes will not be suitable for revegetation; however, disturbance beyond the top of the cuts will be minimized.

Stormwater facilities proposed within the buffers are designed to meet city and state standards for managing stormwater runoff prior to discharge towards the critical areas. The discharge locations will be placed as far from the critical areas as feasible to allow for the greatest flow path through the wetland buffers. No untreated stormwater will be discharged from the project. Streetlights will be directed down and away from the wetland to the greatest extent practicable to reduce light pollution. Increases to ambient noise after construction is complete are expected, as the proposed subdivision is in a growing mixed-use residential area with commercial uses required by City zoning standards. However, noise generated by the completed project will be comparable to surrounding land uses and is not anticipated to exceed standard acceptable levels. The project will retain a significant amount of heavily vegetated areas which will reduce noise disturbances to the wetlands and stream. Additionally, the buffers for both wetlands will be enhanced by controlling invasive species to provide an overall higher ecological function than currently exists onsite (Figure 6). A full description of buffer enhancement activities can be found in the *Onsite Mitigation Plan* section of this report.

The above design measures will be implemented to reduce the land use intensity of the project and reduce adverse impacts. Therefore, the project meets the required criteria, and this buffer reduction should be allowed. As such, the buffers for Wetland A and Wetland B are reduced from 150 feet to 110 feet per *CMC Table 16.53.040-3* (Figure 4).

RESTORATION

The following is an excerpt from *CMC 16.53.050.C(1)(b)*: *Buffer widths may be reduced up to twenty-five percent if the buffer is restored or enhanced from a pre-project condition that is disturbed (e.g., dominated by invasive species), so that functions of the post-project wetland and buffer are equal or greater. To the extent possible, restoration should provide a vegetated corridor of a minimum one hundred feet wide between the wetland and any other priority habitat areas as defined by the Washington State Department of Fish and Wildlife. The habitat corridor must be protected for the entire distance between the wetland and the priority habitat area by some type of permanent legal protection such as a covenant or easement. The restoration plan must meet requirements in subsection D of this section for a mitigation plan, and this section for a critical area report.*

Wetland A and B: Invasive species such as reed canarygrass and Himalayan blackberry are present in the wetland and buffer areas of both wetlands and are prolific in some areas. The buffers of both Wetland A and Wetland B will be enhanced by removing invasive vegetation, which will allow native species to reestablish and provide an overall net gain in ecological functions. Two vegetated corridors, one for each wetland, will be established and protected as described in the *Lower Impact Land Uses* section of this report. The vegetated corridors will be protected in perpetuity through a conservation covenant or similar legal mechanism and the restoration plan will follow all applicable guidelines outlined in the *CMC*. As such, the buffers for

Wetland A and Wetland B are reduced further from 110 feet to 82.5 feet per CMC 16.53.050.C(1)(b) (Figure 4).

WETLAND BUFFER AVERAGING

According to CMC 16.53.050(C)(2), averaging buffers is allowed in conjunction with any of the other provisions for reductions in buffer width listed in subsection (C)(1), provided that minimum buffer widths listed in subsection (C)(1)(c) are adhered to. This project proposes buffer averaging to further avoid and minimize wetland buffer impacts caused by construction of the subdivision, and will adhere to the following criteria:

a. The total area contained in the buffer after averaging is no less than that contained within the buffer prior to averaging.

Wetland A: A total of 0.015 acres (661 sq. ft.) of the buffer will be decreased in the southwestern portion of the wetland and correspondingly increased in the northwest portion of the wetland.

Wetland B: A total of 0.216 acres (9,388 sq. ft.) of the buffer will be decreased along the northeast and western portions of the wetland and correspondingly increased in the southeast portion of the wetland (Figure 4).

b. Decreases in width are generally located where wetland functions may be less sensitive to adjacent land uses, and increases are generally located where wetland functions may be more sensitive to adjacent land uses, to achieve no net loss or a net gain in functions.

Wetland A and Wetland B: The buffer areas proposed for decrease generally provide equal or less ecological function than the areas proposed for increase, resulting in no net loss of function. Native vegetation is less dense, and invasive species are present in higher quantities in decreased areas than increased areas. Thus, no net loss is achieved, and this criterion is met.

c. The averaged buffer width at its narrowest point shall not result in a width less than seventy-five percent of the required width, provided that minimum buffer widths shall never be less than fifty feet for all Category 1, 2, and 3 wetlands and twenty-five feet for all Category IV wetlands.

Wetland A and Wetland B: The standard wetland buffer width, after applying the allowed reduction, is 82.5 feet. The averaged buffer width at its narrowest point is approximately 62 feet, which meets the requirement of being no less than 75 percent of the standard width. Buffer averaging is shown on Figure 4.

d. Effect of Mitigation. If wetland mitigation occurs such that the rating of the wetland changes, the requirements for the category of the wetland after mitigation shall apply.

Wetland A and Wetland B: It is not anticipated that onsite mitigation will result in a change to the wetland ratings, as mitigation will take place in the wetland buffers. Functions of the wetland buffers will increase, but the ratings are expected to remain the same.

AVOIDANCE AND MINIMIZATION

The preferred mitigation sequencing of first avoidance, then minimization, and finally compensation for unavoidable impacts was taken into consideration during the project design process. The proposed subdivision has been designed to completely avoid direct impacts to Wetland A, Wetland B, Oak Cluster 2, and Herbaceous Bald 2, by utilizing lower impact development strategies in conjunction with buffer enhancement and averaging as described in the *Standard Wetland Buffer Modifications* section of this report. Several layouts were tested during the project design process to locate the majority of development outside of critical areas boundaries. Grading impacts to Oak Cluster 2 and HB-2 have been completely avoided by incorporating a 2:1 slope up to the proposed open space in which they are located. This area also appears to be solid rock based on site observations and the project geotechnical findings; therefore, the 2:1 slopes may be steeper and thus minimize the grading impact around the oak cluster and herbaceous bald even further.

Impacts to the buffer for Wetland A, Wetland B, Oak Cluster 1, and HB-1 could not be entirely avoided due to the City mandated location of North Shore Blvd., topographical and environmental constraints onsite, as well as required roadway circulation, density requirements, stormwater paths, and parking lots to support the residential and commercial uses as required by CMC. However, impacts will be minimized to the greatest extent practicable by applying the buffer reductions described above, retaining and protecting oaks and herbaceous balds to the maximum extent possible, and establishing and protecting two vegetated corridors onsite. Impacts will be further minimized by utilizing best management practices (BMPs) as described in the *Best Management Practices* subsection of this report.

BEST MANAGEMENT PRACTICES

Before work begins, a construction entrance will be established and clearing and grading will occur within the project area. All construction and tree removal will strictly adhere to the designated construction area. BMPs utilized prior to, during, and after construction to further minimize impacts to critical areas are as follows:

- Install silt fencing or similar measures to control sedimentation and general ground disturbance.
- Locate construction access and staging and stockpile areas within uplands.
- Limit ground disturbance to only those areas necessary to construct project elements.
- Grading will occur during the dry season to minimize surface runoff.
- Maintain stable construction access per the 2019 *Stormwater Management Manual for Western Washington*.
- Use a water truck as needed during construction to control fugitive dust.
- Maintain, repair, and service vehicles and equipment outside of any critical area onsite.
- Maintenance, service, and repair operations include, but are not limited to:
 - Prohibiting discharge of wastewaters into stormwater drains or hose down work areas.
 - Removing the buildup of oils and grease on equipment.

- Removing construction maintenance waste materials from work site and dispose and/or recycle.
- Having a spill kit onsite.
- Stabilize exposed soil with straw mulch or other suitable BMP if left exposed and unworked according to the *2019 Stormwater Management Manual for Western Washington*.

UNAVOIDABLE IMPACTS

The project will result in approximately 0.184 acres (8,001 sq. ft.) of wetland buffer impact and approximately 0.088 acres (3,852 sq. ft.) of herbaceous bald impact. The project will also remove Oaks 2-12, resulting in approximately 0.048 acres (2,077 sq. ft.) of oak canopy dripline impact from clearing and grading for construction of North Shore Blvd. (Figures 4 and 5, Table 2).

Table 2. Impact Summary

Oregon White Oak Trees				
Name		Size	Impact Type	Impact Area
Oak 2		8-inch DBH	Individual Oak Removal	0.048 acres (2,077 sq. ft.) Combined Dripline Impact ¹
Oak 3		8-inch DBH		
Oak 4		6-inch DBH		
Oak 5		6-inch DBH		
Oak 6		5-inch DBH		
Oak 7		9-inch DBH		
Oak 8		10-inch DBH		
Oak 9		8-inch DBH		
Oak 10		10-inch DBH		
Oak 11		5-inch DBH		
Oak 12		10-inch DBH		
Total Oak Impact				
Herbaceous Balds				
Name		Size	Impact Type	Impact Area
HB-1		0.15 acres (6,628 sq. ft.)	Permanent	0.088 acres (3,852 sq. ft.)
Wetlands				
Critical Area	Impact Type	HGM ²	Ecology Rating ³	Impact Area
Wetland B	Buffer	Depressional	Category III	0.184 acres (8,001 sq. ft.)

¹The driplines for Oaks 2-12 are contiguous and shall be combined for the purpose of mitigation calculations. ²NRCS 2008. ³Hruby & Yahnke 2023.

OAK MITIGATION DISCUSSION

OAK MITIGATION REQUIREMENTS

According to the Guidance, compensatory mitigation should ideally take place onsite or as close to the site as possible when options for onsite mitigation are limited, and any plan for compensatory mitigation must address both the physical loss of oak habitat and the temporal loss in ecological function (Nolan and Azerrad 2024). This mitigation plan accounts for both the physical and temporal losses from the project, as described later in this section. Because North Shore Blvd. construction is still under discussion between the applicant and the City, oak habitat will be retained as long as possible and will not be impacted until road construction begins. Suitable area for oak mitigation is limited onsite due to the densely forested canopy and sub-canopy, which interfere with the potential for oak establishment as they require ample sunlight and open area. Use of open spaces that may be suitable for oak mitigation is undetermined, and these areas may not be available in the future due to CMC requirements and potential changes to North Shore Blvd. design and construction. Because of this, a portion of temporal impacts will be offset by enhancing retained oak habitat onsite and the remainder will be offset by purchasing 1.063 credits from Terrace.

OAK WOODLAND DETERMINATION

Mitigation for impacts to oak woodlands differs from mitigation for impacts to individual oaks. As such, an assessment must be completed to determine whether the project impacts an oak woodland or individual oaks. Each oak on- and offsite is assigned a habitat area with a 118-foot radius, which produces an area of approximately one acre per oak. If two or more of these habitat areas overlap, further investigation is required to determine if they meet the definition of an oak woodland. To be considered an oak woodland, there must be a minimum density of five large oaks per acre and the oak component must be no less than 25 percent of the total canopy cover. The habitat areas for all oaks in Cluster 1 overlap; however, the oak component of the canopy comprises approximately 7.46 percent of the total canopy. The habitat areas for all oaks in Cluster 2 also overlap; however, the oak component of the canopy comprises approximately 4.16 percent of the total canopy. The habitat areas for Cluster 1 and Cluster 2 do not overlap and the oak component of each cluster comprises less than 25 percent of the total canopy. As such, all oaks onsite are considered individuals, and project impacts will be calculated according to the WDFW process for individual oak trees (Nolan and Azerrad 2024). Table 3 summarizes the completed oak woodland assessment, which is also depicted on Figure 3.

Table 3. Oak Woodland Determination

Identifier	Habitat Area Total	Oak Dripline Total	Oak Canopy Coverage
Oak Cluster 1	1.34 acres	0.10 acres	7.46 percent
Oak Cluster 2	1.20 acres	0.05 acres	4.16 percent

PHYSICAL IMPACTS

After it has been determined whether the project will impact oak woodland or individual oaks, mitigation to offset project impacts must be calculated. Physical mitigation is designed to offset

the physical losses of an impacted oak and is determined by the DBH of the impacted oak. Table 4 summarizes the mitigation needed to offset physical impacts of the proposed project. No mitigation is required for removal of Oak 6 or Oak 11, as both oaks have a DBH of approximately 5 inches; therefore, these oaks are excluded from mitigation calculations.

Table 4. Oak Mitigation to Offset Physical Impacts

Name	Mitigation Ratio ¹	Oak Quantity
Oak 2	50:1	50
Oak 3		50
Oak 4		50
Oak 5		50
Oak 7		50
Oak 8		50
Oak 9		50
Oak 10		50
Oak 12		50
Total Oak Quantity		450
Total Area for Physical Loss (Oak Quantity x Spacing ² = Total Area)		0.90 acres (39,150 sq. ft.)

¹Nolan and Azerrad 2024. ²Spacing = 87 square feet (Nolan and Azerrad 2024).

TEMPORAL IMPACTS

Because oaks are slow-growing trees, temporal mitigation is designed to offset the temporal functional losses of an impacted oak by enhancing and/or preserving existing oak habitat. An assessment must be completed for the functions of each impacted oak prior to and after development and will determine the mitigation ratios to be used. Because the oaks will be removed entirely, a post-development assessment will not be completed and post-development functions shall be considered minimal. After mitigation ratios have been established, the dripline of each oak is used to determine how much area is needed to offset temporal impacts. This information is summarized in Table 5. Functional assessments and mitigation calculations are in Appendix A.

Table 5. Mitigation for Temporal Impacts

Name	Baseline Functions	Functions After Development	Mitigation Ratio ¹	Combined Dripline ²
Oak 2	High	Minimal	10:1	0.048 acres (2,077 sq. ft.)
Oak 3				
Oak 4				
Oak 5				
Oak 7				
Oak 8				
Oak 9				
Oak 10				
Oak 12				
Total Area Required for Temporal Mitigation ³				0.477 acres (20,770 sq. ft.)
Temporal Mitigation to be Mitigated Onsite				0.150 acres (6,522 sq. ft.)
Temporal Mitigation Remaining after Onsite Enhancement				0.327 acres (14,248 sq. ft.)

¹Nolan and Azerrad 2024. ²The driplines for Oaks 2-12 are contiguous and the assigned mitigation ratio is consistent for each oak; therefore, the combined dripline shall be used for mitigation calculations. ³Dripline x Ratio = Area Required.

OREGON WHITE OAK MITIGATION BANK SELECTION RATIONALE

The Oregon white oaks proposed for removal are located in the service area for the Terrace Oak Bank (Bank). The oak trees are approximately 5 miles southeast of the Bank which is in the southeastern portion of the service area (Figure 7). The proposed oak removal will be mitigated by purchasing credits from the Bank at ratios specified in the Terrace Oak Bank's Mitigation Banking Instrument (MBI).

Rationale for selecting this mitigation bank is as follows:

- There is not adequate space available onsite to fully compensate for oak habitat losses utilizing onsite mitigation. The use of the Bank will ensure that habitat functions common to urban areas can be fully replaced.
- The habitat functions lost from the proposed oak removal correspond directly with the habitat creation purpose, goals, and objectives at the Bank which identifies 13.93 acres of existing Oregon white oak woodland WDFW Priority Habitat that will be restored to pre-agricultural conditions through creation, enhancement, and preservation. Creation and enhancement will be accomplished through planting oak saplings and/or native understory plantings, removing of Douglas-fir, and establishing a conservation easement over the entire 13.93 acres.
- The use of Terrace Oak Bank credits will provide immediate compensation for the accrued oak impacts.

The 2008 *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule* (Corps) recommends purchasing mitigation bank credits for ecological considerations (lower risk of failure and lower temporal loss of resources and services) and to avoid the maintenance and

contingency issues and outright failures that often accompany permittee-responsible mitigation sites. As such, use of the Terrace Oak Bank substantially lowers the risk of failure and temporal loss of resource functions and services over newly established, permittee-responsible mitigation sites and offsite mitigation is anticipated to be more meaningful and beneficial to the watershed's habitat functions.

FUNCTIONS PROVIDED AT OAK BANK

The general goal of the Bank is to restore the approximately 13.93 acres to a state similar to its pre-agricultural condition through creation, enhancement, and preservation of an existing Oregon white oak woodland. All functions related to oak habitat are expected to increase as a result of design implementation. The primary ecological goals of the Bank are as follows:

- Removal of all existing impervious surfaces, including buildings, large equipment, gravel and paved areas, and debris, followed by replanting oak saplings and native understory species.
- Removal of invasive species in creation, enhancement, and preservation areas, primarily English ivy (*Hedera helix*) and Himalayan blackberry (*Rubus armeniacus*).
- Removal of Douglas-fir (*Pseudotsuga menziesii*) overstory as recommended by WDFW to reduce competition and further degradation of the Oregon white oak woodland from shading.
- Replanting of both creation and enhancement areas with oak saplings and native understory species to augment and expand existing Oregon white oak habitat.
- Preserve the Bank through a conservation easement.

WILDLIFE HABITAT

The proposed development site plan will provide diverse habitat for a variety of large and small mammals, songbirds, waterfowl, amphibians, and insects by improving the condition of the existing Oregon White Oak habitat through creation and enhancement that includes replanting of oaks and native understory, removing invasive species, non-native debris, and impervious surfaces, and eliminating Douglas-fir encroachment.

ANTICIPATED FUNCTIONAL LIFT

The creation, enhancement, and Douglas-fir stand release activities proposed in the Bank will provide a variety of benefits lifting overall habitat functions. Invasive species eradication and installing oak trees and native understory in open areas will increase the site's potential to provide habitat by providing improved and increased diversity of plant species, structure, and interspersions of habitat. Removing Douglas-fir competition will allow the existing oaks to increase branching and smaller oak trees to become better established. The changes will increase acorn production, provide additional food for wildlife, and support a greater diversity of wildlife species as will removing impervious surfaces and debris. All functions impacted by removing an oak tree at the project site will be fully mitigated at the Bank.

PROPOSED MITIGATION CREDITS

The mitigation credits required for oak impacts will be determined using calculations described in the Guidance (Nolan and Azerrad 2024). Because the Guidance recommends physical impacts be mitigated by planting new oaks, and temporal impacts be mitigated by enhancing or preserving existing oak habitat, physical impacts shall be treated as creation and temporal impacts shall be treated as enhancement and preservation. As such, physical impacts shall be assigned a 2:1 creation ratio and temporal impacts shall be assigned a 1:1 enhancement and preservation ratio. Because mitigating at the bank increases the likelihood of mitigation success and impacts can be mitigated immediately, the total credit amount shall be multiplied by a “risk reduction factor” of 50 percent (0.5). Table 9 summarizes the impact type, mitigation ratio, and total credits proposed for compensation.

Table 6. Proposed Credit Purchase Summary

Impact Type ¹	Impact Area	Credit Type	Ratio	Multiplier	Credits
Physical	0.899 acres (39,150 sq. ft.)	Creation	2:1	0.5	0.899
Temporal	0.327 acres ² (14,248 sq. ft.)	Enhancement/ Preservation	1:1		0.164
Total					1.063

¹Nolan and Azerrad 2024. ²Remaining mitigation required after onsite enhancement.

CREDIT PURCHASE OR TRANSFER TIMING

Following permit issuance, HSR Capital, LLC, as the applicant, will enter into a Buy/Sell Agreement with Terrace Oak Bank, for purchase of mitigation credits (in the quantity specified in Table 9) that would appropriately mitigate for the proposed project impacts. The actual purchase of credits will occur upon permit issuance. Prior to impacting the project oak, the applicant will submit proof of transfer of mitigation credits to project managers for the City of Camas. Proof of the mitigation transfer will be provided in the form of a notification letter to the approving agencies. Upon service of this notification, the mitigation requirement to purchase 1.063 mitigation credits will be fully satisfied.

CONFIRMATION OF MITIGATION CREDIT AVAILABILITY

Proof of the current number of available mitigation credits at the Terrace Oak Bank site will be confirmed by the approving agency, City of Camas and through the advising members of the Oak Bank Review Team.

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ONSITE ENHANCEMENT PLAN

MITIGATION GOALS AND DISCUSSION

The goal of this onsite mitigation plan is to fully compensate for wetland buffer and herbaceous bald impacts, partially compensate for oak temporal impacts associated with the proposed development, and to satisfy the aforementioned buffer reduction requirements.

WETLAND BUFFERS

To compensate for wetland buffer impacts, approximately 0.184 acres (8,001 sq. ft.) of the buffer for Wetland A will be enhanced by removing invasive species and installing native species, for an overall buffer enhancement ratio of 1:1. Although the majority of buffer impacts are associated with Wetland B, the buffer planting area will be located entirely within the buffer for Wetland A. The majority of Wetland B's buffer is densely forested with a diverse sub-canopy, providing ample protection for the wetland from the surrounding development, while the portions of Wetland A's buffer proposed for planting consist of regularly mowed grasses and provide very little protection for the wetland. As such, mitigating impacts within Wetland A's buffer will provide a higher ecological lift than mitigating within Wetland B's buffer.

Additionally, a vegetated corridor will be established within each wetland buffer, and the entirety of both buffers will be enhanced through invasive species removal to satisfy buffer reduction criteria, further contributing to the functional gain onsite. Enhancing the buffers will improve wetland protection from surrounding human activity, helping to preserve important habitat and

water quality functions. This enhancement will offset for any loss to functions or values and ensure no net loss of ecological function. Furthermore, the enhancement areas will be protected in perpetuity by installing protective fencing and signage, and by establishing a conservation covenant or similar legal mechanism. The legal mechanism shall protect the Existing Oak Habitat and Herbaceous Bald Enhancement Areas and the entirety of the vegetated corridors, which include all other critical areas required for protection. Temporary impacts to Wetland A's buffer will be restored to pre-project conditions by applying a native seed mix to disturbed areas and will not require further mitigation or monitoring.

OAK AND HERBACEOUS BALD HABITAT

Approximately 0.15 acres (6,522 sq. ft.) of retained oak and HB habitat areas will be utilized to compensate for HB impacts and a portion of oak temporal impacts. This approach is ecologically appropriate due to the correlation between oak habitat and HB habitat, and because all oaks present onsite were near or within HB boundaries. According to WDFW's HB priority area description, dominant flora found on HBs includes herbaceous vegetation, dwarf shrubs, mosses, and lichens. Rock outcrops, boulders, and scattered trees are often present, especially Douglas fir, Pacific madrone (*Arbutus menziesii*), and Oregon white oak (WDFW 2025b). These conditions were present within the oak and HB areas, which further supports utilizing retained habitat as mitigation for oak temporal impacts and HB impacts. Oak physical impacts and the remaining temporal impacts will be offset by purchasing 1.063 credits from Terrace, as described in the *Proposed Mitigation Credits* section of this report.

There is currently no guidance that details management recommendations for herbaceous bald habitat. To ensure no net loss is achieved and impacts are adequately compensated for, ELS recommends HB impacts be mitigated at a 1:1 ratio. Enhancement will consist of removing invasive species and seeding native herbaceous species commonly associated with oak and HB habitat (Table 7).

OBJECTIVES AND PERFORMANCE STANDARDS

Monitoring and maintenance of the enhancement areas will occur for a 5-year period with annual monitoring and reporting occurring in Years 1, 2, 3, and 5. Monitoring and maintenance will ensure the mitigation area is meeting the mitigation plan's goals, objectives, and performance standards. To meet this goal, the following objectives and performance standards are proposed:

Objective 1: Control invasive plant species including, but not limited to, English ivy (Hedera helix), Himalayan blackberry (Rubus armeniacus), reed canarygrass, and Canada thistle (Cirsium arvense) throughout the Wetland Buffer Enhancement Area, Existing Oak Habitat and Herbaceous Bald Enhancement Areas, and Wetland Buffer Planting Area.

Performance Standard 1a: Remove existing invasive species in the enhancement areas. Document the removal in the as-built report.

Performance Standard 1b: In all years, invasive plant species (not including reed canarygrass) will not exceed 20 percent aerial cover within the enhancement areas.

Objective 2: Enhance the buffers for Wetland A and Wetland B by installing native vegetation within the Wetland Buffer Planting Area.

Performance Standard 2a: Install native species according to the specifications in Table 7. Document installation in the as-built report.

Performance Standard 2b: In Year 1, planted species will achieve 90 percent survival. If dead plants are replaced, this performance standard will be met. Volunteers will be included in species counts. Document in annual monitoring report.

Performance Standard 2c: In Year 2, planted species will achieve 85 percent survival. If dead plants are replaced, this performance standard will be met. Volunteers will be included in species counts. Document in annual monitoring report.

Performance Standard 2d: In Year 3, planted species will achieve a minimum of 25 percent aerial cover OR 75 percent survival. If dead plants are replaced, this performance standard will be met. Volunteers will be included in species counts. Document in annual monitoring report.

Performance Standard 2e: In Year 5, planted species will achieve 35 percent aerial cover. If dead plants are replaced, this performance standard will be met. Volunteers will be included in cover estimates. Document in annual monitoring report.

Objective 3: Enhance the retained oak and herbaceous bald habitat by seeding native herbaceous species in the Existing Oak Habitat Enhancement and Herbaceous Bald Enhancement Areas.

Performance Standard 3a: Spread native seed according to specifications in Table 8. Document in the as-built report.

Performance Standard 3b: In Year 1, native herbaceous species will achieve 15 percent aerial cover. If the areas are reseeded to meet cover requirements, this performance standard will be met. Document in annual monitoring report.

Performance Standard 3c: In Year 2, native herbaceous species will achieve 20 percent aerial cover. If the areas are reseeded to meet cover requirements, this performance standard will be met. Document in annual monitoring report.

Performance Standard 3d: In Year 3, native herbaceous species will achieve 25 percent aerial cover. If the areas are reseeded to meet cover requirements, this performance standard will be met. Document in annual monitoring report.

Performance Standard 3e: In Year 5, native herbaceous species will achieve 35 percent aerial cover. If the areas are reseeded to meet cover requirements, this performance standard will be met. Document in annual monitoring report.

Objective 4: Provide long-term protection for the enhancement areas.

Performance Standard 4a: Record a conservation covenant or similar legal mechanism protecting the Vegetated Corridors in perpetuity. This performance standard will be met when the protection mechanism is recorded by the City, and a copy will be provided in the as-built report.

Performance Standard 4b: Permanent fencing and logs salvaged from trees removed onsite will be installed along the boundary of the enhancement area. This performance standard will be met when the logs and fencing are reported to be in place in the final monitoring report.

Performance Standard 4c: Restrictive signage meeting CMC requirements will be posted every 100 feet along the fencing and will remain in legible condition. Signs will be replaced if they become missing or illegible. This performance standard will be met when signs are reported to be in place in the final monitoring report.

PLANTING SPECIFICATIONS

The enhancement areas will be cleared of invasive species, planted with native trees and shrubs, and seeded with herbaceous species, providing greater habitat diversity, refuge, and forage opportunities than currently exist onsite. Planting native trees and shrubs in the wetland buffers will improve their ability to trap sediments and pollutants, reduce stormwater surface flows, and protect the wetlands from the surrounding development. The proposed species were selected due to their hardy and fast-growing nature, ensuring quick establishment and a timely net gain in functions (Table 7). Actual planting locations will be determined in the field, with consideration to the listed spacing and density to produce the most natural appearance possible. The enhancement will also create more habitat interspersed adjacent to Wetland A, increase its value to a greater variety of animal species, and increase screening from the proposed development, resulting in an overall net gain in ecological functions. Impacts and proposed mitigation measures are summarized in Table 6.

Table 7. Proposed Impacts and Onsite Mitigation

Critical Area	Impact Type	Mitigation Ratio	Impact Area	Mitigation Total	Mitigation Activities
Wetland B	Buffer	1:1	0.184 acres (8,001 sq. ft.)	0.184 acres (8,001 sq. ft.)	• Remove invasive species • Install native species • Protect with fencing, signage, and a conservation covenant • Maintain and monitor for 5 years
Herbaceous Bald 1	Removal	1:1	0.088 acres (3,852 sq. ft.)	0.150 acres (6,522 sq. ft.) ^{2,3}	
Oak Cluster 1		-- ¹	0.048 acres (2,077 sq. ft.)		

¹See the Oak Mitigation Requirements section of this report for required oak mitigation discussion. ²Remaining oak impacts will be mitigated at Terrace Oak Bank. ³Oak and HB impacts will be mitigated together due to their similar habitat conditions.

Table 8. Wetland Buffer Planting Specifications

Species Name and Facultative Status ¹	Spacing ²	Stock ³	Quantity
Trees			
Red alder (<i>Alnus rubra</i> , FAC)	10 feet on-center	One-gallon Container	10
Black cottonwood (<i>Populus trichocarpa</i> , FAC)			10
Total Trees			20
Shrubs			
Red flowering currant (<i>Ribes sanguineum</i> , FACU)	6 feet on-center	One-gallon Container	45
Nootka rose (<i>Rosa nutkana</i> , FAC)			45
Common snowberry (<i>Symphoricarpos albus</i> , FACU)			45
Scouler’s willow (<i>Salix scouleriana</i> , FAC)			45
Total Shrubs			180
Total Woody Species			200

¹Corps 2012. ²Actual planting locations will be determined in the field. ³Actual plant stock will be determined based on nursery availability.

Table 9. Seed Mix Specifications

Sunmark Seeds International, Inc – Native Pollinator Mix			
Species	Composition	Rate	Quantity
Baby Blue Eyes (<i>Nemophila menziesii</i>)	20.00%	1 pound per 1,000 sq. ft.	7 pounds (6,522 sq. ft.)
Meadow Barley (<i>Hordeum brachyantherum</i>)	18.50%		
Blanketflower (<i>Gaillardia aristata</i>)	18.00%		
Coastal Tidytops (<i>Layia platyglossa</i>)	13.00%		
Riverbank Lupine (<i>Lupinus rivularis</i>)	10.0%		
Small Camas (<i>Camassia quamash</i>)	7.00%		
Tufted Hairgrass (<i>Deschampsia cespitosa</i>)	4.50%		
Black-Eyed Susan (<i>Rudbeckia hirta</i>)	3.50%		
Sweet Alyssum (<i>Lobularia maritima</i>)	2.00%		
Common Yarrow (<i>Achillea millefolium</i>)	1.75%		
Aspen Fleabane (<i>Erigeron speciosus</i>)	1.25%		
Oceanspray (<i>Holodiscus discolor</i>)	0.50%		
Total	100%		

*An alternate seed mix may be used in the Existing Oak and Herbaceous Bald Enhancement Areas, provided it is appropriate for the local habitat type and comprised entirely of native species.

PLANTING PLAN

Site Specifications

- Stake or flag the enhancement area.
- Investigate for and remove invasive and competing species from the mitigation area.
- Install mitigation plantings according to plant specifications.

Planting Implementation

- Install plants and spread seed in late fall (October-November) or early spring (February-March) at the intervals listed in Table 7 and Table 8.
- Space plants somewhat irregularly to encourage heterogeneity in the density and appearance of the mitigation area.
- Place plants so that their roots can extend down entirely and do not bend upward or circle inside the hole (no “J” or “U” roots).
- Position the root crowns so that they are at or slightly below the level of surrounding soil.
- Compact the soil around the planted species to eliminate air spaces.
- Irrigate all installed plants as site and weather conditions warrant.

Potted Stock

- Potted species will be purchased from a native plant nursery.
- Potted plants will be a minimum size of one-gallon.
- Potted stock will be kept cool and moist prior to being planted.
- Potted stock will have well-developed roots and sturdy stems, with an appropriate root-to-shoot ratio.
- Unplanted potted stock will be properly stored at the end of each day.

- The planting technician will be responsible for inspecting potted plant stock prior to and during planting, culling unacceptable plant materials.

MONITORING, MAINTENANCE, AND CONTINGENCY MEASURES

Monitoring and maintenance of the enhancement areas will occur for a 5-year period and annual monitoring and reporting will be conducted in Years 1, 2, 3, and 5. Plant counts will be conducted in Years 1, 2, and 3, to determine percent survival of installed species. Native volunteers may be included. Percent of aerial cover will be assessed in Year 5 using visual estimation. At least six monitoring plots will be established in the Wetland Buffer Enhancement Areas, one plot in the Wetland Buffer Planting Area, and one plot in each Existing Oak Habitat and Herbaceous Bald Enhancement Area during as-built activities to assess performance standards. Additionally, a photostation will be established at each monitoring plot to photo-document vegetation establishment. Photostation locations and the direction in which the picture is taken will also be recorded in the as-built report.

The goal of monitoring will be to determine if the previously stated performance standards are being met. Monitoring reports will be submitted no later than December 31st of each monitoring year to the City of Camas. Year 1 monitoring will begin a minimum of one year after plant installation.

At minimum, the following items will be included in the annual report:

- Location map and as-built drawing, including any changes.
- Historic description of the project, including dates of plant installation, current year of monitoring, and remedial actions taken (if any).
- Description of monitoring methods.
- Documentation of vegetative performance standards and overall development of plant communities.
- Assessment of invasive plant species and recommendations for management.
- Photographs from established photo stations.
- Observations of wildlife, including amphibians, invertebrates, reptiles, birds, and mammals. If photographs are taken, they will be included.
- Summary of the maintenance and contingency measures completed for the past year and proposed for the next year.

Monitoring

Monitoring will occur annually during the growing season, preferably during the same two-week period to better compare data. The following information will be gathered in the mitigation area:

- Percent survival of native species in Years 1, 2, and 3.
- Percent cover of native species in Year 5.
- Percent cover of non-native, invasive species in all monitoring years.

- General health of plants in the mitigation area, noting specific problems and potential causes.
- Photo documentation of vegetative changes over time from photo station established after plant installation.

Maintenance

Maintenance will include the following:

- Irrigating planting areas every other week or as needed in the dry season for the first three years. Taper watering in Years 2 and 3, watering approximately every 3 to 4 weeks in the dry season, or as needed.
- Remove competing herbaceous species at least three times yearly within a 3-foot radius of planted species and re-apply mulch, as needed.
- Weed-eat, spray, or mow invasive species as needed during the growing season.
- Replace dead or failed plants as described for the original installation to meet the minimum performance standards.

Contingency Measures

If the performance criteria are not met, steps will be taken to correct the situation in a timely manner. The following steps will be implemented when an area is identified as failing or potentially failing:

- Identify the cause(s) of the failure or potential failure.
- Identify the extent of the failure or potential failure.
- Implement corrective actions such as irrigating, fertilizing, and replanting.
- Document the activities and include this data in the monitoring reports.
- If a routine corrective action will not correct the problem, immediately consult with the appropriate agencies.
- Evaluate recommendations from resource agency staff and implement recommendations in a timely manner.

Funding for corrective actions will be the responsibility of the applicant.

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.

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FIGURES

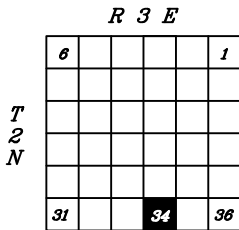
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WASHINGTON



Latitude: 45.6193°
Longitude: -122.4156°

LOCATION MAP

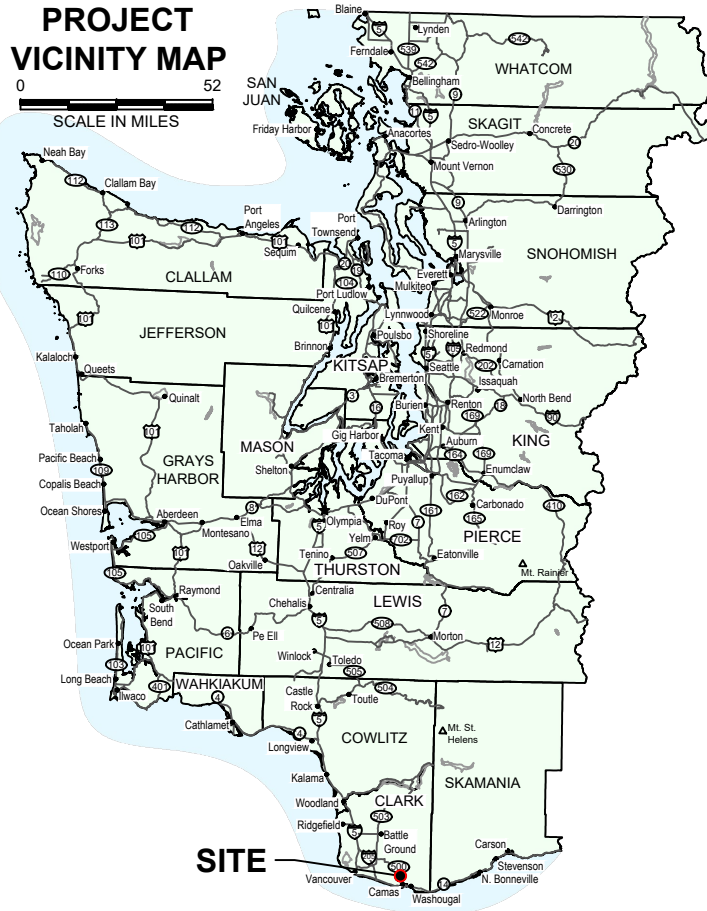


NOTE:

Quadrangle topographic map from USGS.

PROJECT VICINITY MAP

0 52
SCALE IN MILES



SITE

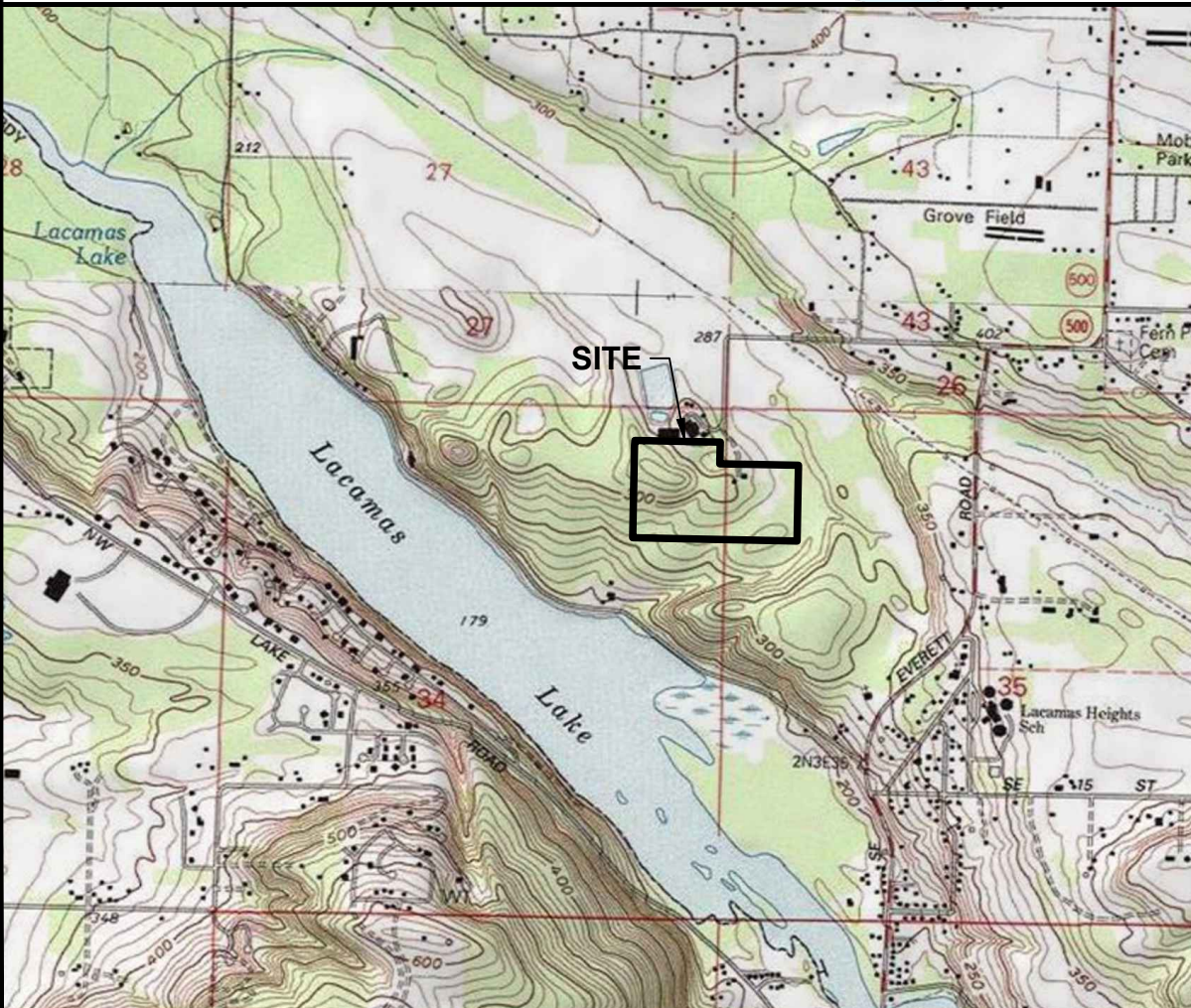
Figure 1
VICINITY MAP

Village at North Shore Mitigation
HSR Capital, LLC

City of Camas, Clark County, Washington
Section 34, Township 2N, Range 3E, W.M.

DATE: 7/8/25
DWN: MPM
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.26

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com



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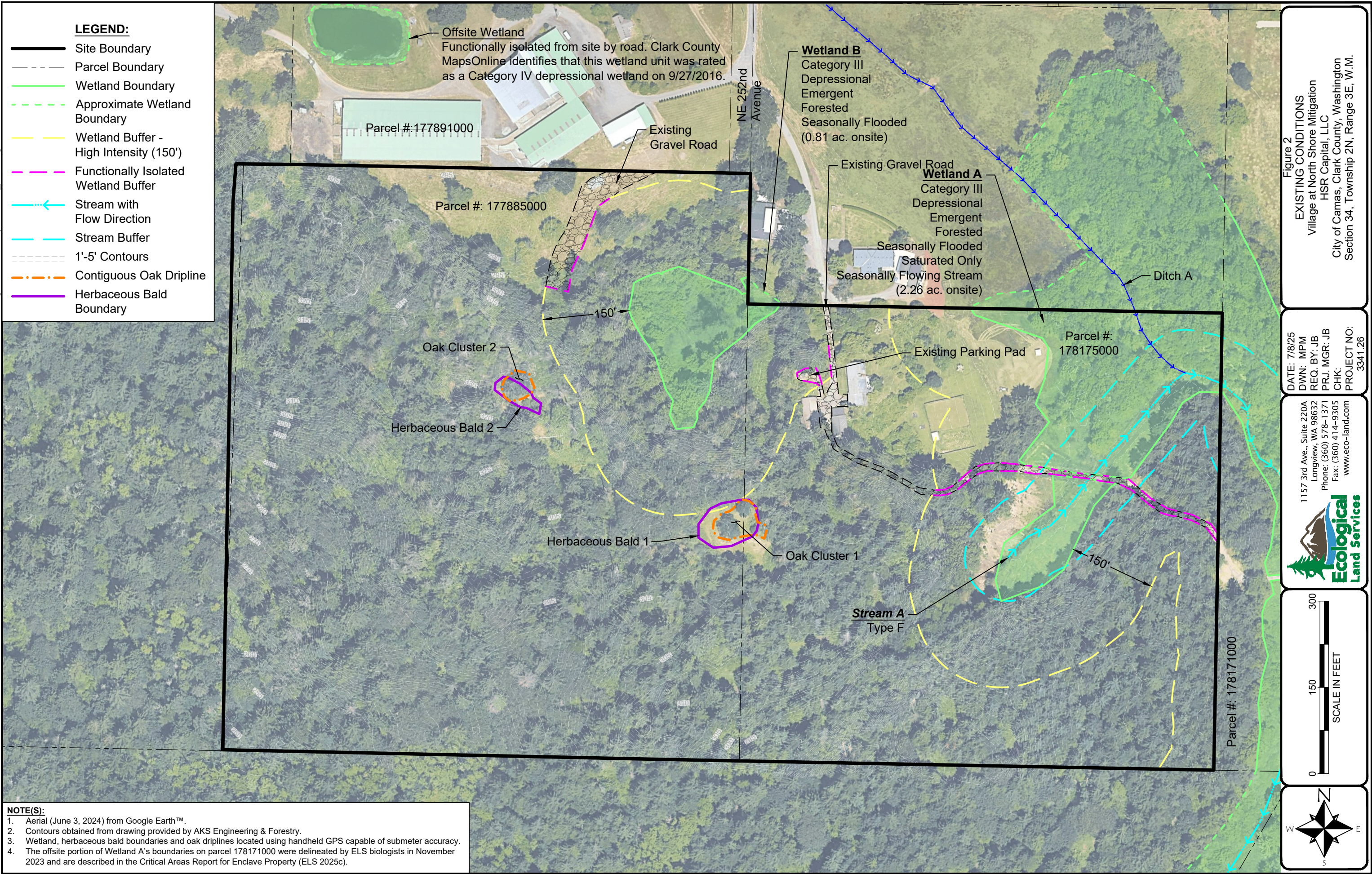


Figure 2
EXISTING CONDITIONS
Village at North Shore Mitigation
HSR Capital, LLC
City of Camas, Clark County, Washington
Section 34, Township 2N, Range 3E, W.M.

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Ecological Land Services

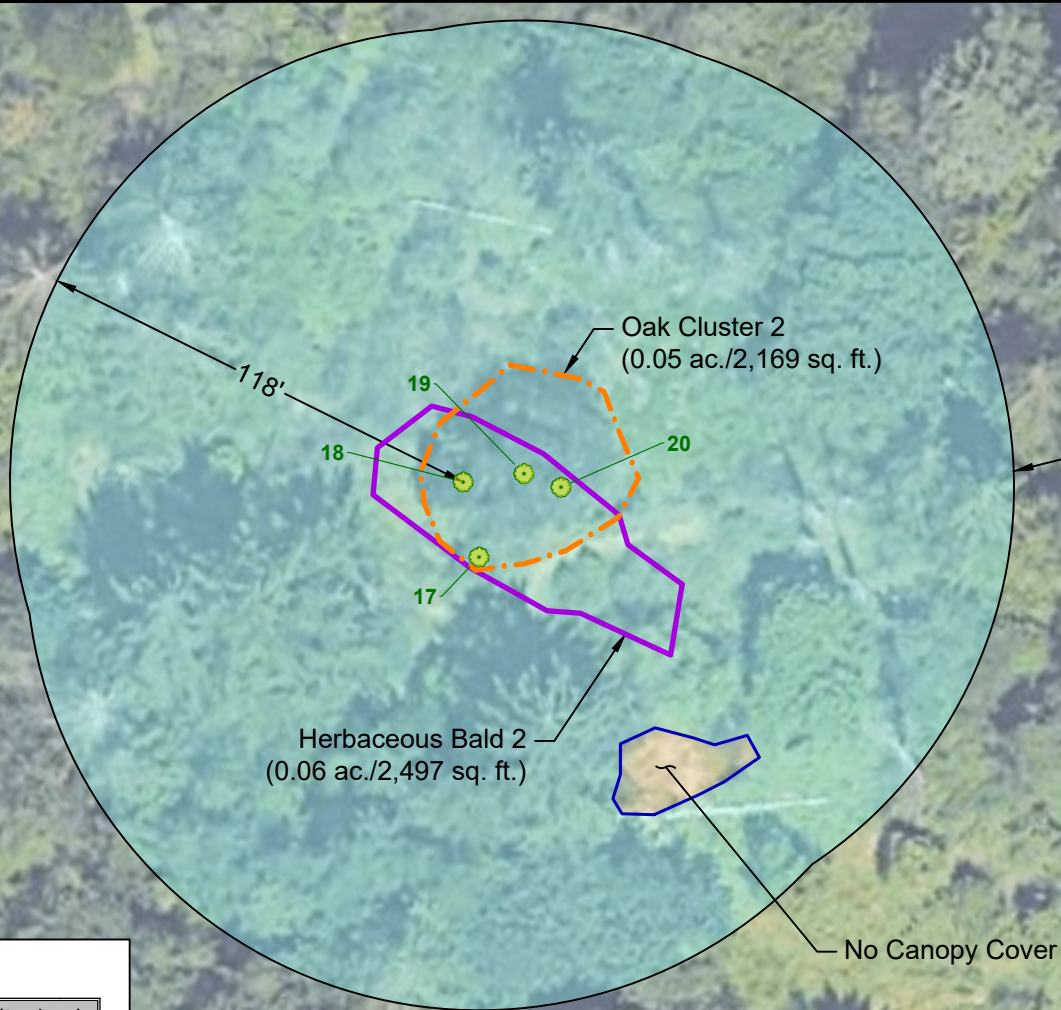
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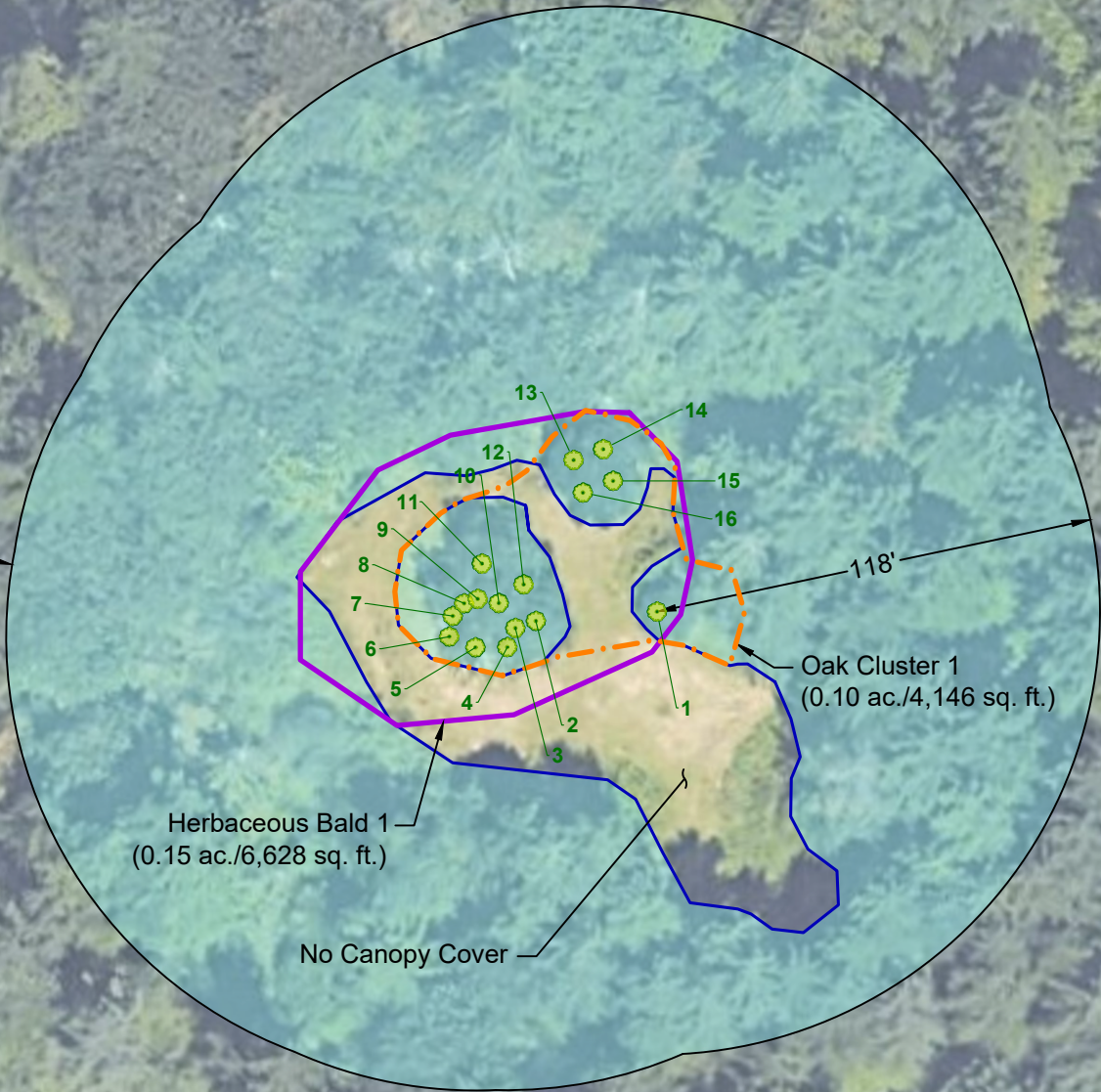
Oak Inventory

Identifier	DBH (inches)
Oak 1	8
Oak 2	8
Oak 3	8
Oak 4	6
Oak 5	6
Oak 6	5
Oak 7	9
Oak 8	10
Oak 9	8
Oak 10	10
Oak 11	5
Oak 12	10
Oak 13	9
Oak 14	8
Oak 15	8
Oak 16	9
Oak 17	6
Oak 18	10
Oak 19	15
*Oak 20	15, 25

*Split trunk



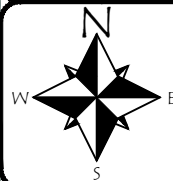
Oak Cluster 2
Oak Dripline Area: 0.05 ac.
Forested Canopy: 1.20 ac.
Oak Dripline Percentage of Forested Canopy: 4.16%



Oak Cluster 1
Oak Dripline Area: 0.10 ac.
Forested Canopy: 1.34 ac.
Oak Dripline Percentage of Forested Canopy: 7.46%

- LEGEND:**
- Oak
 - Contiguous Oak Dripline
 - 118' Radius Oak Offset
 - Forested Area within 118' Radii
 - Herbaceous Bald Boundary

- NOTE(S):**
- Aerial (June 3, 2024) from Google Earth™.
 - Herbaceous bald boundaries, oak trees and driplines located using handheld GPS capable of submeter accuracy.

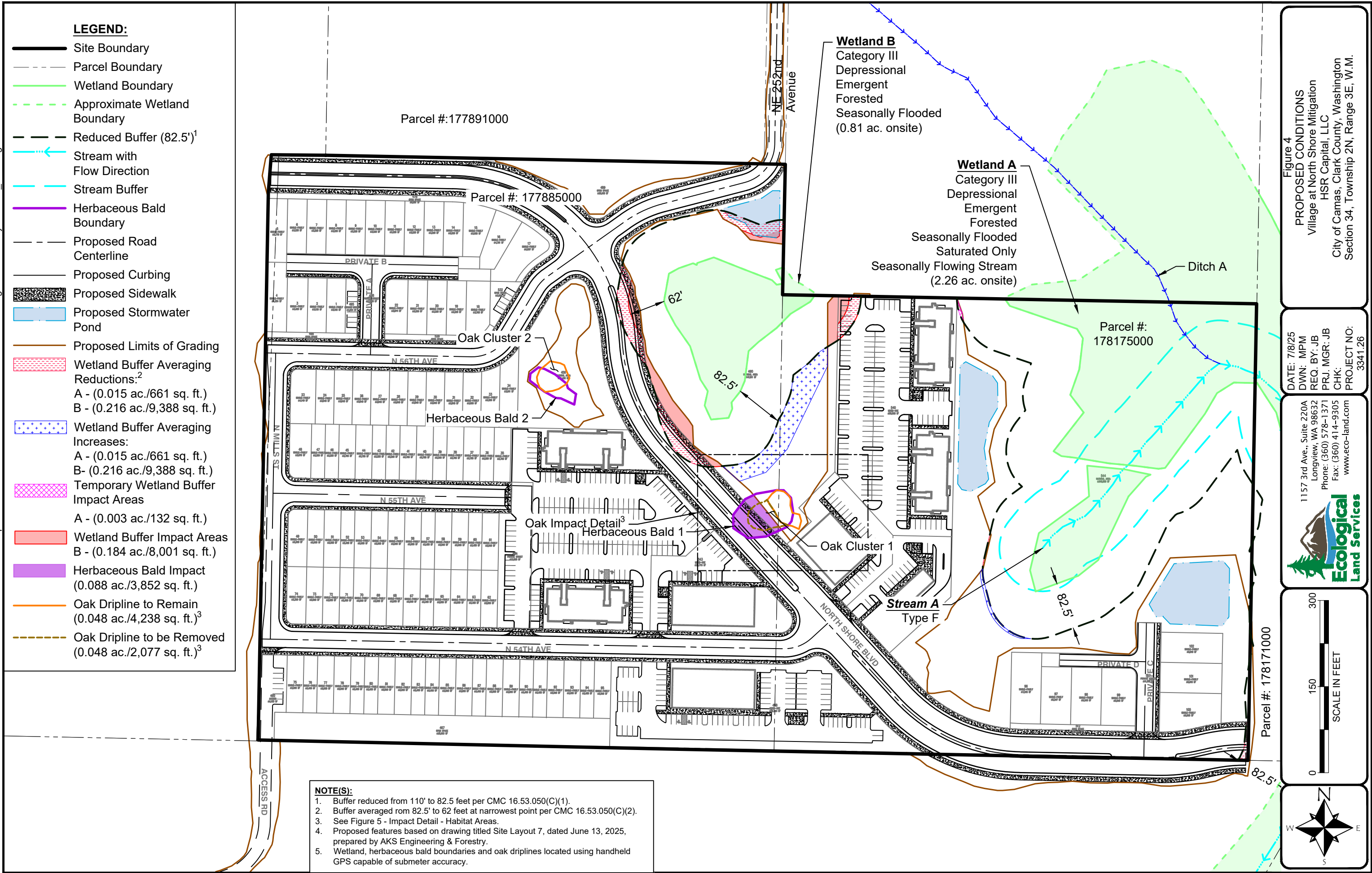


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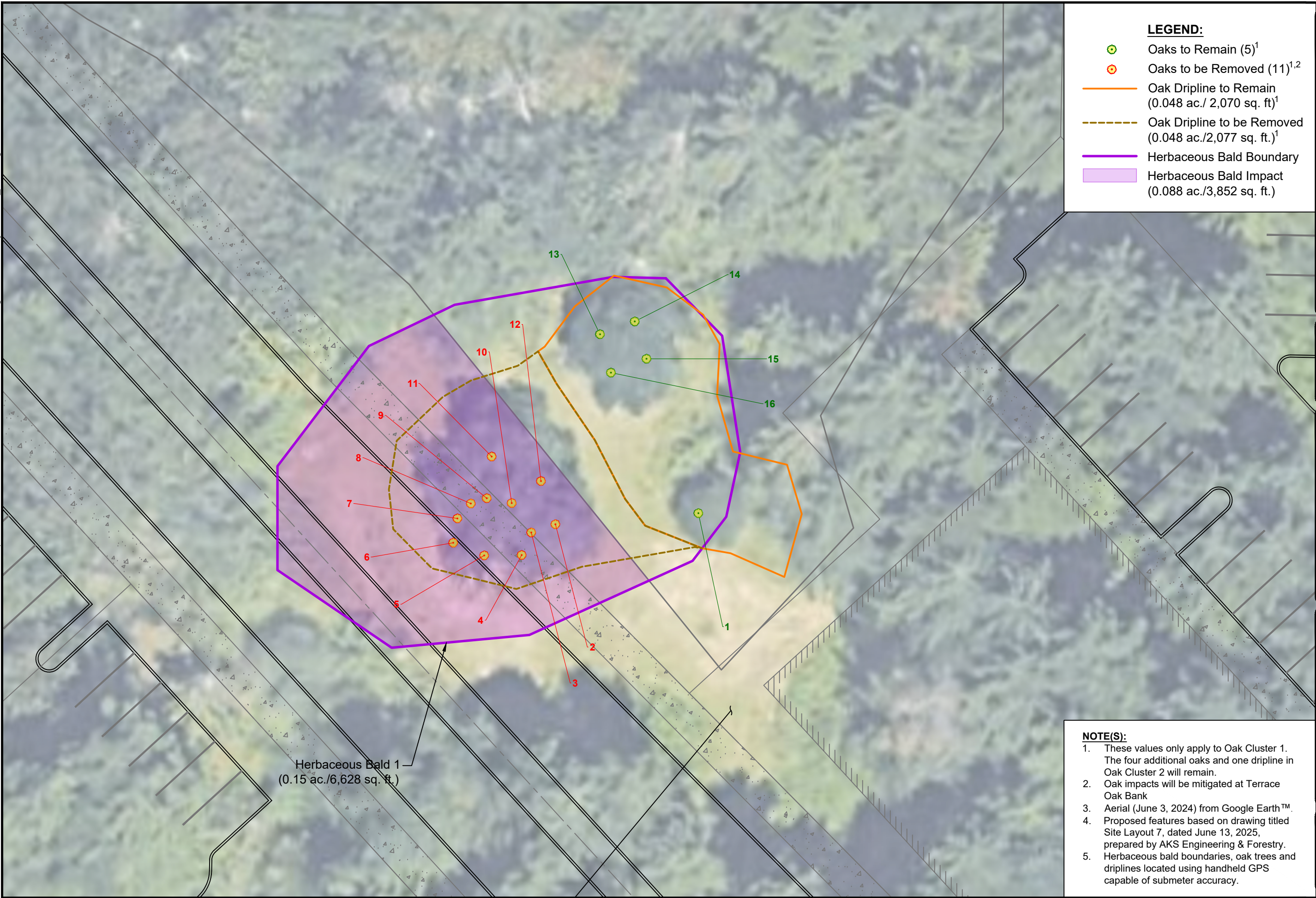
DATE: 7/8/25
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Figure 3
HABITAT AREAS DETAIL
Village at North Shore Mitigation
HSR Capital, LLC
City of Camas, Clark County, Washington
Section 34, Township 2N, Range 3E, W.M.

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LEGEND:

- Oaks to Remain (5)¹
- Oaks to be Removed (11)^{1,2}
- Oak Dripline to Remain (0.048 ac./ 2,070 sq. ft)¹
- Oak Dripline to be Removed (0.048 ac./2,077 sq. ft.)¹
- Herbaceous Bald Boundary
- Herbaceous Bald Impact (0.088 ac./3,852 sq. ft.)

NOTE(S):

- These values only apply to Oak Cluster 1. The four additional oaks and one dripline in Oak Cluster 2 will remain.
- Oak impacts will be mitigated at Terrace Oak Bank
- Aerial (June 3, 2024) from Google Earth™.
- Proposed features based on drawing titled Site Layout 7, dated June 13, 2025, prepared by AKS Engineering & Forestry.
- Herbaceous bald boundaries, oak trees and driplines located using handheld GPS capable of submeter accuracy.

Figure 5

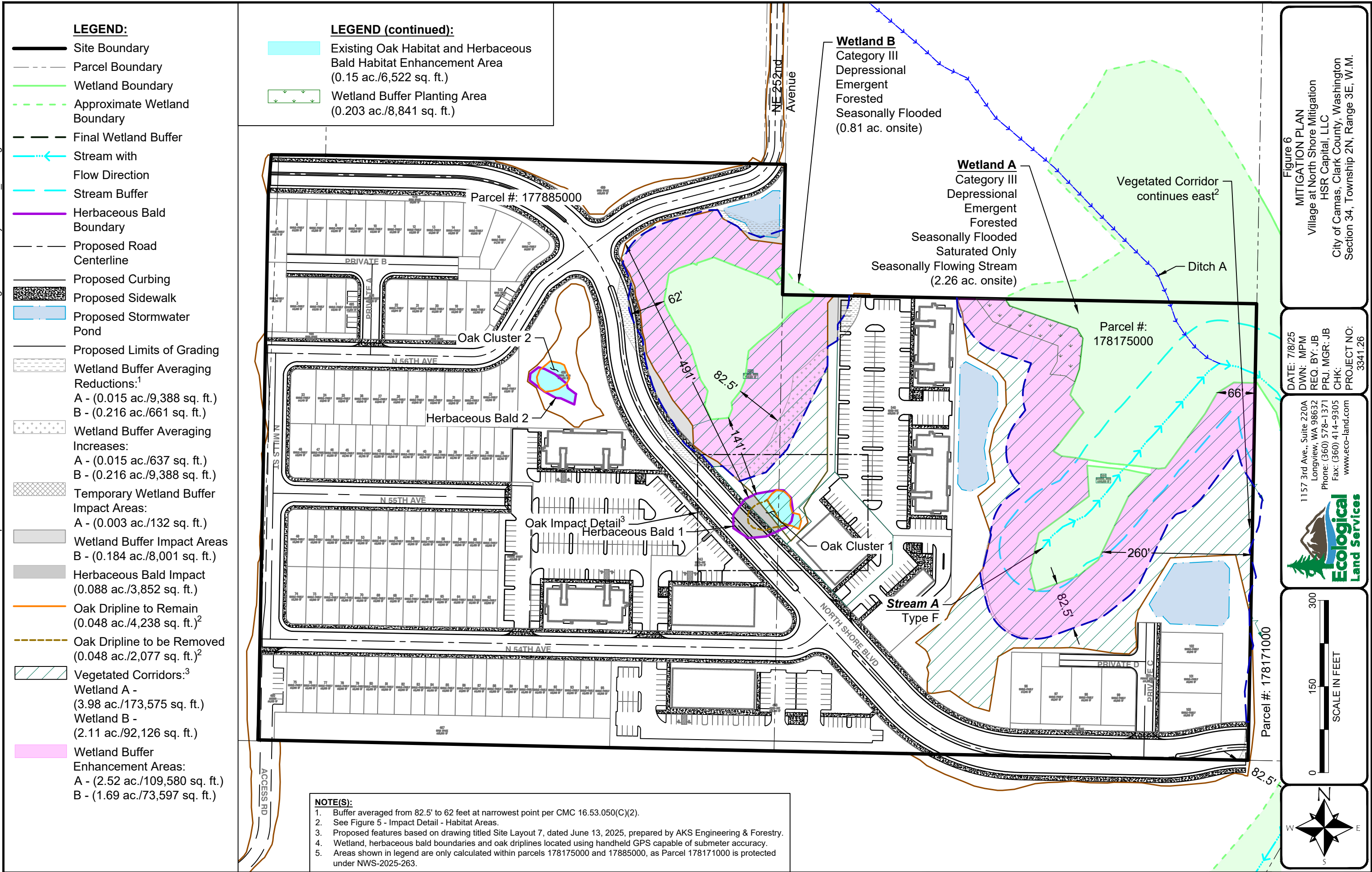
IMPACT DETAIL - HABITAT AREAS
Village at North Shore Mitigation
HSR Capital, LLC
City of Camas, Clark County, Washington
Section 34, Township 2N, Range 3E, W.M.

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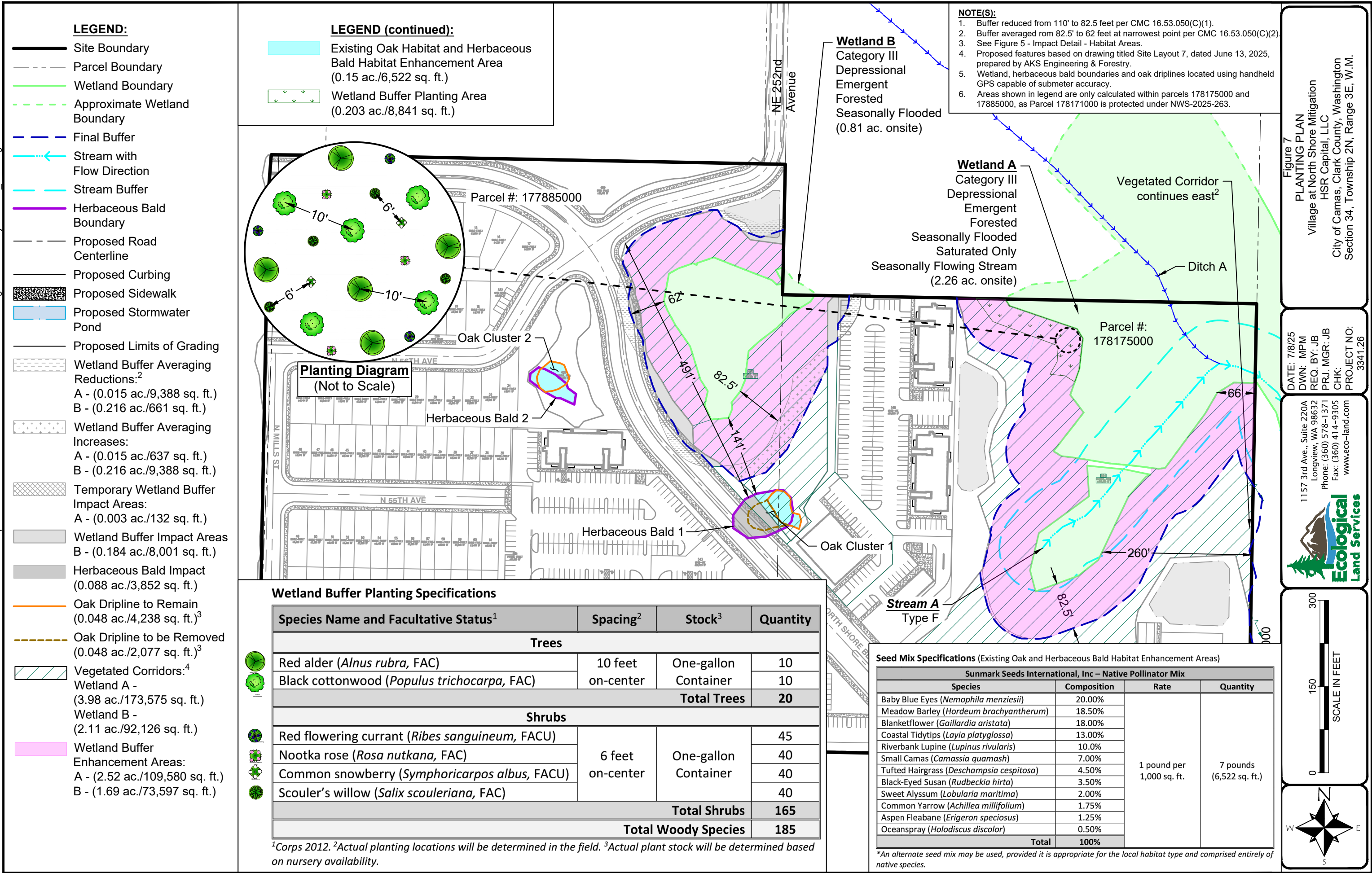
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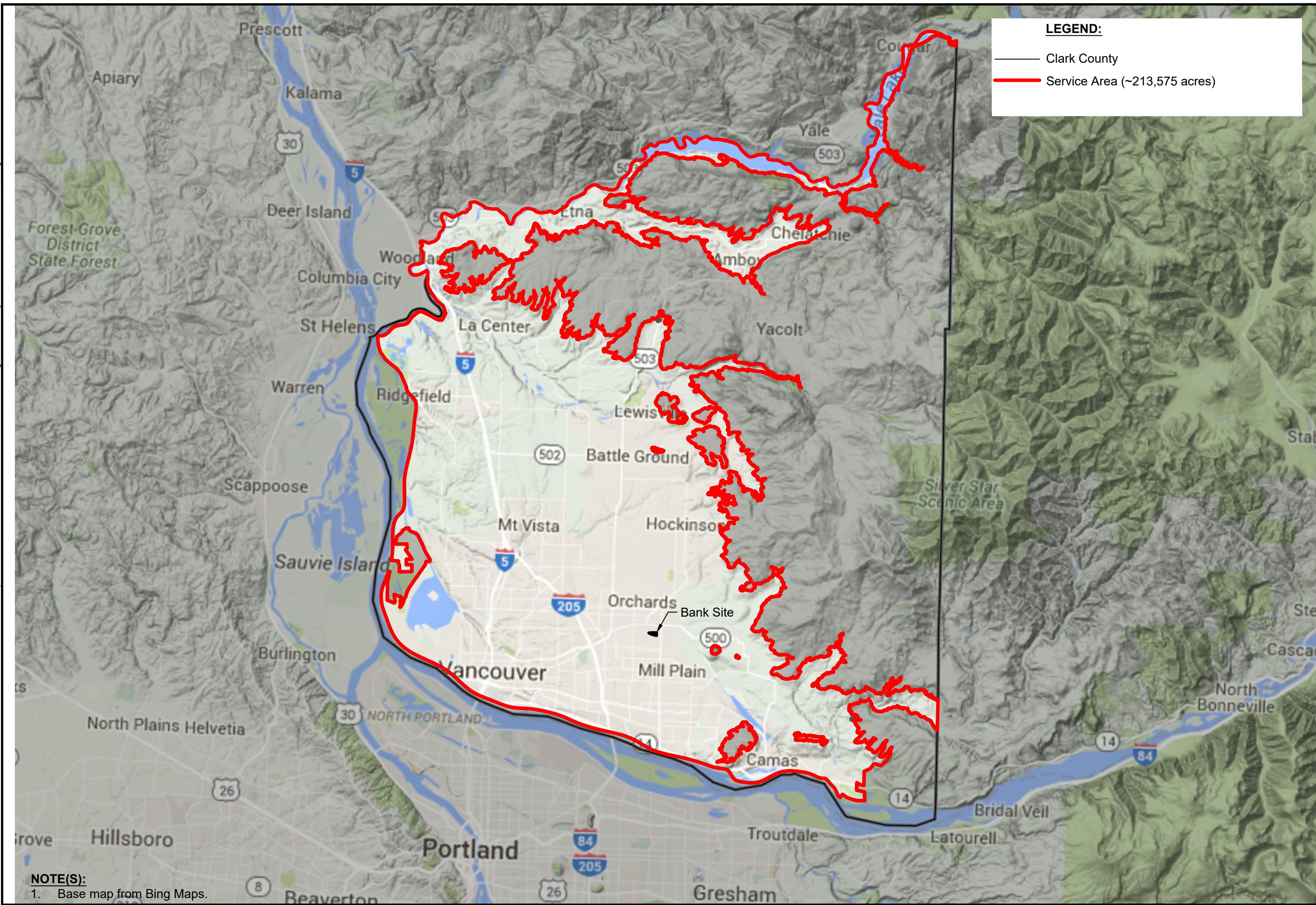


Figure 8

TERRACE MITIGATION BANK SERVICE AREA

Village at North Shore

HSR Capital, LLC

City of Camas, Clark County, Washington

Section 34, Township 2N, Range 3E, W.M.

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SCALE IN MILES

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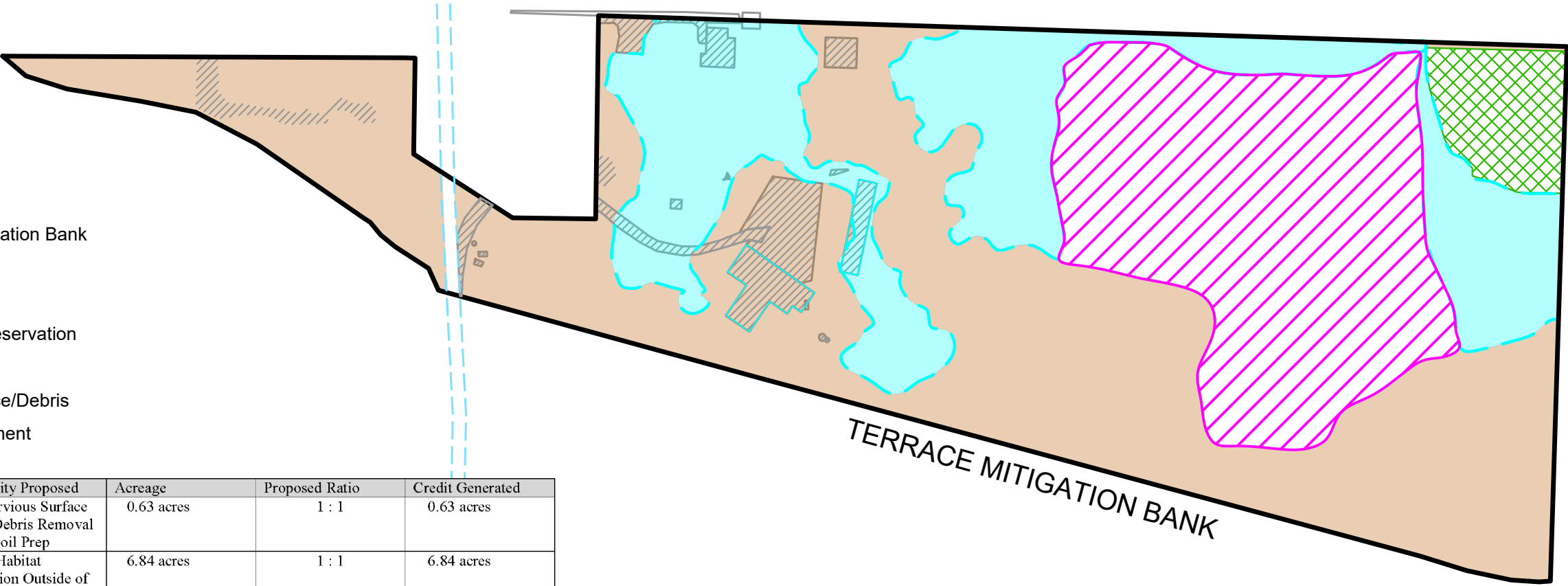
- LEGEND:**
- Terrace Oak Mitigation Bank
 - Creation
 - Enhancement
 - Upland Forest Preservation
 - Stand Release
 - Impervious Surface/Debris
 - Water Line Easement

Activity Proposed	Acreage	Proposed Ratio	Credit Generated
Impervious Surface and Debris Removal and Soil Prep	0.63 acres	1 : 1	0.63 acres
Oak Habitat Creation Outside of Existing Oak Stand	6.84 acres	1 : 1	6.84 acres
Douglas Fir Stand Release	3.34 acres	0.4 : 1	8.35 acres
Enhancement of Existing Oak Stand	3.20 acres	0.4 : 1	8.00 acres
Upland Forest Preservation	0.50 acres	0.5 : 1	1.00 acres
Totals	14.51 acres¹		24.82 acres

¹ Total acreage includes areas of activity overlap and does not include 0.05 acres of water line easement, so is not reflective of the 13.93 acres represented in the legal survey of Oak Bank area.

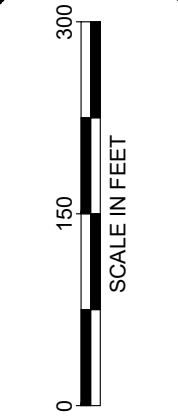
Table 2. Oak Mitigation Bank Activity Descriptions.

Activity Proposed	Type of Activity/Area
Impervious Surface and Debris Removal and Soil Prep	- Includes: - Buildings, driveways, gravel pads or any other impervious area to be removed (regardless of whether oak tree canopy already covers the area) - Removal of debris piles throughout the site - Loosening of soils following impervious/debris removal
Oak Habitat Creation Outside of Existing Oak Stand	- Includes open areas of all types not currently covered by oak canopy - Areas to be replanted with oak saplings and native understory
Douglas Fir Stand Release	- Includes area of dense fir canopy within existing oak stand - Douglas fir over-story to be removed through harvest or tree girlding/snag creation
Enhancement of Existing Oak Stand	- Includes areas of existing oak canopy - Enhancement areas will have non-natives removed and understory planted with native shrubs typically associated with oak woodlands
Upland Forest Preservation	- Includes areas of deciduous forest adjacent to oak canopy, providing upland forest habitat - Area will be preserved through administration of a conservation easement



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Figure 9
TERRACE MITIGATION BANK SITE DESIGN
Village at North Shore
HSR Capital, LLC
City of Camas, Clark County, Washington
Section 34, Township 2N, Range 3E, W.M.

APPENDIX A

WDFW FUNCTIONAL ASSESSMENTS FOR INDIVIDUAL OAKS AND MITIGATION CALCULATIONS

WDFW Functional Assessments for Individual Oaks to be Impacted

Oregon White Oak Functional Assessments - HSR Capital, Village at North Shore - April 29, 2025										
Metric	Multiplier	Oak 2	Oak 3	Oak 4	Oak 5	Oak 7	Oak 8	Oak 9	Oak 10	Oak 12
Size of Oak Trees (Choose one)										
>76 cm (30 in) DBH	6	☐	☐	☐	☐	☐	☐	☐	☐	☐
50-76 cm (20-30 in) DBH	5	☐	☐	☐	☐	☐	☐	☐	☐	☐
30-50 cm (12-20 in) DBH	3	☐	☐	☐	☐	☐	☐	☐	☐	☐
<30 cm (12 in) DBH	1	☒	☒	☒	☒	☒	☒	☒	☒	☒
Condition of Crown (Choose one)										
Well-formed/dominant	3	☐	☐	☐	☐	☐	☐	☐	☐	☐
Suppressed/stunted	2	☒	☒	☒	☒	☒	☒	☒	☒	☒
Seedling/Sapling	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
Wildlife Value (Choose all that apply)										
Acorn production	2	☒	☒	☒	☒	☒	☒	☒	☒	☒
Leaves available for wildlife browsing	1	☒	☒	☒	☒	☒	☒	☒	☒	☒
Presence of cavities	2	☐	☐	☐	☐	☐	☐	☐	☐	☐
Presence of dead branches	1	☒	☒	☒	☒	☒	☒	☒	☒	☒
Presence of galls or fungi	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
Presence of heart rot or carpenter ants	1	☐	☐	☐	☐	☐	☐	☐	☐	☐
Located near other OWO trees (<118 ft)	3	☒	☒	☒	☒	☒	☒	☒	☒	☒
Total		10	10	10	10	10	10	10	10	10
Function Score		High	High	High	High	High	High	High	High	High

*Oak 6 and Oak 11 were not assessed due to DBH < 6 inches.

Score	Function
0	Minimal
1	Minimal
2	Minimal
3	Minimal
4	Low
5	Low
6	Low
7	Medium
8	Medium
9	Medium
10	High
11	High
12	High
13	High
14	High
15	High
16	High
17	High
18	High
19	High
20	High
21	High
22	High
23	High

APPENDIX B

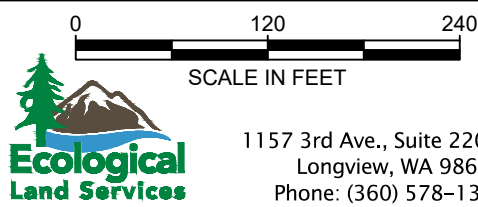
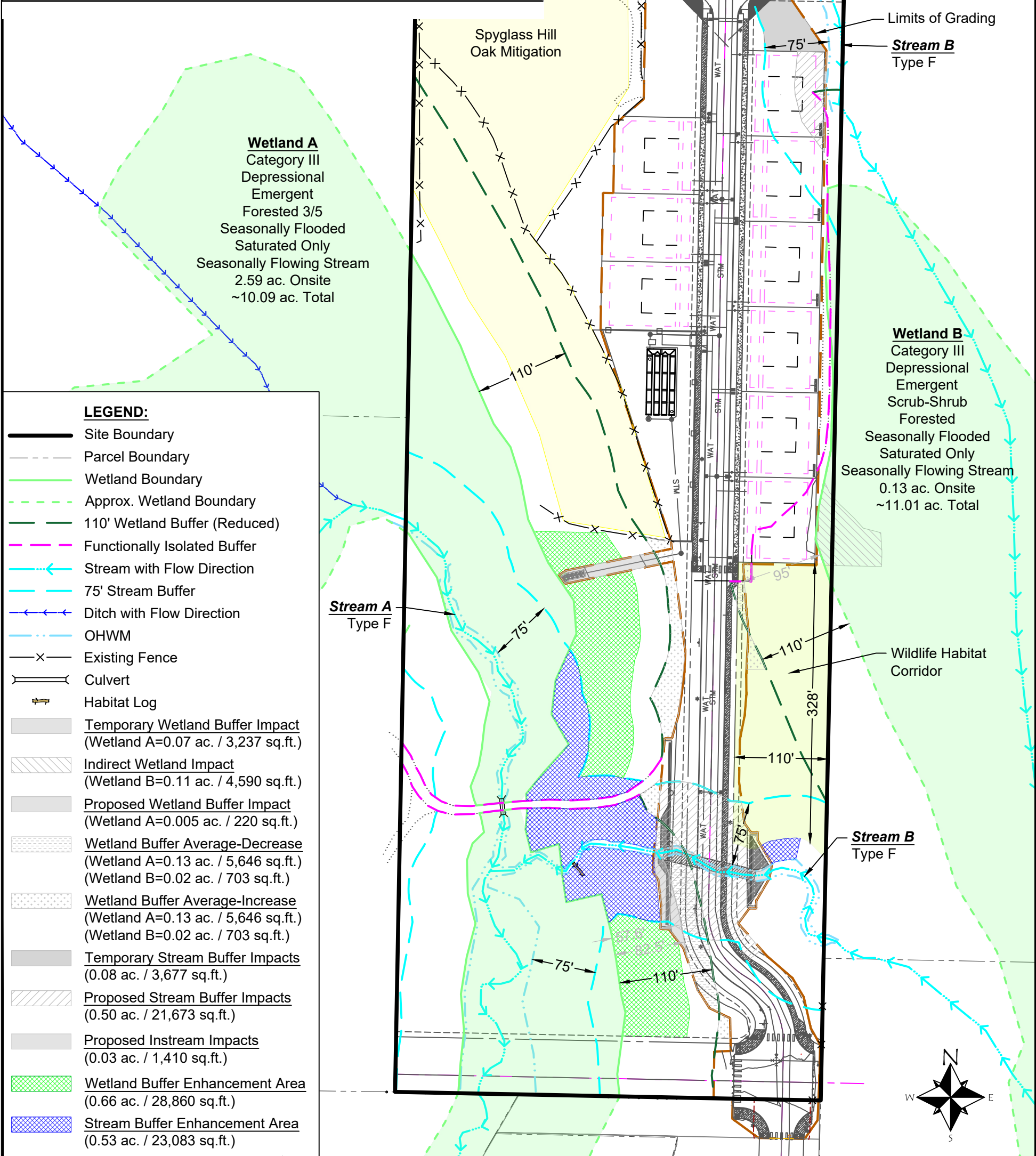
OFFSITE PROTECTED WETLAND AREA

Planting Specifications

Common Name	Scientific Name	Stock	Spacing	Quantity
Wetland Buffer Enhancement Area				
Douglas fir	<i>Pseudotsuga menziesii</i>	One-gallon Container	15 feet on-center	10
Bigleaf maple	<i>Acer macrophyllum</i>			10
Red alder	<i>Alnus rubra</i>			12
Common snowberry	<i>Symphoricarpos albus</i>	Bare-root	6 feet on-center	150
Nootka rose	<i>Rosa nutkana</i>			150
Salmonberry	<i>Rubus spectabilis</i>			150
Vine maple	<i>Acer circinatum</i>			150
Total				632
Riparian Buffer Enhancement Area				
Douglas fir	<i>Pseudotsuga menziesii</i>	One-gallon Container	15 feet on-center	10
Bigleaf maple	<i>Acer macrophyllum</i>			8
Red alder	<i>Alnus rubra</i>			8
Cascara	<i>Frangula purshiana</i>	Bare-root	4 feet on-center	120
Osoberry	<i>Oemleria cerasiformis</i>			120
Common snowberry	<i>Symphoricarpos albus</i>			120
Black hawthorn	<i>Crataegus douglasii</i>			120
Total				506

NOTE(S):

1. Wetland and test plots located using handheld GPS capable of submeter accuracy.
2. Parcel data from Clark County GIS.
3. Proposed Conditions Map based on drawing dated January 10, 2025, provided by AKS Engineering.



PURPOSE: Mitigation for Indirect Wetland Impacts and Instream Impacts

DATUM: NAD83**ADJACENT PROPERTY OWNERS:**

Mitigation Plan

APPLICANT: HSR Capital, LLC

PROJECT NAME: Enclave Property

REFERENCE #: NWS-2025-263

SITE LOCATION ADDRESS: No Situs Address

PROPOSED: Indirect and Instream Impacts

IN Streams

NEAR: Camas

COUNTY: Clark **STATE:** WA

SHEET 6 OF 7

DATE: 3/4/25