

3. Critical Areas Report



CRITICAL AREAS REPORT AND MITIGATION PLAN

June 30, 2021



Oak Village Apartments *Woodland, Washington*

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INTRODUCTION

Ecological Land Services, Inc. (ELS) has completed this critical areas report including a mitigation plan on behalf of the applicant, 41st Avenue, LLC, for the development a multi-family apartment complex located within City of Woodland/Cowlitz County Tax Parcels 508630100, 508620100, and 508610100. The site is located west of 6920 Green Mountain Road in Woodland, Washington, within a portion of Section 12, Township 15 North, and Range 1 West of the Willamette Meridian (Figure 1). This report summarizes the findings of critical areas onsite in accordance with *Woodland Municipal Code (WMC) Chapter 15.08: Critical Areas Regulations* (January 2021).

PROJECT DESCRIPTION

Project Location

The proposed site of the Oak Village Apartment complex is located within City of Woodland/Cowlitz County Tax Parcels 508630100, 508620100, and 508610100. The site is located west of 6920 Green Mountain Road in Woodland, Washington, within a portion of Section 12, Township 15 North, and Range 1 West of the Willamette Meridian (Figure 1).

Proposed Development Project

The proposed development involves constructing an eight-building apartment complex on the site that will include clearing, grading, lot preparation, utility installation, construction of interior streets, and the construction of multiple stormwater detention facilities (Exhibits A and B). Vegetated stormwater ponds are proposed in the northwest, southwest, and southern portion of the proposed development to manage stormwater generated within the complex upon project completion. The apartment complex will include eight units, each of which will consist of 3 residential floors, and one amenities building.

Impacts will be avoided and minimized with best management practices (BMPs) including installing silt fencing along the outer wetland and stream buffers during construction, applying native grass seed to disturbed areas not being paved when grading is complete, and having a water truck available to prevent dust blowing during construction. Additional BMPs are discussed in the Avoidance and Minimization Section later in this report. A permanent 5-foot tall wood fence will be installed and located along the outer edge of the wetland and stream buffers and maintained in perpetuity with metal signs posted at 100-foot intervals along the buffer reading “The area beyond this sign is a Critical Area or Buffer. Alteration or disturbance is prohibited by law. No dumping allowed. *WMC Chapter 15.08: Critical Areas.*” The development area will be cleared of vegetation and levelled prior to construction. Staging areas will be located within uplands outside of the wetland and stream buffers in the eastern portion of the site wherein existing impervious surfaces such as a gravel accessway are located (Figure 3).

Construction is anticipated to start upon receipt of permits. A portion of the asphalt parking lot, stormwater facilities, and apartment units will result in a total of 0.251 acres (10,930 sq. ft.) of wetland buffer impacts (0.219 acres temporary, 0.0315 acres permanent). Additionally, construction of the interior road and stormwater facilities will result in a total of approximately 0.875 acres (38,090 sq. ft.) of riparian buffer impacts (0.060 acres temporary, 0.815 acres permanent). The applicant is proposing riparian and wetland buffer averaging in the northern and

southern portions of the site to reduce wetland and riparian impacts to the furthest practical extent and minimize impacts (Exhibit A and B). Furthermore, approximately 0.36 acres (15,500 sq. ft.) of Oregon white oak (*Quercus garryana*) canopy cover will be removed to facilitate construction of the development, particularly in the southern portion of the site (Exhibit A and B). Two larger oaks in the central portion of the site will be retained (approximately 4,430 sq. ft. of canopy coverage). Compensation for unavoidable impacts will consist of creating a biohabitat corridor between the proposed complex and the adjacent wetlands and stream (Exhibit A and B). The biohabitat corridor will span approximately 2.5 acres (109,190 sq. ft.) and will serve as an enhancement to the buffers associated with adjacent wetlands and the riparian buffer of Burris Creek.

Enhancement within the biohabitat corridor will include planting 120 native trees and 900 native shrubs. Furthermore, compensatory mitigation for unavoidable oak impacts will consist of planting 200 oak saplings within the proposed biohabitat corridor. Further discussion of the proposed biohabitat corridor can be found in the Mitigation Plan section of this report.

SITE DESCRIPTION

The approximately 24.55-acre site consists of City of Woodland/Cowlitz County Tax Parcels 508630100, 508620100, and 508610100. Topography throughout the eastern half of the site is sloped with an approximately 10-15 percent grade, whereas the central and western portions of the site are relatively flat with only minor undulations throughout, some portions of the site to the west and south would also be considered relatively flat. No development is present on the site, excluding a small gravel driveway providing access from Green Mountain Road and a concrete slab associated with a former building (Figure 2). The southern and northeast portions of the site consist of regularly mowed herbaceous grasses and shrubs, whereas remaining portions of the site are forested with both coniferous and deciduous species (Photoplate 1). The northeast portion of the site is situated much higher in elevation than remaining portions of the site. Burris Creek, a Type F stream (described below), flows east to west along the southern boundary of Parcel 508630100. Surrounding properties currently contain commercial activities to the east, south, and western sides. Properties to the north are currently undeveloped and contain forest land. The eastern site boundary is formed by Green Mountain Road, which runs north to south and forms the eastern site boundary. The Washington State Department of Ecology's Water Quality Atlas maps the project site within lower portion of Watershed Resource Inventory Area (WRIA) 27 – Lewis, in the Burris Creek-Frontal Columbia sub-watershed, which is within the 12-digit Hydrologic Unit Code (HUC): 170800030306.

Stream

A portion of Burris Creek flows west through the southern portion of the project area (Figure 2). According to the Department of Natural Resources (DNR) Forest Practices Application Mapping Tool (FPAMT), Burris Creek is a Type F (fish bearing) stream. During the site visit, the stream channel was approximately 4-5 feet wide, and approximately 1-2 feet deep (Photoplate 2). Burris Creek enters the site via a 36-inch culvert under Green Mountain Road. Burris Creek flows west through the southern portion of the site before entering Wetland A in the southwest corner of the site. Burris Creek flows westerly through Wetland A and enters a culvert which conveys the flow of Burris Creek to an industrial site to the west. The existing Burris creek channel also contains an

old relic concrete weir and/or similar structure that had likely been historically used for a bridge abutment, a dam/reservoir, or water wheel. The abutment constrains the channel and hardens the surface of the stream bank on both sides. Dominant riparian vegetation included red alder (*Alnus rubra*), salmonberry (*Rubus spectabilis*), Himalayan blackberry (*Rubus armeniacus*), reed canarygrass (*Phalaris arundinacea*), swordfern (*Polystichum munitum*), American black nightshade (*Solanum americanum*), English ivy (*Hedera helix*), and bull thistle (*Cirsium vulgare*).

METHODOLOGY

The wetland delineation followed the Routine Determination Method according to the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers 2010).

The Routine Determination Method examines three parameters—vegetation, soils, and hydrology—to determine if wetlands exist in a given area. Hydrology is critical in determining what is wetland, but is often difficult to assess because hydrologic conditions can change periodically (hourly, daily, or seasonally). Consequently, it is necessary to determine if hydrophytic vegetation and hydric soils are present, which would indicate that water is present for long enough duration to support a wetland plant community. By definition, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are regulated as “Waters of the United States” by the U.S. Army Corps of Engineers (USACE), as “Waters of the State” by the Washington Department of Ecology (Ecology), and locally by the City of Woodland (City).

Five wetlands, hereinafter referred to as Wetlands A, B, C, D, and E were delineated on February 2, 2021. Wetland A was delineated offsite, Wetlands D and E continue offsite, and Wetlands B and C are entirely onsite. Vegetation, soils, and hydrology information was collected from six test plots (TP) to determine the location and extent of the onsite wetlands and wetland buffers (Appendix A). Onsite wetland boundaries were flagged with consecutively numbered pink flagging embossed with “WETLAND DELINEATION”, and test plot locations were flagged with consecutively numbered orange pin-flags, both of which were mapped and recorded using a handheld GPS unit with the capability of submeter accuracy. All five wetlands occur within relatively well defined topographical features which aided in the delineation of the boundaries. Test plot data sheets can be found in Appendix A.

In addition to the wetland delineation, the OHWM of Burris Creek was determined using standard methodology as described in the *Washington State Department of Ecology (Ecology) manual: Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale 2010). The main indicators used to determine the OHWMs were changes in vegetation, scour, and exposed roots, as well as changes in topography. The OHWM was flagged with consecutively numbered pink flagging and mapped using a handheld GPS unit (Figure 2).

VEGETATION

In addition to being recorded on the Wetland Determination Data Sheets (Appendix A), the dominant wetland and upland vegetation and their corresponding wetland indicator statuses are listed below.

The indicator status, following the scientific names, indicates the likelihood of the species 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) - occur almost always under natural conditions in wetlands.
- **FACW** (facultative wetland) - usually occur in wetlands, but occasionally found in non-wetlands.
- **FAC** (facultative) - equally likely to occur in wetlands or non-wetlands.
- **FACU** (facultative upland) - usually occur in non-wetlands, but occasionally found in wetlands.
- **UPL** (obligate upland) - occur almost always under natural conditions in non-wetlands.
- **NI** (no indicator) - insufficient data to assign to an indicator category.

Wetlands

Dominant vegetation observed within the wetland test plots (Test Plots 2, 3, and 5) consisted of **trees:** red alder (*Alnus rubra*, FAC) and western redcedar (*Thuja plicata*, FAC); **saplings/shrubs:** Douglas spirea (*Spiraea douglasii*, FACW) and Pacific ninebark (*Physocarpus capitatus*, FACW); and **herbs:** reed canarygrass (*Phalaris arundinacea*, FACW), water parsley (*Oenanthe sarmentosa*, OBL), stinging nettle (*Urtica dioica*, FAC), skunk cabbage (*Lysichiton americanus*, OBL), and colonial bentgrass (*Agrostis capillaris*, FAC).

Upland

Vegetation observed in the upland test plots (Test Plots 1, 4, and 6) was dominated by **trees:** red alder, bigleaf maple (*Acer macrophyllum*, FACU), and western redcedar; **saplings/shrubs:** Himalayan blackberry (*Rubus armeniacus*, FAC), salmonberry (*Rubus spectabilis*, FAC), red elderberry (*Sambucus racemose*, FACU), and evergreen blackberry (*Rubus laciniatus*, FACU); and **herbs:** swordfern (*Polystichum munitum*, FACU), brackenfern (*Pteridium aquilinum*, FACU), Pacific waterleaf (*Hydrophyllum tenuipes*, FAC), colonial bentgrass, and reed canarygrass.

SOILS

The Natural Resources Conservation Service (NRCS 2019) designates soils onsite as Godfrey silt loam, 0 to 3 percent slopes (65), Stella silt loam, 15 to 30 percent slopes (210), and Mart silt loam, 8 to 20 percent slopes (124). Godfrey silt loam is characterized as a poorly drained soil formed on flood plains and derived from alluvium, with a typical profile consisting of silt loam from 0 to 5 inches, silty clay loam from 5 to 27 inches, and sandy clay from 27 to 60 inches below ground surface (BGS). Typically characterized as a moderately well drained soil, Stella silt loam is formed on hillslopes and derived from loess over alluvium, with a typical profile consisting of silt loam from 0 to 25 inches, and silty clay loam from 25 to 60 inches BGS. The Stella silt loam soil unit encompasses the majority of the site. Mart silt loam is typically characterized as a well-drained

soil derived from weathered andesite and volcanic breccias residuum. Mart silt loam is usually formed on mountain and hillslopes. A typical profile of Mart silt loam consists of silt loam from 0 to 20 inches, silty clay loam from 20 to 40 inches, and silt loam from 40 to 60 inches BGS (NRCS 2019a).

According to the NRCS *Hydric Soils* List, Godfrey silt loam is classified as a hydric soil, whereas Mart silt loam and Stella silt loam are not (2019b). Wetlands A, B, C, and E were delineated primarily within the Stella silt loam soil unit, while Wetland D was delineated primarily within the Godfrey silt loam soil unit. Mapped hydric soils do not necessarily mean that the area is a wetland—hydrology, wetland vegetation, and hydric soils must all be present to classify an area as a wetland. Conversely, wetlands may be found in areas where the soils are not mapped as hydric.

Evaluated wetland soils consisted of silt loams. Requirements for the hydric soil indicator “Redox Dark Surface” were met within TP-2 given the presence of a soil layer with a matrix value of 3 or less and a chroma of 2 or less with 2 percent or more distinct or prominent redox concentrations occurring as soft masses or pore linings. A “Depleted Matrix” was observed within TP-5 due to the presence to the presence of soil layers with a matrix value of 4 or more and a chroma of 2 or less with redox concentrations occurring as soft masses or pore linings. Furthermore, soils within TP-3 consisted entirely of decaying organic material (muck), thus satisfying requirements for the hydric soil indicator Histosol (A1). No hydric soil indicators were observed within upland test plots.

HYDROLOGY

Wetland A

Wetland A is located outside the site to the west, with a portion of its buffer extending onsite (Figure 2). During the site visit, approximately 1-2 feet of standing water was observed within the wetland. Sources of wetland hydrology include runoff from adjacent slopes to the north, east, and south, with additional hydrological inputs including precipitation and a seasonally high groundwater table. Wetland A’s main outlet is located where Burris Creek exists the wetland and enters a culvert which conveys the stream under the industrial site to the west; another potential outlet lies where the Wetland A drains into the roadside ditch system during periods of overbank flooding, as evidenced by an approximately 24-inch culvert in the northwest portion of the wetland. During the site visit no flow was observed in the vicinity of the culvert. Hydroperiods of the wetland include permanently flooded, seasonally flooded, and saturated only, with seasonally flooded compromising most of Wetland A’s area (Figure 3). Primary wetland hydrology indicators observed within wetland test plots include a high-water table, soil saturation, sparsely vegetated concave surfaces, and oxidized rhizospheres along living roots.

Wetlands B and C

Wetlands B and C are located within shallow depressions in the central portion of the site (Figure 2). During the site visit, no surface water was observed within the wetlands, although soils were saturated at the surface. Wetlands B and C are highly similar in terms of vegetations, soils, and hydrology. However, no above-ground connection between the wetlands was observed, the wetlands did not appear to have any obvious hydrological connection with each other, hydrology

is retained seasonally within each wetland unit. As such, no obvious outlets to either wetland were observed. Primary hydrological inputs to the wetlands include runoff from the adjacent slope to the north in addition to seasonal groundwater inputs. Given the topography of the wetlands, the only hydroperiod observed was seasonally flooded within each: both wetlands are flooded in their entirety during the wet season. Both wetlands are situated notably lower in elevation than surrounding areas and as such serve as a collection point for a portion of the year (Figure 3). Primary wetland hydrology indicators observed within wetland test plots include a high-water table, soil saturation, sparsely vegetated concave surfaces, and oxidized rhizospheres along live roots.

Wetland D

Wetland D is located in an open field within a shallow depression in the southwest portion of the site (Figure 2). During the site visit, no surface water was observed within the wetland, although soils were saturated at the surface within the central portion. Wetland D appears to outlet seasonally to the roadside ditch system along Old Pacific Highway (Figure 3 and Exhibit B). Hydrological inputs to the wetland include runoff from Old Pacific Highway from the south and gradual runoff from the adjacent grassy field to east. Additionally, a historic agricultural farm ditch appears to direct hydrology into the wetland from the southeast (Figure 3 and Exhibit B). No water was observed exiting the wetland during the site visit. Hydroperiods of the wetland include seasonally flooded and saturated only, with seasonally flooded areas comprising most of Wetland D's area. Primary wetland hydrology indicators observed within wetland test plots include a high-water table, soil saturation, and oxidized rhizospheres along live roots.

Wetland E

Wetland E is located along a gradual slope in the northern portion of the site, with portions extending offsite to the north and west (Figure 2). During the site visit, no surface water was observed within the wetland, although soil saturation was observed as shallow as 2 inches BGS. Primary hydrological inputs to the wetland include runoff from adjacent slopes to the north as well as runoff from Green Mountain Road, located east of the site (Figure 2). Additionally, seasonal groundwater inputs are expected to provide intermittent hydrological input. Wetland E outlets seasonally to an intermittently flowing ditch located in the southwest corner of the wetland (Figure 3). The seasonally flowing ditch eventually drains into the north end of Wetland A offsite. The seasonally flowing ditch is located along a relatively steep slope – overflow drainage from Wetland E flows unilaterally into the drainage ditch prior to draining to Wetland A seasonally. Hydroperiods of Wetland E include seasonally flooded and saturated only, with saturated only areas comprising most of Wetland E's area. Primary wetland hydrology indicators observed within wetland test plots include a high-water table, soil saturation, and oxidized rhizospheres along live roots. Hydrology information within the test plots is also listed in the Wetland Determination Data Forms (Appendix A).

NATIONAL WETLAND INVENTORY

The National Wetlands Inventory (NWI) map indicates the presence of a temporarily flooded, emergent, and persistent wetland in the southern portion of the site (PEM1A). ELS field investigations are consistent with this wetland categorization, however field investigations were not consistent with the size and extent of the wetland indicated by the NWI. Wetland D was

delineated in the same general location mapped by NWI, however, field investigations indicate the expanse of Wetland D is notably smaller than that indicated by NWI. Furthermore, Wetland D is a seasonally flooded wetland with both saturated only and seasonally flooded hydroperiods, not temporarily flooded. The PEM1A wetland indicated by NWI is also reflected on several adjacent impervious surfaces and is likely not a true reflection of conditions onsite.

The NWI map also indicates the presence of two permanently flooded, upper perennial riverine wetlands with unconsolidated bottoms within the central portion of the site. Given the majority of this wetland designation is mapped in the same location as the OHWM of Burriss Creek, these wetland designations are likely a reflection of riparian environments, not wetland environments. A consolidated channel was observed in the same general location as Burriss Creek. The northern portion of riparian wetland indicated by the NWI is likely a reflection of seasonal conveyance of water from Wetland E to Wetland A. During the site visit, no consolidated channel was observed in the northern portion of the site, and no indication of a seasonal or intermittently flowing stream was observed (Photoplate 1).

CRITICAL AREAS SUMMARY

Wetland A

Wetland A was delineated on February 2, 2021 offsite to the west of the site (Figure 2). According to the *Washington State Wetland Rating System for Western Washington: 2014 Update (Rating System)* (Hruby 2014); Wetland A is a scrub-shrub and emergent depressional wetland located entirely offsite, with portions of its buffer extending onsite (Exhibit A). Wetland boundaries were bordered by notable changes in vegetation, soils, hydrology, and topography. Dominant vegetation observed within the wetland consisted of red alder, Oregon ash, black hawthorn, Himalayan blackberry, Sitka willow, rose spirea, and reed canarygrass. Sources of wetland hydrology include runoff from adjacent slopes to the north, east, and south, with additional hydrological inputs including precipitation and a seasonally high ground water table. Wetland A's main outlet is located where Burriss Creek exits the wetland and enters a culvert which conveys the stream under an industrial site to the west; another potential outlet lies where the wetland drains into the roadside ditch system during periods of overbank flooding, as evidenced by an approximately 24-inch culvert in the northwest portion of the wetland. During the site visit, no flow was observed in the vicinity of the culvert. Hydroperiods of the wetland include permanently flooded, seasonally flooded, and saturated only, with seasonally flooded areas comprising most of Wetland A's area (Figure 3). According to the *Rating System*, Wetland A is a depressional, Category II wetland scoring 8 points for water quality functions, 7 points for hydrologic functions, and 6 points for habitat functions.

According to *WMC*, standard wetland buffers are based on wetland category in conjunction with land use intensity and level of habitat function (*WMC 15.08.400*). Residential development at greater than 1 unit per acre is considered a high intensity land use, and Wetland A is a Category II wetland. According to *WMC*, a habitat score of 6 is considered moderate (*WMC Table 15.08.400-1*). *WMC Table 15.08.400-1* indicates the required buffer width for Wetland A is 150 feet. A ten foot minimum setback is required from the edge of the buffer.

Wetlands B and C

Wetlands B and C were delineated on February 2, 2021 within the central portion of the site (Figure 2). According to the *Washington State Wetland Rating System for Western Washington: 2014 Update (Rating System)* (Hruby 2014); Wetlands B and C are emergent depressional wetlands spanning approximately 0.05 and 0.01 acres, respectively (Figure 3). Wetland boundaries were bordered by notable changes in vegetation, hydrology, and topography. Dominant vegetation observed within the wetland consisted of red alder, Oregon ash, black hawthorn, Himalayan blackberry, Sitka willow, rose spirea, and reed canarygrass. Wetlands B and C are highly similar in terms of vegetations, soils, and hydrology. However, no above-ground connection between the wetlands was observed, the wetlands did not appear to have any obvious hydrological connection with each other, hydrology is retained seasonally within each wetland unit. As such, no obvious outlets to either wetland was observed. Primary hydrological inputs to the wetland include runoff from the adjacent slope to the north in addition to seasonal groundwater inputs. Given the topography of the wetlands, the only hydroperiod observed was seasonally flooded within each: both wetlands are flooded in their entirety during the wet season. According to the *Rating System*, Wetlands B and C are depressional Category IV wetlands. Wetland B scored 7 points for water quality functions, 3 points for hydrologic functions, and 5 points for habitat functions for a total of 15 points. Wetland C scored 6 points for water quality functions, 3 points for hydrologic functions, and 5 points for habitat functions for a total of 14 points.

WMC 15.08.400(k) states that “isolated Category 4 wetlands less than five thousand square feet in size and Category 3 wetlands less than one thousand square feet that are not located in the buffer of a nonexempt wetland are exempted from the provisions of this chapter.” Although Wetlands B and C meet buffer exemption criteria a 50-foot buffer has been placed around either wetland to allow a greater protection to the biohabitat corridor and its associated enhancement functions. More detailed information on the biohabitat corridor can be found in Mitigation Plan section of this report.

Wetland D

Wetland D was delineated on February 2, 2021 in the southern portion of the site (Figure 2). According to the *Washington State Wetland Rating System for Western Washington: 2014 Update (Rating System)* (Hruby 2014); Wetland D is an emergent depressional wetland located within a shallow depression. Wetland boundaries were bordered by notable changes in vegetation, soils, hydrology, and topography. Dominant vegetation observed within the wetland consisted of reed canarygrass. Although not considered dominate the following notable emergent, scrub-shrub, and woody vine species were present: rose spirea, Sitka willow, and Himalayan blackberry. Wetland D appears to outlet seasonally to the roadside ditch system along Old Pacific Highway (Figure 3). Hydrological inputs to the wetland include runoff from Old Pacific Highway from the south and gradual runoff from the adjacent grassy field to east. Additionally, a historic agricultural farm ditch appears to direct hydrology into the wetland from the southeast (Figure 3). No water was observed exiting the wetland during the site visit. Hydroperiods of the wetland include seasonally flooded and saturated only, with seasonally flooded areas comprising most of Wetland D’s area. According to the *Rating System*, Wetland D is a depressional Category III wetland scoring 7 points for water quality functions, 7 points for hydrologic functions, and 5 points for habitat functions.

Residential development at greater than 1 unit per acre is considered a high intensity land use, and Wetland D is a Category III wetland. According to *WMC*, a habitat score of 5 is considered moderate (*WMC Table 15.08.400-1*). *WMC Table 15.08.400-1* indicates the required buffer width for Wetland D is 80 feet.

Wetland E

Wetland E was delineated on February 2, 2021 in the northern portion of the site (Figure 2). According to the *Washington State Wetland Rating System for Western Washington: 2014 Update (Rating System)* (Hruby 2014); Wetland E is a forested and emergent slope wetland spanning approximately 0.2 acres along a gradual slope in the northern portion of the site (Figure 2). Wetland boundaries were bordered by notable changes in vegetation, soils, hydrology, and topography. Dominant vegetation observed within the wetland consisted of red alder, Oregon ash, Himalayan blackberry, Sitka willow, rose spirea, and reed canarygrass. Primary hydrological inputs to the wetland include runoff from adjacent slopes to the north as well as runoff from Green Mountain Road, located east of the site (Figure 3). Additionally, seasonal groundwater inputs are expected to provide intermittent hydrological input. Wetland E outlets seasonally to an intermittently flowing ditch located in the southwest corner of the wetland (Figure 3). The seasonally flowing ditch eventually drains into Wetland A. The seasonally flowing ditch is located along a relatively steep slope – overflow drainage from Wetland E flows unilaterally into the drainage ditch prior to draining to Wetland A seasonally. Hydroperiods of the wetland include seasonally flooded and saturated only, with saturated only areas comprising most of slope the wetland’s area. According to the *Rating System*, Wetland E is a Category IV wetland scoring 6 points for water quality functions, 4 points for hydrologic functions, and 5 points for habitat functions.

Residential development at greater than 1 unit per acre is considered a high intensity land use, and Wetland D is a Category IV wetland. According to *WMC*, a habitat score of 5 is considered moderate (*WMC Table 15.08.400-1*). *WMC Table 15.08.400-1* indicates the required buffer width for Wetland E is 50 feet.

Burris Creek

Burris Creek flows westerly in the southern portion of the site (Figure 2). According to the DNR, Burris Creek is a Type F (fish bearing) stream. During the site visit, the stream channel was approximately 4-5 feet wide and 1-2 feet deep with moderate flow. Burris Creek enters the site via an approximately 36-inch culvert along Green Mountain Road and flows west through the central portion of the site before eventually draining into Wetland A. Wetland A eventually outlets to an approximately 24-inch wide culvert in the northwest portion of the wetland. Dominant riparian vegetation included red alder, salmonberry, Himalayan blackberry, reed canarygrass, swordfern, American black nightshade, English ivy, and bull thistle. According to *WMC Table 15.08.730-1*, Burris Creek is a Type F body of water with a channel width of 5 feet or less, therefore, it requires a designated riparian habitat area width of 150 feet (Figure 2).

The existing conditions of Burris Creek and its associated riparian zone are described as follows:

The north side of Burris Creek contains forested slopes with the exception of the eastern third. Tree cover along the north side of Burris Creek includes a mixture of deciduous Oregon white oak, big leaf maple, red alder, Oregon ash; Oregon white oak canopy is being constrained by competing

tree species in this location. Invasive species along the north side of Burriss Creek include English Ivy, Himalayan blackberry, and English holly. Onsite observations also indicate that garbage and other refuse have been dumped along the north side of Burriss Creek. Enhancement potential in this area includes garbage removal, invasive plant removal and suppression, and oak habitat canopy release.

The eastern third of the north side of Burriss Creek consists of a few scattered trees, most of which are growing through the stream channel; the remaining area is mostly vegetated by thickets of Himalayan blackberry. Similar to the northern riparian zones of Burriss Creek described above, garbage and refuse are also present. This area has been identified as the least impactful location for two components of development:

- Internal road crossing via bridge installation over Burriss Creek
- and, Stormwater treatment facilities

Stormwater facilities in the northern riparian zone will be located in the outer portion of the 150 foot stream buffer, this location is appropriate as it avoids existing disturbance to the forested stream buffer described above. The remaining undeveloped areas around the road and stormwater facilities have potential for riparian and oak enhancement creation; this includes garbage removal and plantings of sapling oak trees and other native species.

The south side of Burriss Creek consists of mowed field and previously mowed blackberries. Only one cluster of deciduous trees is located on a raised mound approximately 75 square feet in total area; all other locations on the south side of Burriss Creek are open and provide little to no shade to Burriss Creek. This entire area with the exception of the aforementioned tree cluster and a proposed stormwater treatment pond are suitable for oak habitat plantings and other native tree species and shrubs that will mitigate buffer impacts and reductions. There is opportunity for functional gain in the stream buffer, along with oak habitat, through the mitigation plantings proposed.

The existing Burriss creek channel also contains an old relic concrete weir and/or similar structure that had likely been historically used for a bridge abutment, a dam/reservoir, or water wheel. The abutment constrains the channel and hardens the surface of the stream bank on both sides. Removal of this concrete structure is considered partial mitigation for the proposed road crossing.

All discussion of mitigation and enhancement as it relates to Burriss Creek is further elaborated in the Mitigation Plan section of this report.

Oregon White Oak

According to the Washington Department of Fish and Wildlife (WDFW) *Priority Habitat and Species* list, Oregon white oak are considered a protected species and oak woodlands are considered a priority habitat. Oak woodlands and individual oak trees are not specifically designated under the habitat conservation areas classifications listed under *WMC 15.08*, but the code does refer to WDFW priority habitats and species criteria, and the City shall defer to WDFW in regard to classification, mapping, and interpretation of priority habitat species.

In urban or urbanizing areas west of the Cascades, WDFW defines priority oak habitat as single oaks, or stands of pure oak, or oak/conifer associations, 1 acre or greater in size. WDFW may also consider individual Oregon white oak trees a priority habitat when found to be particularly valuable to wildlife (i.e., contains many cavities, has a large diameter at breast height (DBH), is used by priority species, or has a large canopy) (Larsen and Morgan 1998). The project site is within an urban growth boundary. WDFW recommends that, single trees should be maintained if they are deemed important to species highly associated with Oregon white oak in urban and urbanizing areas. Oaks and their associated floras comprise distinct woodland ecosystems with various plant communities providing valuable habitat that contributes to wildlife diversity; oak woodlands provide a mix of feeding, resting, and breeding habitat for many wildlife species (Larsen and Morgan 1998).

The project site contains 64 Oregon white oak trees with diameter ranges of 8-48 inches. There are 17 trees that are proposed to be removed to facilitate development on the upper terraced site where the apartment complex is planned; the combined canopy within the driplines is 19,930 square feet. The oaks to be removed are spread around the project site, generally the smaller trees are to the east and the larger trees are to the west and north. A total of 47 oaks will be retained and the majority of these are concentrated on the south and west sides of the development site on sloping ground which is also the wetland and riparian buffer area (Exhibit A and B). Discussion of the mitigation approach can be found in the Mitigation Plan section of this report. These oak trees are considered a priority species/habitat as they are located in an urbanizing area.

Table 1. Critical Areas Summary

Critical Area	Category ¹ /Cowardin Class ² /HGM Class ³ /Type ⁴	Size (onsite)	Habitat Score ⁵	Buffer Width ^{6,7}
Wetland A	III/Scrub-Shrub & Emergent/Depressional	N/A	6	150 feet
Wetland B	III/Forested/Depressional	0.05 acres (2,178 sq. ft.)	5	50 feet*
Wetland C	III/Forested/Depressional	0.01 acres (438 sq. ft.)	5	50 feet*
Wetland D	III/Forested/Depressional	1.21 acres (52,707 sq. ft.)	5	80 feet
Wetland E	III/Forested/Depressional	0.20 acres (8,712 sq. ft.)	5	50 feet

Burris Creek	Type F (fish bearing)	N/A	N/A	150 feet
Oregon White Oaks	N/A	N/A	N/A	N/A

¹Hruby 2014

²Cowardin et al. 1979

³NRCS 2008

⁴WMC 15.08.350

⁵Department of Ecology – Washington State Wetland Rating System for Western Washington (July 2018 Update)

⁶WMC Table 15.08.400-1

⁷WMC Table 15.08.730-1

* Refer to discussion in the critical areas summary and mitigation plan section of this report

WETLAND BUFFER AVERAGING

This project proposes wetland buffer averaging to accommodate the proposed apartment complex. According to *WMC 15.08.400-(G)* (excerpted in italics below), the wetland buffer width may be modified by averaging buffer widths using the following conditions:

1. *Averaging will not reduce wetland functions or values;*
2. *The wetland would benefit from a wider buffer in places and would not be adversely impacted by a narrower buffer in other places due to varying wetland quality;*
3. *The total area of the averaged buffer is not less than would be contained if there were no buffer averaging; and*
4. *The buffer width is not reduced to less than twenty-five percent of the standard buffer width or fifty feet, whichever is greater in any one location.*

The applicant proposes to average the eastern portion of Wetland A’s buffer from 150 feet to approximately 130 feet at its narrowest point, equating to 0.049 acres (2,115 sq. ft.) or approximately 2 percent of the required buffer width. In exchange, the southern portion of Wetland E’s buffer will be increased from the designated 50-foot width by 0.049 acres (2,115 sq. ft.) to achieve no net loss of wetland buffer area (Exhibit A). The areas proposed for buffer reduction and buffer increase are similarly moderately dense tree, shrub, and herbaceous communities. Areas proposed for buffer increase will benefit the wetland resources in and adjacent to the site because the vertical separation between Wetland E and the development is considerably less than that between Wetland A and the proposed development; Wetland A is comparably well protected by vertical distance. Increasing the wetland buffer in the proposed addition areas will provide lasting critical area protection and ensure these areas are not lost or degraded despite not currently being considered part of the wetland’s buffer. Furthermore, the applicant is proposing permanent buffer signage installations at 100-foot intervals which will be installed on permanent wood fencing. The wood fencing will be installed along the final proposed wetland buffer after averaging is complete and will help ensure no impacts to Wetland A occur as a result of the proposed development.

Table 2. Summary of Wetland Buffer Averaging

Identifier	Original Buffer Width	Modified Buffer Width	Buffer Average In	Buffer Average Out
Wetland A Buffer	150 feet	130 feet ¹	-0.049 acres (2,115 sq. ft.)	N/A
Wetland E Buffer	50	68 feet ²	N/A	+0.049 acres (2,115 sq. ft.)

¹Modified buffer width refers to the wetland buffer at its narrowest point

²Modified buffer width refers to the wetland buffer at its widest point

RIPARIAN BUFFER AVERAGING

The proposed apartment complex requires a small amount of riparian buffer averaging to accommodate the stormwater management facility in the southern portion of the site. According to *WMC 15.08.720-(G-3)* (*excerpted in italics below*), the riparian habitat area buffer width may be modified by averaging buffer widths under the following conditions:

- A. Averaging will not reduce habitat or stream functions;*
- b. It will not adversely affect salmonid habitat;*
- c. Additional natural resource protection such as buffer enhancement will be provided;*
- d. The total of the averaged buffer area is not less than what would be contained in the standard buffer;*
- e. The buffer area width is not reduced by more than twenty-five percent.*

The required riparian buffer width for Burriss Creek is 150 feet. The applicant proposes a reduction in buffer width in the following areas:

The applicant is proposing that a portion of the riparian buffer near the proposed stormwater facilities totaling 0.008 acres (345 sq. ft.) be averaged in while a portion of the riparian buffer directly east of this location be averaged out by 0.008 acres (345 sq. ft.) resulting in no net loss of total riparian buffer area (Exhibit A and B). The proposed buffer reduction area is generally flat, existing vegetation and diversity in this area minimal, containing invasive species and frequently mowed grasses, and thus the contribution to water quality improvements is minimal. Consistent with buffer reduction requirements at its narrowest point the riparian buffer of averaged areas is 113 feet. The wetland/stream buffer enhancement area totaling approximately 2.5 acres (109,190

sq. ft.) as shown on Exhibit A and B to is designed to compensate for all project impacts which include oak impacts, wetland impacts, and riparian buffer impacts.

Stormwater facilities are proposed within and directly outside of the wetland/stream buffer enhancement area (biohabitat corridor). The stormwater facility proposed within the wetland/stream buffer enhancement area south of Burris Creek is consistent with *WMC 15.08.720(1)(3)* as all other alternative placement options were evaluated prior to proposing the stormwater facility in this location. The major determining factors in this placement were prior landscape disturbance, topography, and slope percentage. The stormwater facility proposed to the north of the wetland/stream buffer enhancement area is designed to treat stormwater prior to discharging into Burris Creek; this stormwater facility is associated with temporary riparian buffer impacts. Temporary riparian buffer impacts are associated with grading and will be restored upon the completion of construction. No buffer averaging was completed as it relates stormwater facilities. The treatment of stormwater before discharging into Burris Creek provides a greater ecological lift than currently exists within the site as current stormwater discharges associated with the project site are not treated before flowing into Burris Creek.

Table 3. Summary of Riparian Buffer Averaging

Identifier	Original Buffer Width	Modified Buffer Width	Buffer Average In	Buffer Average Out
Robinson Creek Buffer	150 feet	113 feet ¹	-0.008 acres (345 sq. ft.)	+0.008 acres (345 sq. ft.)

¹Modified buffer width refers to riparian buffer at its narrowest point

AVOIDANCE AND MINIMIZATION

The preferred mitigation sequencing of first avoidance, then minimization, and finally compensation was taken into consideration during the design process of this project. The proposed 8-unit apartment complex has gone through several revisions to minimize critical area impacts to the furthest extent possible while still providing housing opportunities that are consistent with the City’s zoning requirements and housing needs. The applicant has utilized riparian and wetland buffer averaging to further minimize wetland and buffer stream impacts and is proposing establishment of an approximately 2.5-acre (109,190 sq. ft.) biohabitat corridor to compensate for unavoidable project impacts.

The proposed 8-unit apartment complex is located within the Highway Commercial District (C-2) according to the City of Woodland’s Comprehensive Plan, which is a zoning designation intended for commercial activities. Construction of the proposed apartment complex within this zoning designation will result in fewer impacts to critical areas as compared to the surrounding land uses (Figure 4). The goal of stormwater management for this project is to improve water quality within the surrounding area by treating all stormwater generated as a result of this project onsite. Locations of the proposed stormwater detention and ponds were determined based off the natural topography of the site: the lowest points of elevation act as natural collection points, therefore these locations are ideal for wet pond installations. Furthermore, the proposed stormwater

installations include a landscaping plan to reduce surface flow velocity, improving infiltration and habitat opportunities within the project vicinity. Water quality improvements associated with treating all stormwater generated onsite prior to discharging to the stream outweigh the drawbacks of temporary wetland and stream impacts, as untreated stormwater generated onsite and from Old Pacific Highway and Green Mountain Road currently drains into the stream without prior treatment.

Wetland functions and values, water quality improvement functionality in Wetlands A, B, C, D, and E will be improved after project completion due to the proposed stormwater management plan, which involves redirecting stormwater generated as a result of the proposed development to vegetated stormwater detention ponds spaced periodically on all sides of development. Furthermore, the proposed mitigation detailed later in this report involves planting 1,220 shrubs throughout the proposed biohabitat corridor not including Oregon white oaks. The proposed biohabitat corridor will provide greater habitat functionality than that currently provided by the buffers of Wetland A and Burris Creek given a new, dense, understory of shrubs will be established in an area currently lacking understory vegetation. Similarly, water quality within adjacent wetlands and the buffer of Burris Creek will be improved once installation of the mitigation plantings is complete. The proposed 1,220 trees and shrubs will reduce the threat of erosion on the steep slopes adjacent to the project and improve water quality throughout the corridor. No impacts to habitat opportunities or habitat quality are expected to occur as a result of this project, given the wetland buffer provides little to no benefit in this regard wherein impacts are proposed. As previously mentioned, the adjacent wetland buffers are vegetated almost entirely by invasive species such as Himalayan blackberry and reed canarygrass in the understory.

During construction, wetland impacts will be further avoided and minimized by the use of best management practices (BMPs) including installing silt fencing along the final wetland buffer, applying native grass seed to disturbed areas not being paved when grading is complete, and having a water truck available to prevent wind erosion and dust blowing during construction. Additionally, a permanent 5-foot tall wood fence will be installed and located along the outer edge of the buffer and maintained for the duration of the development with metal signs posted at 100-foot intervals along the buffer reading “The area beyond this sign is a Critical Area or Buffer. Alteration or disturbance is prohibited by law. No dumping allowed *WMC Chapter 15.08: Critical Areas.*”

The applicant has made every effort to minimize critical area impacts to the furthest extent practicable. With respect to the onsite oaks, the project is avoiding impacts to the large tandem oaks in the central portion of the site, retaining walls will be used as necessary to protect their root system; these two large oaks will be protected in perpetuity. One large oak will be removed from the central portion of the site, however, an AKS arborist evaluated this oak and determined that this particular oak is afflicted by disease and has rot in the trunk (Appendix C). Seventeen oaks in total are proposed for removal (Exhibit A) to facilitate development of the site. The removal of oaks must occur either because the apartment complex footprint necessitates their removal or there are anticipated impacts to their root structure that would result in eventual fatality. Furthermore, grading is necessary to achieve suitable slopes for internal pedestrian access, especially handicapped access. The existing oaks occur at varying elevations on the site, grading to the site to obtain a more level area for development makes the oak tree avoidance impractical in the central

portion of the site. Further avoidance and minimization of oak tree impacts will be accomplished as follows:

- A tandem pair of oaks will be preserved and maintained in the middle of the development site.
- A total of 45 additional oak trees will be retained in the stream/wetland buffer areas and enhanced with release of selected competing tree species and removal/suppression of understory invasive species including English holly and English ivy.
- Five smaller existing oaks will be moved and transplanted to new planning areas to help establish oak habitat on a shorter timeline.

To compensate for unavoidable impacts to oaks, 200 oak saplings will be planted throughout the proposed biohabitat corridor (Exhibit A and B). Once established, these oaks will provide far greater habitat opportunity than that currently provided by the oaks proposed for removal. Furthermore, the biohabitat corridor involves a multi-strata approach to mitigation and will offer a high degree of variability once the mitigation plan is implemented.

During construction, temporary riparian and wetland buffer impacts will be further minimized by the use of BMP's. After construction, a permanent 5-foot tall wood fence will be installed and located along the outer edge of the wetland and riparian buffer and maintained for the duration of the development with metal signs posted at 100 feet intervals along the buffer reading "The area beyond this sign is a Critical Area or Buffer. Alteration or disturbance is prohibited by law. No dumping allowed *WMC Chapter 15.08: Critical Areas.*"

Installation of the outfall for the vegetated stormwater ponds will abide by the following BMPs:

1. A small riprap pad will be installed to dissipate energy from the outfall. The riprap pad will be planted with cuttings of native species to blend it in with the buffer.
2. The remaining trench associated with riprap pad installation will be backfilled after the outfall is installed with the native material excavated from the trench. Excess material will be spread thinly within upland areas.
3. A native grass seed mix will be applied to all disturbed areas and will be watered as necessary during construction to facilitate growth.

UNAVOIDABLE IMPACT SUMMARY

Construction activities will involve temporarily impacting 0.060 acres (2,610 sq. ft.) and permanently impacting 0.815 acres (35,480 sq. ft.) of the riparian buffer associated with Burriss Creek as a result of constructing stormwater conveyance facilities and interior access roads partially within the buffer, which is allowed per *WMC 15.08.730* (Exhibit A and B). The temporary impacts are expected to be nominal and will subside after installation is complete, as the hydrologic, habitat, and water quality functions provided by the riparian buffer will be improved after construction as a result of treating stormwater generated onsite within the vegetated storm pond prior to discharging to the stream. Current conditions allow untreated stormwater generated onsite and from Green Mountain Road to drain into the stream untreated. Temporary and permanent riparian buffer impacts will be compensated via the proposed mitigation plan, which is detailed in the *Mitigation Plan* section of this report. Additionally, 0.219 acres (9,560 sq. ft.) of temporary wetland buffer impacts are expected to occur as a result of grading along the western

and northern sides of development. Upon project completion, these areas will be reseeded with a native seed mix. However, the temporary wetland buffer impacts are included in the required mitigation square footage detailed later in this report. Permanent wetland buffer impacts equate to approximately 0.031 acres (1,370 sq. ft.) and are required to install the northern access road from Green Mountain Road in the northeast portion of the site (Figure 3). Both temporary and permanent wetland buffer impacts will be compensated for in the accompanying mitigation plan detailed later in this report.

Furthermore, approximately 0.339 acres (14,780 sq. ft.) of oak canopy will be directly impacted as a result of the proposal because several oaks will be removed to construct the apartment complex and interior access roads (Figure 3). The applicant and design team worked to avoid and minimize oak tree impacts to the extent possible. The largest oak tree cannot be avoided because it occurs in the west central portion of the site and is in a diseased condition (Appendix C). Two large oaks near it will be preserved and the constructed site will incorporate them into the site sufficiently to protect their root zones (Exhibit A).

A project impact summary is provided in Table 4.

Table 4. Summary of Project Impacts.

Impact Area	Type	Impact Type	Impact Amount
Wetland A and E Buffer	Cat. II and Cat. III Wetland Buffer	Temporary	0.219 acres (9,560 sq. ft.)
		Permanent	0.031 acres (1,370 sq. ft.)
Burriss Creek Buffer	Type F Stream Buffer	Temporary	0.060 acres (2,610 sq. ft.)
		Permanent	0.815 acres (35,480 sq. ft.)
Oregon White Oak	Oak Canopy Removal	Canopy Coverage	0.355 acres (15,500 sq. ft.)

¹ WMC 15.08.350

MITIGATION PLAN

To compensate for 0.250 acres (10,930 sq. ft.) of total wetland buffer impacts and 0.875 acres of (38,090 sq. ft.) total of riparian buffer impacts, an approximately 2.5-acre (109,190 sq. ft.) portion of the buffers associated with Wetland A, Wetland E, and Burriss Creek’s buffer will be enhanced via planting 120 native trees and 900 native shrubs not including Oregon white oak (Exhibit A and B). The mitigation plantings will establish a biohabitat corridor between critical areas and the proposed development. Establishment of the biohabitat corridor equates to an approximately 2.2:1 ratio and will adequately compensate for project impacts given the majority of project impacts are

anticipated to be temporary and will subside upon completion of the project. The approximately 2.5-acre biohabitat corridor will be planted with 120 native trees consisting of 60 Douglas-fir (*Pseudotsuga menziesii*) and 60 red alder planted at 10-foot on-center spacing to facilitate growth and limit interspecies competition. Douglas-fir was selected for compensatory mitigation based on its prevalence elsewhere on the site and based on guidance from WDFW, which recommends planting coniferous trees along riparian areas for shading, and to eventually provide large and small woody material to the riparian system, which has been incorporated into the mitigation plan. Red alder was selected based on its relative propensity to withstand variable conditions and moisture climates. Additionally, 900 native shrubs will be installed within the proposed biohabitat corridor. Shrubs selected for compensatory mitigation include 300 thimbleberry (*Rubus parviflorus*), 300 vine maple (*Acer circinatum*), and 300 salmonberry (*Rubus spectabilis*). Shrubs will be planted with 6-foot on-center spacing to encourage development of a new, dense, shrub understory in an area lacking an existing shrub layer. Species were chosen based on their low-lying growth habit and prevalence in variable, forested areas. The selected shrubs should provide enhanced erosion control functionality by adding roots to sloping terrain. Additionally, water quality improvement within Burris Creek and Wetland A will be improved as a result of the proposed mitigation by slowing and infiltrating surface water. Shading provided by the 120 tree plantings should further improve water quality within Burris Creek by cooling water temperatures.

To compensate for 0.340 acres (14,780 sq. ft.) of impacts to Oregon white oaks, mitigation will include the following measures:

- First, avoidance of two large tandem oaks incorporated into the design of the apartment project with sufficient protection for their root zone.
- Second, minimization by attempting the relocation of five smaller oak trees to the onsite mitigation planting area. This potentially reduces the net number of trees eliminated from 17 to 12. The canopy cover of these five trees will still be mitigated as a loss however if they survive there will be a net gain of overall oak habitat onsite.
- Third, compensation by enhancement of approximately 0.46 acres (19,930 sq. ft.) of existing oak habitat. These are areas of the site that contain most of the 47 oak trees which are being retained. Enhancement measures include selective girdling or cutting down of competitive tree species, also called stand release, which are currently crowding and shading oak tree canopies. The species targeted include big leaf maple, Douglas fir, Oregon ash, and black cottonwood. Bitter cherry also competes in some areas, but these species will not be cut or girdled as this species provides important wildlife food in the production of native cherries. The enhancement areas for existing oak habitat are located on the south and west facing slopes.
- Fourth, compensation by the proposed new plantings of 200 Oregon white oak within areas where vegetation is currently dominated by either grass or blackberry. Other native species will also be planted in these zones of approximately 0.46 acres (19,930 sq. ft.). These zones are primarily located south of Burris Creek and north of the site in the remaining wetland buffer. Accompanying shrub species are also proposed in this zone. Douglas fir is proposed for this zone, but will only be planted along the stream or along the wetland buffer to avoid direct competition and crowding of the oak trees. Oak tree spacing will be determined onsite based on areas with relatively low plant coverage and will be prioritized over other mitigation species in order to limit interspecies competition and increase the likelihood of

mitigation success. GPS locations of installed oaks will be gathered and detailed in an as-built report. The five smaller oaks to be moved will be relocated to the north planting area.

The combined mitigation strategy of riparian buffer enhancement and wetland buffer enhancement (2.5 acres total) equate to an approximately 2.2:1 ratio and will adequately compensate for project impacts because the majority of proposed impacts will be temporary. Furthermore, oak impacts are expected to be adequately compensated for with the proposed planting plan given the dispersion of oaks throughout the site will be expanded. The biohabitat corridor will provide conditions ideal for planted oak species. Mitigation ratios for Oregon White Oak can be found in Table 5.

In addition to establishing a native plant community within the proposed biohabitat corridor, the planting area will be cleared of invasive vegetation prior to, and for the duration of implementation of the mitigation plan. The area currently proposed for mitigation contains large amounts of Himalayan blackberry and reed canarygrass. The proposed mitigation plan involves removing non-native species during each monitored year in an effort to increase planted species survival and improve habitat opportunities within the buffers of Wetland A, Wetland E, and Burris Creek. Invasive species such as Himalayan blackberry and reed canarygrass will first be mowed if possible, and then the roots and stems will be removed by hand. This will occur prior to planting in early spring following permit approval. Native blue wild rye seed mix will be applied over bare areas not included within the proposed biohabitat corridor. All native species will be retained within the proposed biohabitat corridor, and all volunteer species established throughout the duration of mitigation and monitoring will be retained. Table 5 summarizes project impacts and proposed mitigation.

Table 5. Summary of Impacts and Proposed Mitigation

Location	Impact Amount	Mitigation Proposed	Mitigation Ratio	Mitigation Activities
Wetland and Stream Buffers	1.125 acres (0.250 acres wetland buffer, 0.875 acres riparian buffer)	6.245 acres (272,010 sq. ft. of wetland and stream buffer enhancement)	2.2:1	<ul style="list-style-type: none"> ▪ Plant 120 native trees ▪ Plant 900 native shrubs ▪ Remove invasive species

Location	Impact Amount	Mitigation Proposed	Mitigation Ratio	Mitigation Activities
Oregon White Oaks	0.340 acres (14,780 sq. ft.)	6.245 acres (272,010 sq. ft. of wetland and stream buffer enhancement)	Canopy Release: 3:1 Oak Planting: 6:1	<ul style="list-style-type: none"> ▪ Plant 200 oaks within proposed biohabitat corridor* ▪ Enhancement of existing oak canopy release over approximately 1.5 acres (65,500 sq. ft.)

* see discussion in the Mitigation Plan section of this report and Table 6 for details on planting specifications

PERFORMANCE STANDARDS

The following mitigation performance standards are required by *Cowlitz County Critical Areas Ordinance Chapter 19.15.17 – Mitigation Requirements (CCCAO 19.15.170)* (2021) to ensure no net loss of the ecosystem functions and values currently provided by the onsite wetlands and Burris Creek will occur:

Performance Standard 1. *Mitigation sites shall be located to preserve or achieve contiguous wildlife habitat corridors to minimize the isolating effects of development on habitat areas, where applicable.*

The proposed biohabitat corridor will be located onsite between the proposed project and nearby wetlands to create habitat connectivity between The proposed biohabitat corridor was located in an effort to ensure continuity of wildlife habitat corridors. (Exhibit A and B).

Performance Standard 2. *Mitigation of alterations to habitat conservation areas shall achieve no net loss of water quality, biological or hydrologic functions.*

The proposed mitigation plan includes enhancing both wetland and riparian buffers to ensure areas affected by the proposed development are effectively compensated for and existing water quality, biological, and hydrologic functions are eventually restored to previous or enhanced conditions. The provided oak mitigation plan is intended to establish a corridor of oak woodland that will eventually surpass the canopy coverage provided by the oaks proposed for removal. The project achieves a no net loss of function.

Performance Standard 3. *The performance standards set forth in this subsection may be modified at the Director’s discretion if the applicant demonstrates that greater habitat functions, on a per function basis, can be obtained as a result of alternative mitigation measures.*

The proposed mitigation plan was designed to adequately compensate for the impacts associated with the proposed development. Alternative mitigation measures will be implemented, if necessary.

Performance Standard 4. *Mitigation and associated buffers will take place on land controlled by the applicant, or the applicant may obtain a written agreement from the affected property owner(s) that acknowledges any increased buffers and their impacts to the property(s). The agreement must be in a form approved by the Director and be recorded with the Auditor's office.*

The proposed mitigation plan will occur solely on land currently owned and maintained by the applicant, 41st Avenue, LLC.

The general performance standards listed in the *CCCAO* are met because the proposed mitigation is intended to compensate for impacts associated with the proposed project.

Planting Plan

Site Specifications

1. Stake or flag the outermost critical area buffers.
2. Stake or flag the biohabitat corridor boundaries.
3. Stake or flag oak driplines to be avoided.
4. Install silt fencing at the edge of disturbance (Exhibit A and B).
5. Remove invasive species.
6. Relocate five smaller oaks.
7. Install native plantings according to plant specifications.
8. Remove silt fencing once bare area has been stabilized.

Planting Specifications

The proposed planting plan consists of installing 120 native tree and 900 native shrub species onsite within the proposed biohabitat corridor to encourage the development of a dense tree and shrub community, as well as varied habitat opportunity. Plants will be spaced as described in the Mitigation Plan portion of this report and as detailed on Table 6 below. Selection rationale for each species detailed in Table 6 is also detailed in the Mitigation Plan portion of this report.

The oak habitat enhancement measures, including retention of two large tandem oaks on the site, attempted relocation of 5 smaller oaks, release of existing oak habitat, and the planting of 200 Oregon white oak plantings will adequately compensate for impacts to Oregon white oaks. The established biohabitat corridor will be protected by a conservation covenant and over time will provide habitat opportunities equal to or greater than that currently provided by the area wherein oak impacts are proposed.

Mitigation plantings will be installed in the late Fall to early spring when the site conditions are wettest and the plants are dormant. Additionally, plants will be installed in mono-specific groups to better mimic the natural environment and enhance plant survival. Gallon stock was selected for tree and shrub installations given the quantity necessary for enhancement. The selected species were observed elsewhere onsite in apparently healthy condition, therefore, environmental

conditions onsite appear sufficient for the selected species thus negating the need for larger potted stock. Table 6 on the following page summarizes the plant species, spacing, and quantities for the biohabitat corridor.

Table 6. Plant Specifications

Common Name	Scientific Name	Size	Spacing	Amount
Biohabitat Corridor				
Trees				
Red alder	<i>Alnus rubra</i>	Gallon	10-foot on-center	60
Douglas-fir	<i>Pseudotsuga menziesii</i>		10-foot on-center	60
Oregon white oak	<i>Quercus garryana</i>		15-foot on-center	200
Total				320
Shrubs				
Salmonberry	<i>Rubus spectabilis</i>	Gallon	6-foot on-center	300
Thimbleberry	<i>Rubus parviflorus</i>			300
Vine maple	<i>Acer circinatum</i>			300
Total				900

Plant Material Specifications

- 1-gallon potted plants will be purchased from a native plant nursery.
- 1-gallon potted plants will be a minimum size of 18- to 36-inches tall.
- 1-gallon potted stock will be kept cool and moist prior to being planted.
- 1-gallon 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 environmental consultant will be responsible for inspecting potted plant stock prior to and during planting, culling unacceptable plant materials.

Planting Implementation

- Plant the specified trees and shrubs in the Fall (October-November) or early spring (March-April) at the intervals listed in Table 6. Space the plants somewhat irregularly and in groups to create heterogeneity in the density and appearance of the biohabitat corridor. Plant the 1-gallon potted stock with a tree shovel or comparable tool.
- Removed the plant from the pot and work the roots free from majority of potted soil.
- Place the potted plant species in the planting holes so that their roots are able to extend down entirely and do not bend upward or circle inside the hole (avoid “J” or “U” roots).

4. Position the root crowns so that they are at or slightly above the level of the surrounding soil.
5. Compact the soil around the planted species to eliminate air spaces.
6. Irrigate all newly installed plants as site and weather conditions warrant.

MONITORING PLAN

The following are the goals, objectives, and performance standards for establishment of a biohabitat corridor between the proposed development and the wetlands and stream adjacent to the site:

Goal 1: Achieve no net loss of wetland and riparian buffer functionality via establishing and protecting a biohabitat corridor between the proposed development and adjacent critical areas.

Objective 1: Protect critical areas and associated buffers from further damage via installing wetland and riparian buffer boundary signs at 100-foot intervals along wetland and stream buffer boundaries stating: "Wetland or Habitat Buffer – Please Retain in a Natural State WMC 15.08 Critical Areas."

Performance Standard 1. Document the locations of the installed signs on an as-built report. The as-built report will be submitted to the regulatory agencies 30 days after sign installation and mitigation plantings are complete.

Objective 2: Compensate for 0.251 total acres (10,930 sq. ft.) of wetland buffer impacts and 0.875 acres (38,090 sq. ft.) of riparian buffer impacts by establishing an approximately 6.25-acre (272,010 sq. ft.) habitat corridor between the proposed development and adjacent wetland and stream buffers.

Performance Standard 2a: Planted tree and shrub species in the biohabitat corridor will achieve at least 90 percent survival one year after the site is planted and 80 percent survival two years after the site is planted. If dead plantings are replaced, the performance standard will be met.

Performance Standard 2b: By Year 3, the tree and shrub aerial cover will be a minimum of 20 percent cover.

Performance Standard 2c: By Year 5, the tree and shrub aerial cover will be a minimum of 30 percent cover. Dead plants will be replaced if this standard is not met.

Performance Standard 2d: By Year 7, the tree and shrub aerial cover will be a minimum of 35 percent cover. Dead plants will be replaced if this standard is not met.

Performance Standard 2e: By Year 10, the tree and shrub aerial cover will be a minimum of 45 percent cover. Dead plants will be replaced if this standard is not met.

Performance Standard 2f. In all years, non-native invasive plant species excluding reed canary grass will not exceed 10 percent cover within both enhancement (riparian habitat area and wetlands) and restoration areas.

Performance Standard 2g: Cover of reed canary grass will not collectively exceed 10% at Year 1, 25% at Year 3, and 30% in Years 5, 7, and 10.

Performance Standard 2h. Document the locations of planted tree and shrub species on an as-built report. The as-built report will be submitted to the regulatory agencies 30 days after plant installations are complete.

Goal 2: Compensate for the removal of 0.341 acres (14,780 sq. ft.) of Oregon white oak tree canopy coverage.

Objective 1: Implement canopy release of existing Oregon white oak by girdling or cutting down selected competing tree species such as big leaf maple, Douglas fir, Oregon ash, and black cottonwood. Trees selected for cutting will be limited to only those which have a direct abutting presence to the oak trees and appear to be crowding their canopy.

Objective 2: Plant 200, 1-gallon Oregon white oak trees throughout the proposed biohabitat corridor onsite.

Performance Standard 1: Document the locations of planted oak trees in the as-built report. The as-built report will be submitted to the regulatory agencies 30 days after plant installation is complete.

Performance Standard 2: Survival of planted oak trees will be 100 percent throughout the 10-year monitoring period. Dead trees will be replaced to maintain this performance standard.

The proposed biohabitat corridor will be monitored for a 10-year period following project construction in Years 1, 2, 3, 5, 7, and 10. Monitoring reports will be submitted to the City of Woodland by December 31 of each monitored year. The goal of monitoring is to determine if the previously stated performance standards are being met. The biohabitat corridor will be monitored once during the growing season, preferably during the same two-week period each year to better compare the data.

Each plant installed will be flagged at the time of installation. At this time, permanent monitoring plots and photo stations will also be established to document the establishment of planted species over time. During monitoring events, planted species will be counted and their survival rate determined. Observations about their over overall health and size will also be noted. Cover of invasive species, namely Himalayan blackberry and reed canarygrass, present within the proposed biohabitat corridor will also be documented for maintenance purposes and photographs will be taken at the established monitoring plot photo stations. Table 7 outlines performance standards for vegetation.

Table 7. Performance Standards for Vegetation

Vegetative Layer	Percent Cover ¹ and Survival ²					
	Year 1	Year 2	Year 3	Year 5	Year 7	Year 10
Tree & Shrub Survival ³	≥90%	≥80%	--	--		
Tree & Shrub Cover ³	--	--	≥20%	≥30%	≥35%	≥45%
Non-native/Invasive Species Cover ⁴	<10%	<10%	<10%	<10%	<10%	<10%
Reed Canary Grass Cover	10%	--	25%	30%	30%	30%
Oregon White Oak Survival	100%	100%	100%	100%	100%	100%

¹Percent cover includes native, naturally colonizing species.

²Survival estimates are anticipated to be non-applicable after 3 years. After the canopy begins to close, it is expected that the natural progression of plant communities will create competition for light, water, and nutrients, eliminating some individual plants.

³Oregon White Oaks not included, separate performance standards are available for Oregon white oaks.

⁴Excluding reed canary grass, see performance standard 2g.

Monitoring Report Contents

The annual monitoring reports will contain at least the following:

- Location map and as-built drawing
- Historic description of project, including dates of plant installation, current year of monitoring, and restatement of mitigation goals, objectives, and performance standards
- Description of monitoring methods
- Documentation of plant survival and overall development of the plant communities
- Assessment of non-native, invasive plant species and recommendations for management
- Observations of wildlife, including invertebrates, amphibians, reptiles, fish, birds, and mammals
- Photo documentation from permanent monitoring plot photo points
- Summary of maintenance and contingency measures proposed for the next season and completed for the past season

SITE PROTECTION

The proposed biohabitat corridor will be owned, maintained, and managed by the applicant, unless otherwise assigned and approved by the applicable regulatory agencies. They will be responsible for maintenance and monitoring of the biohabitat corridor for the 10-year period. During construction, the wetland and stream buffers and oak driplines will be demarcated using orange construction fencing under the supervision of a biologist. Wetland and stream buffer boundaries will be demarcated with signage installed at 100-foot intervals affixed to metal t-post and will read: *“Wetland or Habitat Buffer – Please Retain in a Natural State WMC 15.08 Critical Areas.”*

MAINTENANCE AND CONTINGENCY PLANS

Maintenance Plan

Maintenance within the biohabitat corridor will involve removing invasive plant species, watering, and re-installing failed plants as necessary. The maintenance will include the following:

1. The removal and control of non-native vegetation around all newly installed plants a minimum of three times during the growing season for the first three years or as site conditions warrant. During the entire monitoring period Himalayan blackberry and reed canarygrass will be removed and suppressed as often as necessary to ensure performance standards are met.
2. Irrigate planted species as necessary during the dry season, approximately July 1 through October 15. A temporary irrigation system is the best way to ensure plant survival. ELS recommends watering at least every two weeks during the summer to prevent desiccation.

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

1. Identify the cause(s) of the failure or potential failure.
2. Identify the extent of the failure or potential failure.
3. Implement corrective actions by replanting.
4. Document the activities and include this data in the annual monitoring and maintenance reports.
5. Consult with the appropriate agencies in the event that a routine corrective action will not correct the problem.
6. Evaluate recommendations from resource agency staff and implement recommendations in a timely manner.

Contingency Plan

If the performance standards are not met at any point during monitoring, a contingency plan will be developed and implemented. All contingency actions will be undertaken only after consulting and gaining approval from The City of Woodland. This project 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.

LIMITATIONS

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

REFERENCES

- Cowardin, L.M., C. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-78/31. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington D.C.
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FIGURES & PHOTOPLATES

WASHINGTON

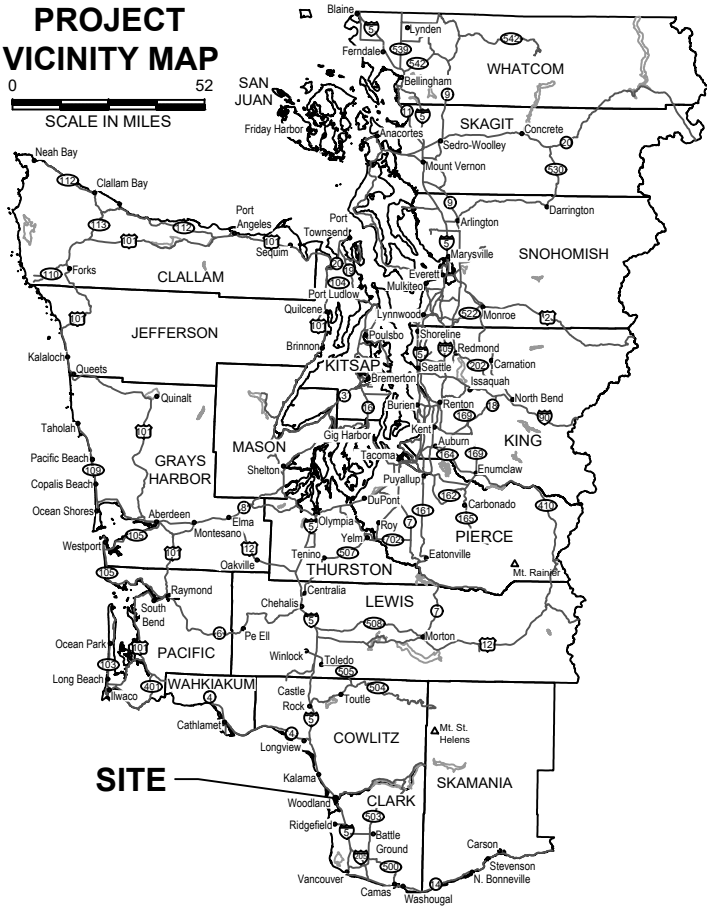


Latitude: 45.9298°
Longitude: -122.7493°

LOCATION MAP

R 1 W		6		1
T 5 N				
	31			36

PROJECT VICINITY MAP



SITE

NOTE:

Quadrangle topographic map from USGS.

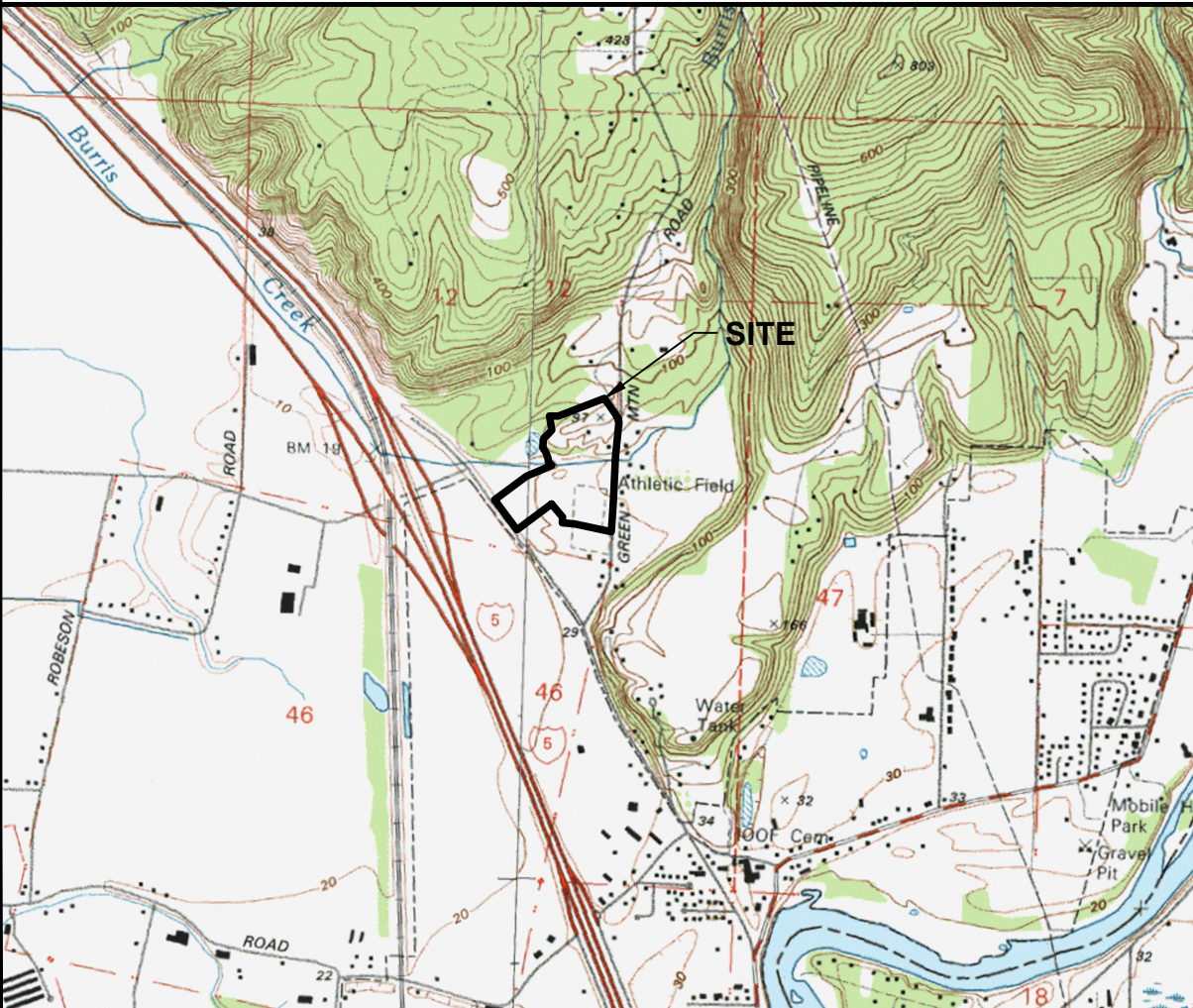
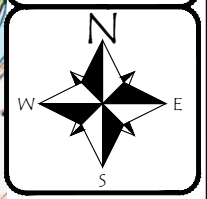
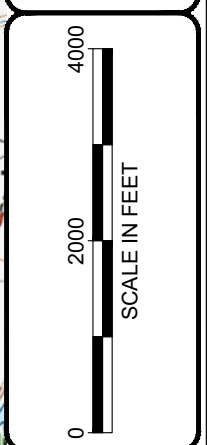


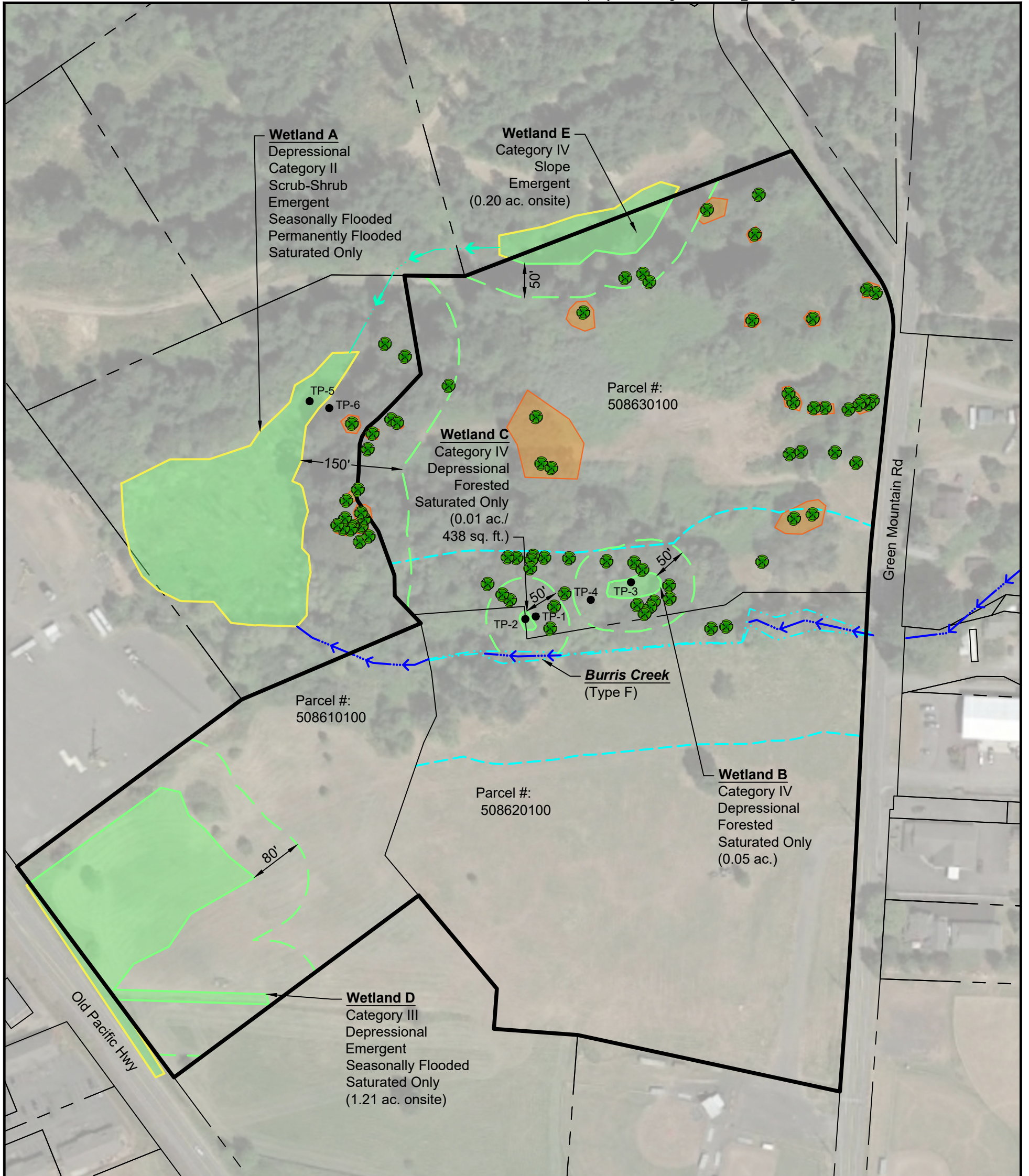
Figure 1
VICINITY MAP
Oak Village Apartments
41st Avenue, LLC.
Woodland, Cowlitz County, WA
Section 12, Township 5N, Range 1W, W.M.

DATE: 6/30/21
DWN: EF
REQ. BY: JM
PRJ. MGR: JM
CHK: JM
PROJECT NO:
3276.01

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
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Ecological Land Services



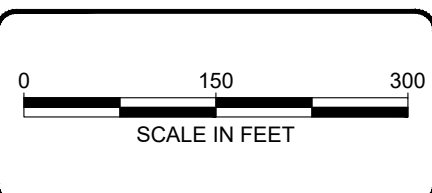
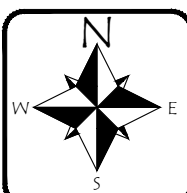


LEGEND:

- Site Boundary
- Parcel Boundary
- Wetland Boundary
- Offsite Wetland Boundary
- Wetland Buffer
- Ditch with Flow Direction
- Stream with Flow Direction
- Stream Buffer
- OHWM
- TP-1 Test Plot Location
- Oak
- Oak Canopy Coverage (0.44 ac./19,210 sf. approximate based on GPS) See Note 4

NOTE(S):

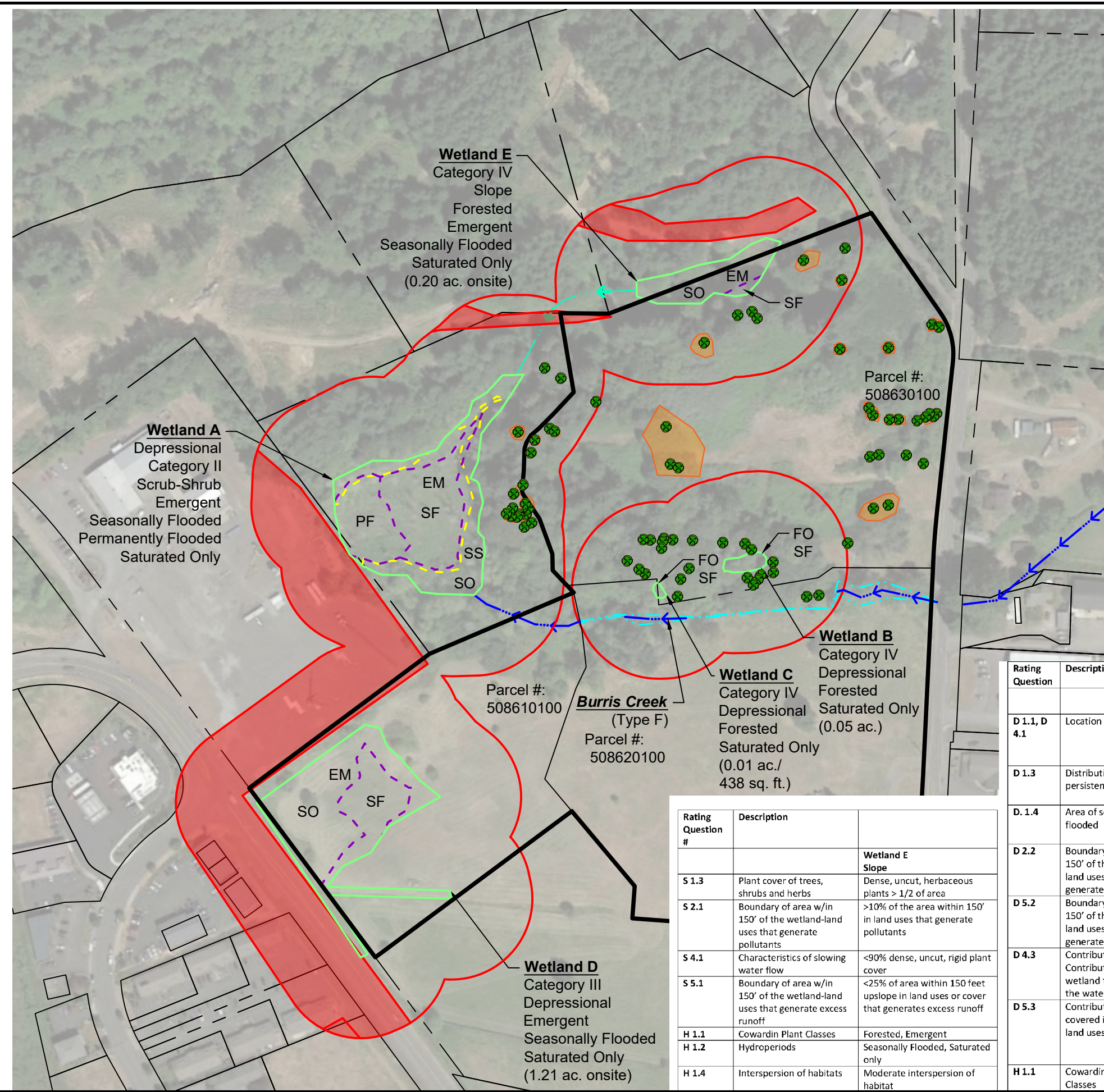
1. Aerial from Google Earth™.
2. Wetland flags and OHWM flags were surveyed by AKS Engineering.
3. Test plots and oaks were mapped by an ELS Biologist using a hand-held GPS unit with submeter accuracy.
4. While oak canopy areas were not quantified in wetland or stream buffer areas, trees with similar ranges of size and age do occur there although tree canopies are constrained or reduced due to competition from other tree species.



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DATE: 6/30/21
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Figure 2
EXISTING CONDITIONS
Oak Village Apartments
41st Avenue, LLC.
Woodland, Cowlitz County, WA
Section 12, Township 5N, Range 1W, W.M.



LEGEND:

- Site Boundary
- Wetland Unit Boundary
- Ditch with Flow Direction
- Stream with Flow Direction
- OHWM
- Oak
- Oak Canopy Coverage (0.44 ac./19,210 sf. approximate based on GPS) See Note 4
- - - Vegetation Class Division
- - - Hydroperiod Division
- 150' Wetland Offset
- Pollutants/Runoff: Wetland A - 22.6% Wetland B - 0.0% Wetland C - 0.0% Wetland D - 47.0% Wetland E - 11.1%

Cowardin Classes:
 EM Emergent
 SS Scrub/shrub
 FO Forested

Hydroperiods:
 PF Permanently flooded or inundated
 SF Seasonally flooded or inundated
 SO Saturated only

- NOTE(S):**
- Aerial from Google Earth™.
 - Wetland flags and OHWM flags were surveyed by AKS Engineering.
 - Test plots and oaks were mapped by an ELS Biologist using a hand-held GPS unit with submeter accuracy.
 - While oak canopy areas were not quantified in wetland or stream buffer areas, trees with similar ranges of size and age do occur there although tree canopies are constrained or reduced due to competition from other tree species.

Rating Question #	Description	
		Wetland E Slope
S 1.3	Plant cover of trees, shrubs and herbs	Dense, uncut, herbaceous plants > 1/2 of area
S 2.1	Boundary of area w/in 150' of the wetland-land uses that generate pollutants	>10% of the area within 150' in land uses that generate pollutants
S 4.1	Characteristics of slowing water flow	<90% dense, uncut, rigid plant cover
S 5.1	Boundary of area w/in 150' of the wetland-land uses that generate excess runoff	<25% of area within 150 feet upslope in land uses or cover that generates excess runoff
H 1.1	Cowardin Plant Classes	Forested, Emergent
H 1.2	Hydroperiods	Seasonally Flooded, Saturated only
H 1.4	Interspersion of habitats	Moderate interspersion of habitat

Rating Question	Description	Wetland A (Offsite)	Wetland B (Onsite)	Wetland C (Onsite)	Wetland D (Onsite)
D 1.1, D 4.1	Location of Outlet	Wetland is a depression with an intermittently flowing outlet	Wetland is a depression with no outlet	Wetland is a depression with no outlet	Wetland is a depression with an intermittently flowing outlet
D 1.3	Distribution of persistent plants	Wetland has persistent plants >95% of area	Wetland has persistent plants >1/2 of the area	Wetland has persistent plants >1/2 of the area	Wetland has persistent plants >1/2 of the area
D 1.4	Area of seasonally flooded	Area seasonally ponded >1/4 area of the wetland	Area seasonally ponded >1/2 area of the wetland	Area seasonally ponded >1/2 area of the wetland	Area seasonally ponded >1/2 area of the wetland
D 2.2	Boundary of area w/in 150' of the wetland in land uses that generate pollutants	>10% area within 150' in land use that generate pollutants	<10% area within 150' in land use that generate pollutants	<10% area within 150' in land use that generate pollutants	>10% area within 150' in land use that generate pollutants
D 5.2	Boundary of area w/in 150' of the wetland in land uses that generate excess runoff	>10% area within 150' in land use that generate excess runoff	<10% area within 150' in land use that generate excess runoff	<10% area within 150' in land use that generate excess runoff	>10% area within 150' in land use that generate excess runoff
D 4.3	Contributing Basin-Contribution of wetland to storage in the watershed	The area of the basin is 10 to 100 times the area of the unit	The area of the basin is 10 to 100 times the area of the unit	The area of the basin is 10 to 100 times the area of the unit	The area of the basin is 10 to 100 times the area of the unit
D 5.3	Contributing Basin covered in intensive land uses	>25% of the contributing basin is covered with intensive land uses	<25% of the contributing basin is covered with intensive land uses	<25% of the contributing basin is covered with intensive land uses	<25% of the contributing basin is covered with intensive land uses
H 1.1	Cowardin Plant Classes	Emergent, Scrub-Shrub	Forested	Forested	Emergent

Figure 3
WETLAND RATING FORM - 150' OFFSET
 Oak Village Apartments
 41st Avenue, LLC.
 Woodland, Cowitiz County, WA
 Section 12, Township 5N, Range 1W, W.M.

DATE: 6/30/21
 DWN: EF
 REQ. BY: JM
 PRJ. MGR: JM
 CHK: JM
 PROJECT NO: 3276.01

1157 3rd Ave., Suite 220A
 Longview, WA 98632
 Phone: (360) 578-1371
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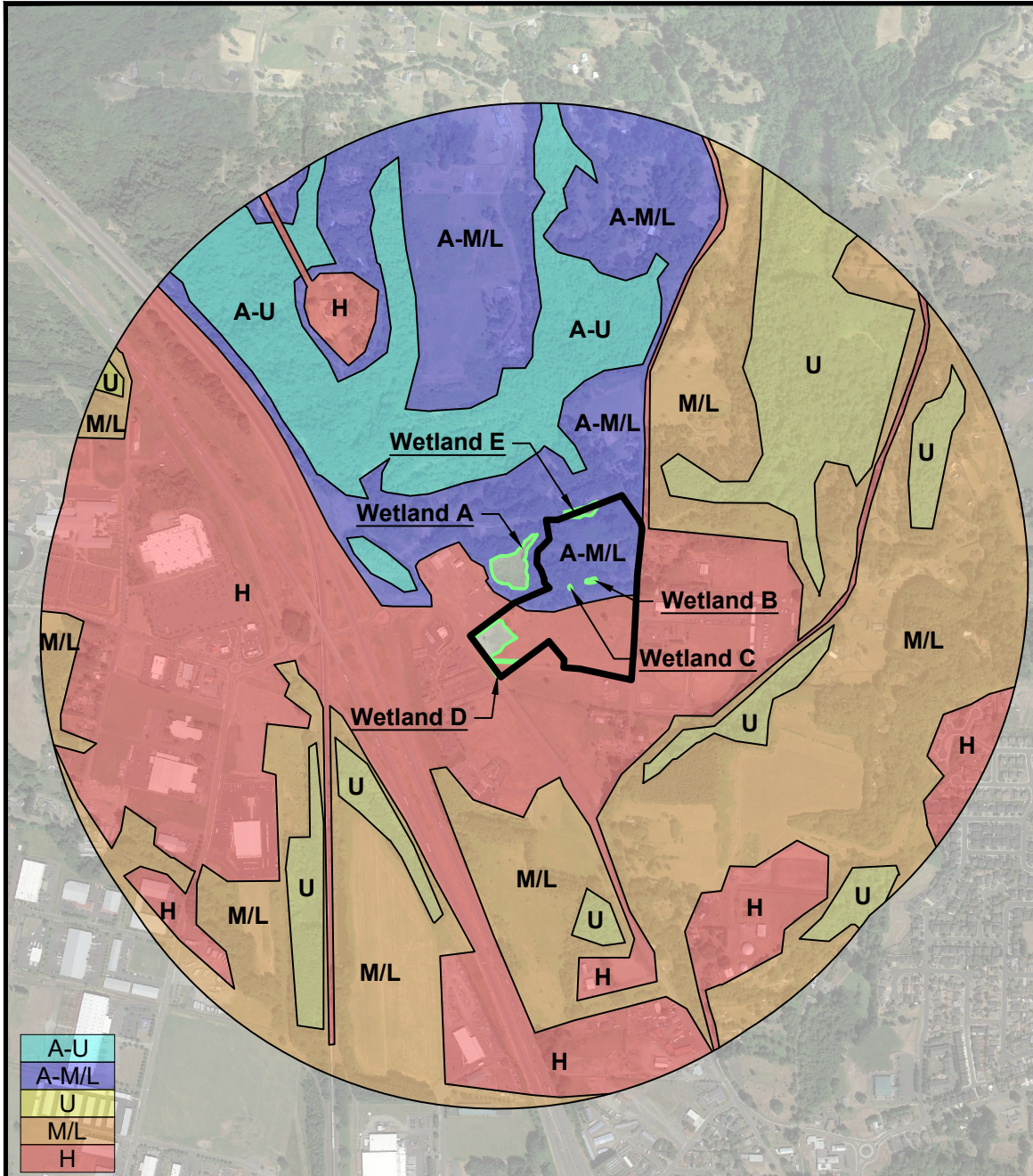
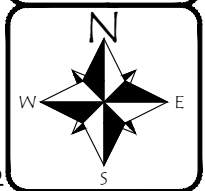
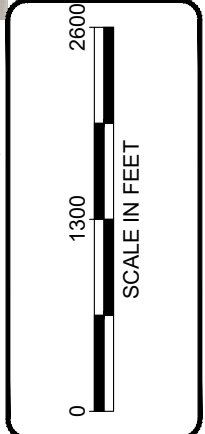
Ecological Land Services

0 200 400
 SCALE IN FEET

Figure 4
WETLAND RATING FORM - 1KM OFFSET
 Oak Village Apartments
 41st Avenue, LLC.
 Woodland, Cowitz County, WA
 Section 12, Township 5N, Range 1W, W.M.

DATE: 6/30/21
 DWN: EF
 REQ. BY: JM
 PRJ. MGR: JM
 CHK: JM
 PROJECT NO:
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A-U
A-M/L
U
M/L
H

NOTE: Aerial photo provided by Google Earth™.

LEGEND:

Wetland Unit Boundary

H2.1 Accessible Habitat

A-U	A-U (9.1%)
A-M/L	A-M/L (15.0%)

H2.2 Undisturbed Habitat

U	U (8.6%)
M/L	M/L (32.1%)

H2.3 Land Use Intensity

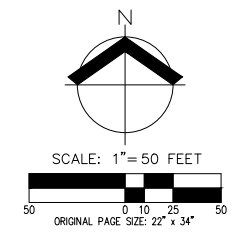
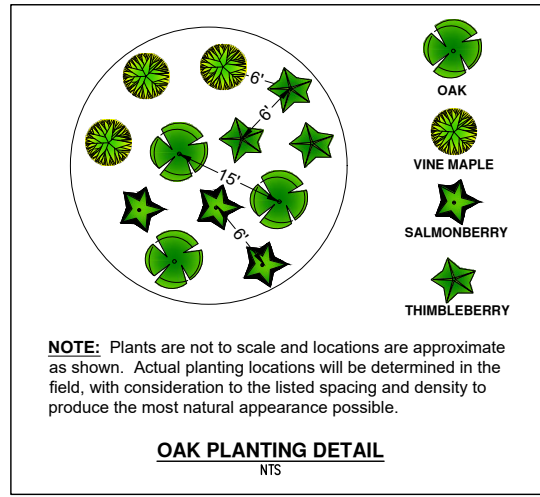
H	H (35.2%)
---	-----------

H 2.1. Accessible Habitat Equation

$$9.1\% \text{ A-U habitat} + [(15.0\% \text{ A-M/L intensity land uses})/2] \text{ 7.5\%} = \text{16.6\%}$$

H 2.2. Total Undisturbed Habitat Equation

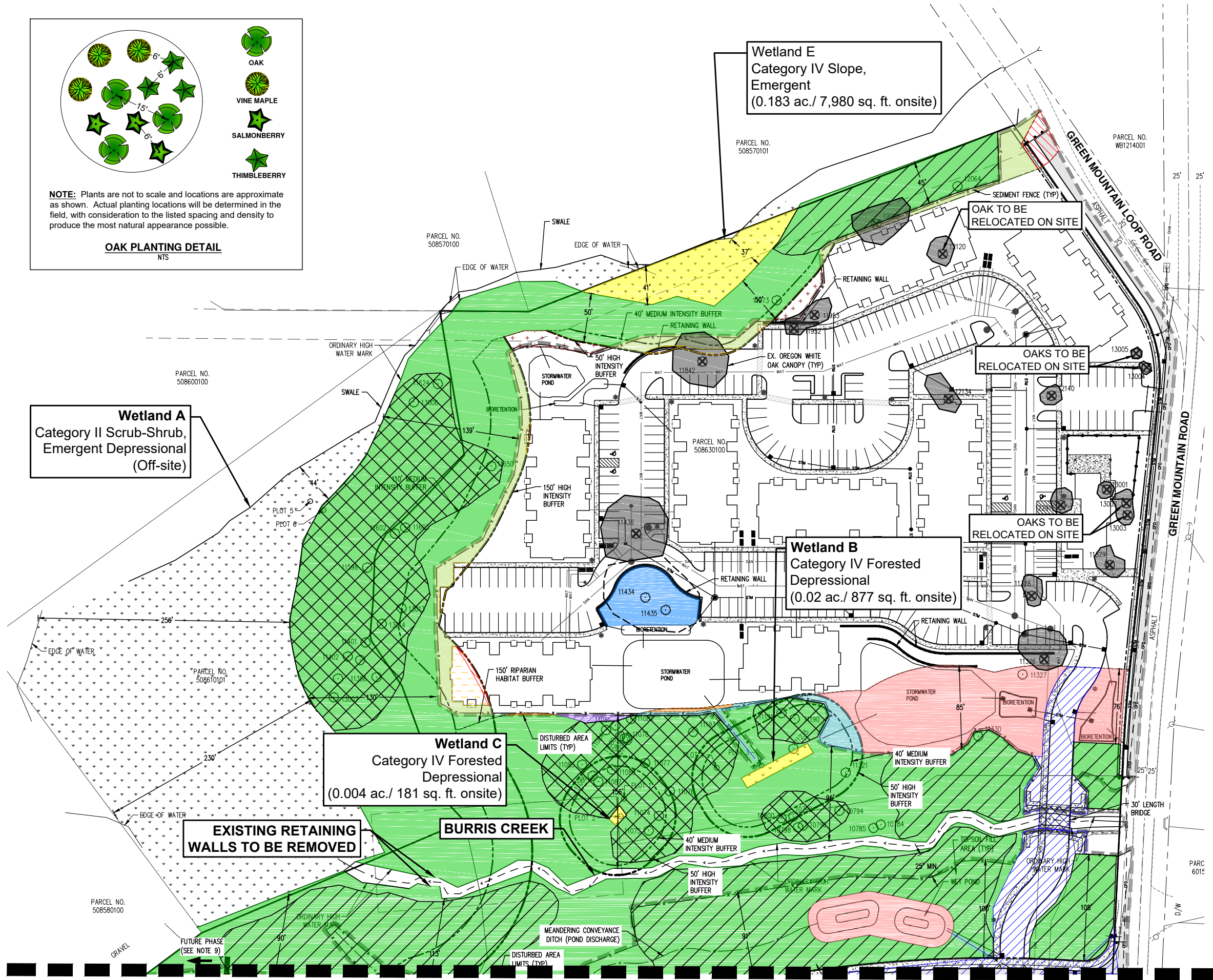
$$9.1\% \text{ A-U} + 8.6\% \text{ U habitat} + [(15.0\% \text{ A-M/L} + 32.1\% \text{ M/L land uses})/2] \text{ 23.6\%} = \text{41.3\%}$$



- NOTES**
1. ELS CONDUCTED A SITE VISIT ON 9/11/2020 TO INVENTORY OAKS, DELINEATE WETLAND BOUNDARIES, AND MAP THE ORDINARY HIGH-WATER MARK OF BURRIS CREEK.
 2. WDFW CONDUCTED A SITE VISIT ON 1/26/2021 TO CONFIRM WETLAND AND STREAM OHWM BOUNDARIES PREVIOUSLY MAPPED BY ELS.
 3. ACTUAL PLANTING LOCATIONS WITHIN THE STREAM/WETLAND BUFFER ENHANCEMENT AREAS DETERMINED IN THE FIELD BASED ON AREAS WITH RELATIVELY LOW VEGETATION COVERAGE AND WILL BE DETAILED IN AN AS-BUILT REPORT.
 4. STREAM BUFFER DETERMINED PER WCAO TABLE 15.08.730-1
 5. WETLAND BUFFER DETERMINED PER WCAO TABLE 15.08.400-1
 6. BUFFER AVERAGING LOCATIONS DETERMINED PER WCAO 15.08.400(F)
 7. NOT ALL TREES WERE SURVEYED. ONLY OREGON WHITE OAKS ARE SHOWN.
 8. CRITICAL AREAS INFORMATION PROVIDED BY ELS, INC.
 9. WATER AND SANITARY SEWER INSTALLED WITH PHASE 1. STORM, GRADING, AND HARD SURFACE IMPROVEMENTS TO BE INSTALLED WITH FUTURE PHASE.

LEGEND

RETAINED OAKS (4,430 SF)	
REMOVED OAK CANOPY (15,500 SF)	
REMOVED OAKS	
ON-SITE WETLAND (75,150 SF)	
TEMPORARY WETLAND BUFFER IMPACTS (9,560 SF)	
PERMANENT WETLAND BUFFER IMPACTS (1,370 SF)	
WETLAND BUFFER AVG. IN (2,115 SF)	
WETLAND BUFFER AVG. OUT (2,115 SF)	
TEMPORARY RIPARIAN BUFFER IMPACTS (2,610 SF)	
PERMANENT RIPARIAN BUFFER IMPACTS (35,480 SF)	
RIPARIAN BUFFER AVG. IN (345 SF)	
RIPARIAN BUFFER AVG. OUT (345 SF)	
STORMWATER MANAGEMENT (25,380 SF)	
WETLAND/STREAM BUFFER ENHANCEMENT (109,190 SF)	
OAK ENHANCEMENT WITH RELEASE OF CANOPY (65,500 SF)	
OAK PLANTING AREAS CURRENTLY GRASS OR SHRUB DOMINATED (97,320 SF)	



AKS
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VANCOUVER, WA 98682
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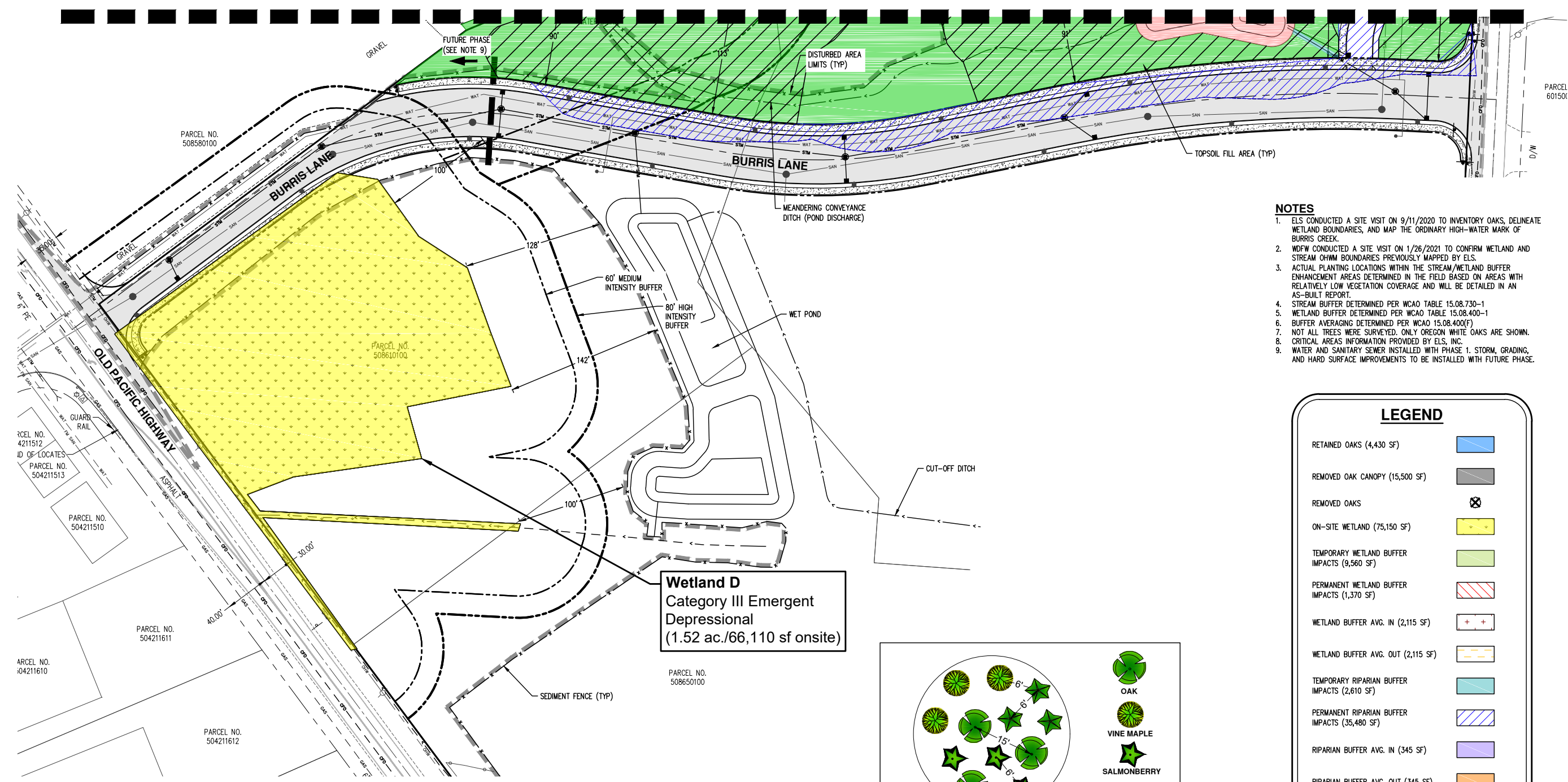
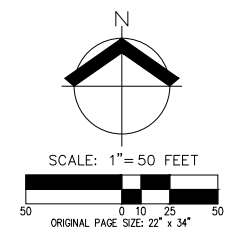
Ecological Land Services

PROPOSED CONDITIONS SITE MAP
OAK VILLAGE APARTMENTS
41ST AVENUE LLC
WOODLAND, WASHINGTON

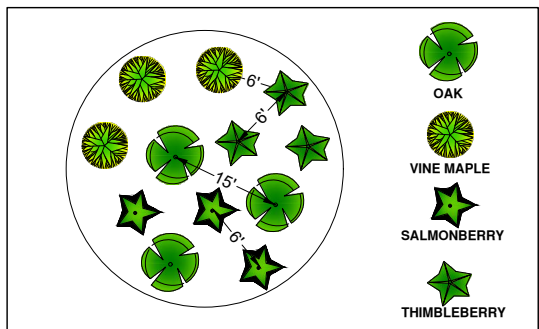
JOB NUMBER:	8344
DATE:	06/30/2021
DESIGNED BY:	
DRAWN BY:	TJW
CHECKED BY:	BDH

EX-A

SEE EXHIBIT A



Wetland D
 Category III Emergent
 Depressional
 (1.52 ac./66,110 sf onsite)



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.

OAK PLANTING DETAIL
 NTS

- NOTES**
1. ELS CONDUCTED A SITE VISIT ON 9/11/2020 TO INVENTORY OAKS, DELINEATE WETLAND BOUNDARIES, AND MAP THE ORDINARY HIGH-WATER MARK OF BURRIS CREEK.
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LEGEND	
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OAK ENHANCEMENT WITH RELEASE OF CANOPY (65,500 SF)	
OAK PLANTING AREAS CURRENTLY GRASS OR SHRUB DOMINATED (97,320 SF)	



Photo 1 taken in the central portion of the site facing north and depicts the predominant upland environment observed throughout most of the site.



Photo 2 taken in the central portion of the site and depicts a portion of oaks proposed for preservation within the site.



Photo 3 taken in the western portion of the site facing east.



Photo 4 was taken in the northern portion of Wetland A facing northeast.



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DATE:
6/21/2021
DWN: JM
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PROJ.#: 3276.01

Photoplate 1
Project Name: Oak Village
Apartments
Client: 41st Avenue, LLC
Woodland, Washington



Photo 4 taken in the southern portion of the site facing north towards Burriss Creek, the Type F stream which flows east to west through the central portion of the site.



Photo 2 taken in the central portion of the site facing east towards Wetland B.



Photo 3 taken in central portion of the site facing east towards Wetland C.



Photo 4 taken in the northern portion of the site facing north towards Wetland E.



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DATE: 6/21/2021
DWN: JM
PRJ. JM
PROJ.#: 3276.01

Photoplate 2
Project Name: Oak Village
Apartments
Client: 41st Avenue, LLC
Woodland, Washington

APPENDIX A: WETLAND DETERMINATION DATA FORMS

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

Project/Site: 41st Avenue Apartments City/County: Woodland/Cowlitz Sampling Date: 2-2-21
 Applicant/Owner: 41st Avenue, LLC State: WA Sampling Point: TP1
 Investigator(s): McManus, Jacob Section, Township, Range: S12, T 15N, R 1W
 Landform (hillslope, terrace, etc.): Hillslopes Local relief: (concave, convex, none): none Slope (%): 15-30%
 Subregion (LRR): A Lat: 45.9285174° Long: -122.7496131° Datum: NAD83
 Soil Map Unit Name: (210) Stella silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain 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 checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: TP-1 was located in the central portion of Cowlitz County Tax Parcel 508630100, East of Wetland C. Vegetation within this test plot consisted of tree, scrub-shrub, and herbaceous species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, the wetland hydrology indicator Saturation (A3) was observed. However, there was no evidence of hydric soil indicators within this test plot, therefore, it is not considered to be within a wetland area.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. <u>Alnus rubra</u>	15%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>6</u> (A)
2. _____	%			Total Number of Dominant Species Across All Strata:	<u>6</u> (B)
3. _____	%				
4. _____	%				
50% = <u>8</u> 20% = <u>3</u>	15%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC	<u>100</u> (A/B)
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet	
1. <u>Rubus armeniacus</u>	30%	yes	FAC	Total % Cover of:	Multiply by:
2. <u>Spiraea douglasii</u>	20%	yes	FACW	OBL species _____	x 1= _____
3. <u>Rubus spectabilis</u>	10%	yes	FAC	FACW species _____	x 2= _____
4. <u>Rubus laciniatus</u>	5%	no	FACU	FAC species _____	x 3= _____
5. _____	%			FACU species _____	x 4= _____
50% = <u>23</u> 20% = <u>9</u>	45%	=Total Cover		UPL species _____	x 5= _____
				Column Totals:	<u>(A)</u> _____ (B)
				Prevalence Index = B/A= _____	
Herb Stratum (Plot size: <u>5</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
1. <u>Phalaris arundinacea</u>	40%	yes	FACW	<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 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
2. <u>Agrostis capillaris</u>	10%	yes	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
3. _____	%				
4. _____	%				
5. _____	%				
6. _____	%				
7. _____	%				
8. _____	%				
9. _____	%				
10. _____	%				
11. _____	%				
50% = <u>25</u> 20% = <u>10</u>	50%	=Total Cover			
Woody Vine Stratum (Plot size: <u>15</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?	
1. _____	%			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____	%				
50% = _____ 20% = _____	%	=Total Cover			
% Bare Ground in Herb Stratum <u>50%</u>					

Remarks: The hydrophytic vegetation criterion has been met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

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 ¹	Loc ²		
0-9	10YR 3/2	100%		%			silt loam	
9-16	10YR 3/2	98%	10YR 4/6	2%	C	M	silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Minerals (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (**except MLRA 1**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: No evidence of hydric soil indicators were observed within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (**LRR A**)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (Inches): _____
 Water Table Present? Yes No Depth (Inches): _____
 Saturation Present? Yes No Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks: Saturation was present due to the proximity of TP1 to Wetland C. No hydric soils were present and TP-1 lacked algal matting.

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

Project/Site: 41st Avenue Apartments City/County: Woodland/Cowlitz Sampling Date: 2-2-21
 Applicant/Owner: 41st Avenue, LLC State: WA Sampling Point: TP2
 Investigator(s): McManus, Jacob Section, Township, Range: S12, T 15N, R 1W
 Landform (hillslope, terrace, etc.): Hillslopes Local relief: (concave, convex, none): concave Slope (%): 15-30%
 Subregion (LRR): A Lat: 45.9285157° Long: -122.7496549° Datum: NAD83
 Soil Map Unit Name: (210) Stella silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain 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 checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: TP-2 was located in the central portion of Cowlitz County Tax Parcel 508630100, within the central portion of Wetland C. Vegetation within this test plot consisted of tree, scrub-shrub, and emergent species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, the hydric soil indicator Redox Dark Surface (F6) was observed, along with the primary wetland hydrology indicators Surface Water (A1) and Algal Mat or Crust (B4). Given this test plot satisfied all three wetland indicator criteria, it is considered to be within a wetland area.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u> ft radius)				Dominance Test Worksheet
1. <u><i>Alnus rubra</i></u>	10%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	%			Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	%			
4. _____	%			Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
50% = <u>5</u> 20% = <u>2</u>	10%	=Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet
1. <u><i>Spiraea douglasii</i></u>	35%	yes	FACW	Total % Cover of: _____ Multiply by: _____
2. _____	%			OBL species _____ x 1= _____
3. _____	%			FACW species _____ x 2= _____
4. _____	%			FAC species _____ x 3= _____
5. _____	%			FACU species _____ x 4= _____
50% = <u>18</u> 20% = <u>7</u>	35%	=Total Cover		UPL species _____ x 5= _____
Herb Stratum (Plot size: <u>5</u> ft radius)				Column Totals: _____ (A) _____ (B)
1. <u><i>Phalaris arundinacea</i></u>	40%	yes	FACW	Prevalence Index = B/A= _____
2. <u><i>Agrostis capillaris</i></u>	15%	yes	FAC	Hydrophytic Vegetation Indicators: <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 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>28</u> 20% = <u>11</u>	55%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	%			
2. _____	%			
50% = _____ 20% = _____	%	=Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
% Bare Ground in Herb Stratum <u>45%</u>				

Remarks: The hydrophytic vegetation criterion has been met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: IP2

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 ¹	Loc ²		
0-16	10YR 3/1	95%	10YR 4/6	5%	C	M	silty clay loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Minerals (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Requirements for the hydric soil indicator Redox Dark Surface (F6) have been met given the presence of a soil layer with a matrix value of 3 or less and a chroma of 2 or less with 2 percent or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (Inches): 1-2
 Water Table Present? Yes No Depth (Inches): 0
 Saturation Present? Yes No Depth (Inches): 0
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks: The primary wetland hydrology indicators Surface Water (A1) and Algal Mat or Crust (B4) were observed within this test plot.

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

Project/Site: 41st Avenue Apartments City/County: Woodland/Cowlitz Sampling Date: 2-2-21
 Applicant/Owner: 41st Avenue, LLC State: WA Sampling Point: TP3
 Investigator(s): McManus, Jacob Section, Township, Range: S12, T 15N, R 1W
 Landform (hillslope, terrace, etc.): Hillslopes Local relief: (concave, convex, none): concave Slope (%): 15-30%
 Subregion (LRR): A Lat: 45.928677° Long: -122.749048° Datum: NAD83
 Soil Map Unit Name: (210) Stella silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain 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 checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: TP-3 was located in the central portion of Cowlitz County Tax Parcel 508630100, within the central portion of Wetland B. Vegetation within this test plot consisted of tree, scrub-shrub, and emergent species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, the hydric soil indicator Histosol (A1) was observed, along with the primary wetland hydrology indicators Saturation (A3), Algal Mat or Crust (B4), and a Hydrogen Sulfide Odor (C1). Given this test plot satisfied all three wetland indicator criteria, it is considered to be within a wetland area.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
Tree Stratum (Plot size: <u>30</u> ft radius)				
1. <u>Thuja plicata</u>	25%	yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Alnus rubra</u>	5%	no	FAC	
3. _____	%			
4. _____	%			
50% = <u>15</u> 20% = <u>6</u>	30%	=Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u>Physocarpus capitatus</u>	10%	yes	FACW	Prevalence Index worksheet Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>5</u> 20% = <u>2</u>	10%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Lysichiton americanus</u>	20%	yes	OBL	Hydrophytic Vegetation Indicators: <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 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Urtica dioica</u>	15%	yes	FAC	
3. <u>Oenanthe sarmentosa</u>	10%	yes	OBL	
4. <u>Hydrophyllum tenuipes</u>	5%	no	FAC	
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>25</u> 20% = <u>10</u>	50%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>50%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The hydrophytic vegetation criterion has been met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

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 ¹	Loc ²		
0-16	10YR 2/1	100%		%			muck	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Minerals (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (**except MLRA 1**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Soils within this test plot consisted entirely of decaying organic material (muck), thus satisfying requirements for the hydric soil indicator Histosol (A1).

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (Inches): _____
 Water Table Present? Yes No Depth (Inches): _____
 Saturation Present? Yes No Depth (Inches): 0
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks: The primary wetland hydrology indicators Saturation (A3), Algal Mat or Crust (B4), and a strong Hydrogen Sulfide Odor (C1) were observed within this test plot.

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

Project/Site: 41st Avenue Apartments City/County: Woodland/Cowlitz Sampling Date: 2-2-21
 Applicant/Owner: 41st Avenue, LLC State: WA Sampling Point: TP4
 Investigator(s): McManus, Jacob Section, Township, Range: S12, T 15N, R 1W
 Landform (hillslope, terrace, etc.): Hillslopes Local relief: (concave, convex, none): none Slope (%): 15-30%
 Subregion (LRR): A Lat: 45.928601° Long: -122.749283° Datum: NAD83
 Soil Map Unit Name: (210) Stella silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain 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 checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology 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"/>
Remarks: TP-4 was located in the central portion of Cowlitz County Tax Parcel 508630100, west of Wetland B. Vegetation within this test plot consisted of tree, scrub-shrub, and herbaceous species. The hydrophytic vegetation criterion was met due to 57% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. However, there was no evidence of hydric soil or wetland hydrology indicators observed within this test plot, therefore, it is not considered to be within a wetland area.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
Tree Stratum (Plot size: <u>30</u> ft radius)				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>57</u> (A/B)
1. <u>Acer macrophyllum</u>	20%	yes	FACU	
2. <u>Thuja plicata</u>	10%	yes	FAC	
3. _____	%			
4. _____	%			
50% = <u>15</u> 20% = <u>6</u>	30%	=Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
1. <u>Rubus armeniacus</u>	25%	yes	FAC	
2. <u>Rubus spectabilis</u>	10%	yes	FAC	
3. <u>Sambucus racemosa</u>	10%	yes	FACU	
4. _____	%			
5. _____	%			
50% = <u>23</u> 20% = <u>9</u>	45%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				Hydrophytic Vegetation Indicators: <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 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Polystichum munitum</u>	25%	yes	FACU	
2. <u>Hydrophyllum tenuipes</u>	20%	yes	FAC	
3. <u>Urtica dioica</u>	10%	no	FAC	
4. <u>Pteridium aquilinum</u>	10%	no	FACU	
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>33</u> 20% = <u>13</u>	65%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	%			
2. _____	%			
50% = <u> </u> 20% = <u> </u>	%	=Total Cover		
% Bare Ground in Herb Stratum <u>35%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The hydrophytic vegetation criterion has been met due to 57% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

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 ¹	Loc ²		
0-16	10YR 3/3	100%		%			silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Minerals (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (**except MLRA 1**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: No evidence of hydric soil indicators observed within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (Inches): _____
 Water Table Present? Yes No Depth (Inches): _____
 Saturation Present? Yes No Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks: No evidence of wetland hydrology indicators observed within this test plot during the site visit.

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

Project/Site: 41st Avenue Apartments City/County: Woodland/Cowlitz Sampling Date: 2-2-21
 Applicant/Owner: 41st Avenue, LLC State: WA Sampling Point: TP5
 Investigator(s): McManus, Jacob Section, Township, Range: S12, T 15N, R 1W
 Landform (hillslope, terrace, etc.): Hillslopes Local relief: (concave, convex, none): concave Slope (%): 15-30%
 Subregion (LRR): A Lat: 45.929384° Long: -122.750962° Datum: NAD83
 Soil Map Unit Name: (210) Stella silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain 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 checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: TP-5 was located in the western portion of Cowlitz County Tax Parcel 508630100, within the northern portion of Wetland A. Vegetation within this test plot consisted entirely of emergent species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, the hydric soil indicator Depleted Matrix (F3) was observed, along with the primary wetland hydrology indicator Oxidized Rhizospheres along Living Roots (C3). Given this test plot satisfied all three wetland indicator criteria, it is considered to be within a wetland area.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u> ft radius)				Dominance Test Worksheet Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
50% = ___ 20% = ___	%	=Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Prevalence Index worksheet Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = ___ 20% = ___	%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				Hydrophytic Vegetation Indicators: <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 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <i>Phalaris arundinacea</i>	60%	yes	FACW	
2. <i>Juncus effusus</i>	15%	no	FACW	
3. <i>Rumex crispus</i>	10%	no	FAC	
4. <i>Lysichiton americanus</i>	5%	no	OBL	
5. <i>Festuca rubra</i>	5%	no	FAC	
6. <i>Lolium perenne</i>	5%	no	FAC	
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>50</u> 20% = <u>20</u>	100%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			
2. _____	%			
50% = ___ 20% = ___	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u> %				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks: The hydrophytic vegetation criterion has been met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

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 ¹	Loc ²		
0-5	10YR 3/2	100%		%			silt loam	
5-16	10YR 4/1	96%	10YR 4/6	4%	C	M	clay loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Minerals (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (**except MLRA 1**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Requirements for the hydric soil indicator Depleted Matrix (F3) have been met given the presence of a soil layer with a matrix value of 4 or more and a chroma of 2 or less with distinct or prominent redox concentrations occurring as soft masses or pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (Inches): _____
 Water Table Present? Yes No Depth (Inches): _____
 Saturation Present? Yes No Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks: The primary wetland hydrology indicator Oxidized Rhizospheres along Living Roots (C3) was observed within this test plot.

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

Project/Site: 41st Avenue Apartments City/County: Woodland/Cowlitz Sampling Date: 2-2-21
 Applicant/Owner: 41st Avenue, LLC State: WA Sampling Point: TP6
 Investigator(s): McManus, Jacob Section, Township, Range: S12, T 15N, R 1W
 Landform (hillslope, terrace, etc.): Hillslopes Local relief: (concave, convex, none): convex Slope (%): 15-30%
 Subregion (LRR): A Lat: 45.92933174° Long: -122.7508283° Datum: NAD83
 Soil Map Unit Name: (210) Stella silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain 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 checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology 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"/>
Remarks: TP-6 was located in the western portion of Cowlitz County Tax Parcel 508630100, east of Wetland A. Vegetation within this test plot consisted of scrub-shrub, and herbaceous species. The hydrophytic vegetation criterion has been met due to the prevalence index being <3. Additionally, there was no evidence of hydric soil or wetland hydrology indicators within this test plot, therefore, it is not considered to be within a wetland area.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30</u> ft radius)																				
1. _____	%			Dominance Test Worksheet Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)																
2. _____	%																			
3. _____	%																			
4. _____	%																			
50% = ____ 20% = ____	%	=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)																				
1. <u>Rubus laciniatus</u>	5%	yes	FACU	Prevalence Index worksheet Total % Cover of: <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td style="text-align: center;">x 1= <u>0</u></td> </tr> <tr> <td>FACW species <u>72</u></td> <td style="text-align: center;">x 2= <u>144</u></td> </tr> <tr> <td>FAC species <u>1</u></td> <td style="text-align: center;">x 3= <u>3</u></td> </tr> <tr> <td>FACU species <u>27</u></td> <td style="text-align: center;">x 4= <u>108</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td style="text-align: center;">x 5= <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u></td> <td style="text-align: center;">(A) <u>255</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A=<u>2.55</u></td> </tr> </table>		Multiply by:	OBL species <u>0</u>	x 1= <u>0</u>	FACW species <u>72</u>	x 2= <u>144</u>	FAC species <u>1</u>	x 3= <u>3</u>	FACU species <u>27</u>	x 4= <u>108</u>	UPL species <u>0</u>	x 5= <u>0</u>	Column Totals: <u>100</u>	(A) <u>255</u> (B)	Prevalence Index = B/A= <u>2.55</u>	
	Multiply by:																			
OBL species <u>0</u>	x 1= <u>0</u>																			
FACW species <u>72</u>	x 2= <u>144</u>																			
FAC species <u>1</u>	x 3= <u>3</u>																			
FACU species <u>27</u>	x 4= <u>108</u>																			
UPL species <u>0</u>	x 5= <u>0</u>																			
Column Totals: <u>100</u>	(A) <u>255</u> (B)																			
Prevalence Index = B/A= <u>2.55</u>																				
2. _____	%																			
3. _____	%																			
4. _____	%																			
5. _____	%																			
50% = <u>2.5</u> 20% = <u>1</u>	5%	=Total Cover																		
Herb Stratum (Plot size: <u>5</u> ft radius)																				
1. <u>Phalaris arundinacea</u>	70%	yes	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <u>Tanacetum vulgare</u>	15%	no	FACU																	
3. <u>Rubus ursinus</u>	10%	no	FACU																	
4. <u>Taraxacum officinale</u>	2%	no	FACU																	
5. <u>Epilobium ciliatum</u>	2%	no	FACW																	
6. <u>Cirsium arvense</u>	1%	no	FAC																	
7. _____	%																			
8. _____	%																			
9. _____	%																			
10. _____	%																			
11. _____	%																			
50% = <u>50</u> 20% = <u>20</u>	100%	=Total Cover																		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)																				
1. _____	%			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
2. _____	%																			
50% = ____ 20% = ____	%	=Total Cover																		
% Bare Ground in Herb Stratum _____%																				

Remarks: The hydrophytic vegetation criterion is met due to the prevalence index being <3.0

SOIL

Sampling Point: **IP6**

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 ¹	Loc ²		
0-16	10YR 3/3	100%		%			silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Minerals (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: No evidence of hydric soil indicators observed within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (Inches): _____
 Water Table Present? Yes No Depth (Inches): _____
 Saturation Present? Yes No Depth (Inches): _____
 (Includes Capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks: No evidence of wetland hydrology indicators observed within this test plot during the site visit.

APPENDIX B: WETLAND RATING FORMS FOR WESTERN WASHINGTON

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 2-2-2021
 Rated by: J. McManus Trained by Ecology? Yes X No Date of training: 2020
 HGM Class used for rating: Depressional Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (figures can be combined).
 Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY II (based on functions X or special characteristics)

1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 – 27
- X Category II – Total score = 20 – 22
- Category III – Total score = 16 – 19
- Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality		Hydrologic		Habitat				
<i>Circle the appropriate ratings</i>									
Site Potential	H	M	L	H	M	L	H	M	L
Landscape Potential	H	M	L	H	M	L	H	M	L
Value	H	M	L	H	M	L	H	M	L
Score Based on Ratings	8		7		6		TOTAL	21	

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H
 8 = H,H,M
 7 = H,H,L
 7 = H,M,M
 6 = H,M,L
 6 = M,M,M
 5 = H,L,L
 5 = M,M,L
 4 = M,L,L
 3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	3
Hydroperiods	D 1.4, H 1.2	3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	App. E
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	App. E

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
 At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- The wetland is on a slope (*slope can be very gradual*),
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
 The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
 The overbank flooding occurs at least once every 2 years.

Wetland name or number A

NO – go to 6

YES – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality	
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 3 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: This is the area that is ponded for at least 2 months. See description in manual. Area seasonally ponded is > 1/2 total area of wetland points = 4 Area seasonally ponded is > 1/4 total area of wetland points = 2 Area seasonally ponded is < 1/4 total area of wetland points = 0	2
Total for D 1	9

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?	Yes = 1 No = 0
Source: Automotive exhaust particulate	Yes = 1 No = 0
Total for D 2	3

Rating of Landscape Potential If score is: X 3 or 4 = H 1 or 2 = M 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0
Total for D 3	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4		
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2		2
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1		
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0		
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7		
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5		5
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3		
The wetland is a "headwater" wetland points = 3		
Wetland is flat but has small depressions on the surface that trap water points = 1		
Marks of ponding less than 0.5 ft (6 in) points = 0		
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
The area of the basin is less than 10 times the area of the unit points = 5		
The area of the basin is 10 to 100 times the area of the unit points = 3		3
The area of the basin is more than 100 times the area of the unit points = 0		
Entire wetland is in the Flats class points = 5		
Total for D 4	Add the points in the boxes above	10

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	3

Rating of Landscape Potential If score is: X 3 = H 1 or 2 = M 0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2		
• Surface flooding problems are in a sub-basin farther down-gradient. points = 1		1
Flooding from groundwater is an issue in the sub-basin. points = 1		
The existing or potential outflow from the wetland is so constricted by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ points = 0		
There are no problems with flooding downstream of the wetland. points = 0		
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	1

Rating of Value If score is: 2-4 = H X 1 = M 0 = L Record the rating on the first page

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
 - Emergent 3 structures: points = 2
 - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
 - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** 2 points
- Freshwater tidal wetland** 2 points

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

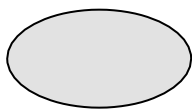
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- If you counted:
- > 19 species points = 2
 - 5 - 19 species points = 1
 - < 5 species points = 0

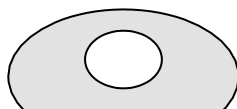
1

H 1.4. Interspersion of habitats

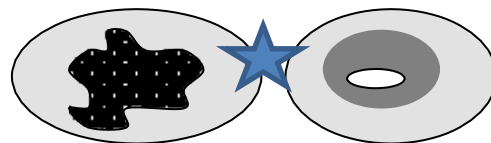
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points



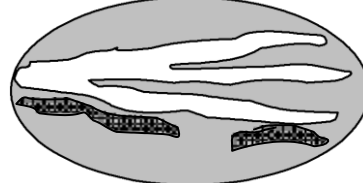
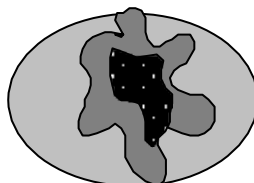
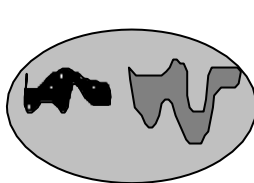
Low = 1 point



Moderate = 2 points

2

All three diagrams in this row are **HIGH** = 3points



Wetland name or number A

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	2
<p>Total for H 1 Add the points in the boxes above</p>	8

Rating of Site Potential If score is: 15-18 = H X 7-14 = M 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat <u>9.1</u> + [(% moderate and low intensity land uses)/2] <u>7.5</u> = 16.6 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 <input style="border: 1px solid black;" type="checkbox"/> 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat <u>17.7</u> + [(% moderate and low intensity land uses)/2] <u>23.6</u> = 41.3 % Undisturbed habitat > 50% of Polygon points = 3 <input style="border: 1px solid black;" type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input style="border: 1px solid black;" type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon: If <input style="border: 1px solid black;" type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2) <input style="border: 1px solid black;" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>	0
<p>Total for H 2 Add the points in the boxes above</p>	2

Rating of Landscape Potential If score is: 4-6 = H X 1-3 = M < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i>	
<p>Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a <u>Shoreline Master Plan, or in a watershed plan</u></p>	
<input style="border: 1px solid black;" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1	
Site does not meet any of the criteria above points = 0	

Rating of Value If score is: 2 = H X 1 = M 0 = L *Record the rating on the first page*

Wetland name or number A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <p style="text-align: right;">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</p> <p style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</p> <p style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</p> <p style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

Wetland name or number A

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p style="text-align: right;">Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p style="text-align: right;">Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p style="text-align: right;">Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p style="text-align: right;">Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form</p>	

Not Applicable

Wetland name or number A

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Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 2-2-2021
 Rated by: J. McManus Trained by Ecology? Yes X No Date of training: 2020
 HGM Class used for rating: Depressional Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (figures can be combined).
 Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics)

1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 – 27
 Category II – Total score = 20 – 22
 Category III – Total score = 16 – 19
 X Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	<input checked="" type="radio"/> H M <input type="radio"/> L	H M <input checked="" type="radio"/> L	H M <input checked="" type="radio"/> L	
Landscape Potential	H M <input checked="" type="radio"/> L	H M <input checked="" type="radio"/> L	H <input checked="" type="radio"/> M L	
Value	<input checked="" type="radio"/> H M L	H M <input checked="" type="radio"/> L	H <input checked="" type="radio"/> M L	TOTAL
Score Based on Ratings	7	3	5	15

Score for each function based on three ratings (order of ratings is not important)

- 9 = H,H,H
 8 = H,H,M
 7 = H,H,L
 7 = H,M,M
 6 = H,M,L
 6 = M,M,M
 5 = H,L,L
 5 = M,M,L
 4 = M,L,L
 3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	3
Hydroperiods	D 1.4, H 1.2	3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	App. E
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	App. E

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
 At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- The wetland is on a slope (*slope can be very gradual*),
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
 The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
 The overbank flooding occurs at least once every 2 years.

Wetland name or number B

NO - go to 6

YES - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to 7

YES - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO - go to 8

YES - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number B

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality	
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: <div style="border: 1px solid black; padding: 2px;">Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).</div> <p style="text-align: right;">points = 3</p> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 <div style="border: 1px solid black; padding: 2px;">Wetland has persistent, ungrazed plants > 1/10 of area</div> points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	1
D 1.4. Characteristics of seasonal ponding or inundation: <i>This is the area that is ponded for at least 2 months. See description in manual.</i> <div style="border: 1px solid black; padding: 2px;">Area seasonally ponded is > ½ total area of wetland</div> points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1	12

Rating of Site Potential If score is: X 12-16 = H 6-11 = M 0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?	Yes = 1 No = 0
Source:	Yes = 1 No = 0
Total for D 2	0

Rating of Landscape Potential If score is: 3 or 4 = H 1 or 2 = M X 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0
Total for D 3	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number B

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	4
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. <u>Depth of storage during wet periods:</u> Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	0
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. <u>Contribution of the wetland to storage in the watershed:</u> Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
The area of the basin is less than 10 times the area of the unit	points = 5	0
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	4

Rating of Site Potential If score is: 12-16 = H 6-11 = M X 0-5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	0

Rating of Landscape Potential If score is: 3 = H 1 or 2 = M X 0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	0
• Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the sub-basin.	points = 1	
The existing or potential outflow from the wetland is so constricted by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	0

Rating of Value If score is: 2-4 = H 1 = M X 0 = L Record the rating on the first page

Wetland name or number B

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
 - Emergent 3 structures: points = 2
 - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
 - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

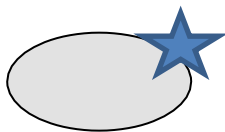
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- If you counted:
- > 19 species points = 2
 - 5 - 19 species points = 1
 - < 5 species points = 0

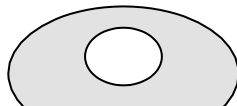
0

H 1.4. Interspersion of habitats

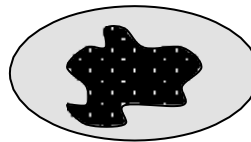
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



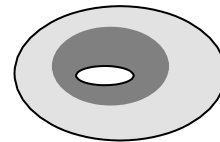
None = 0 points



Low = 1 point

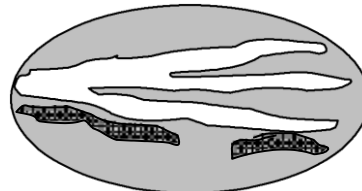
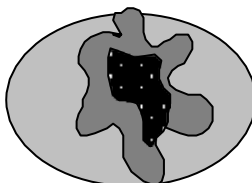
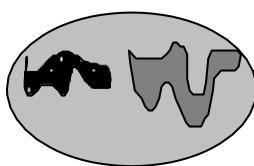


Moderate = 2 points



0

All three diagrams in this row are **HIGH** = 3points



Wetland name or number B

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	1
<p>Total for H 1 Add the points in the boxes above</p>	1

Rating of Site Potential If score is: 15-18 = H 7-14 = M X 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat <u> 9.1 </u> + [(% moderate and low intensity land uses)/2] <u> 7.5 </u> = 16.6 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 <input style="border: 1px solid black;" type="checkbox"/> 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat <u> 17.7 </u> + [(% moderate and low intensity land uses)/2] <u> 23.6 </u> = 41.3 % Undisturbed habitat > 50% of Polygon points = 3 <input style="border: 1px solid black;" type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input style="border: 1px solid black;" type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) <input style="border: 1px solid black;" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>	0
<p>Total for H 2 Add the points in the boxes above</p>	2

Rating of Landscape Potential If score is: 4-6 = H X 1-3 = M < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i>	
<p>Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a <u> Shoreline Master Plan, or in a watershed plan </u></p>	
<input style="border: 1px solid black;" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1	
Site does not meet any of the criteria above points = 0	

Rating of Value If score is: 2 = H X 1 = M 0 = L *Record the rating on the first page*

Wetland name or number B

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number B

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <p style="text-align: right;">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</p> <p style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</p> <p style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</p> <p style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

Wetland name or number B

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p style="text-align: right;">Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>	
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p style="text-align: right;">Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p style="text-align: right;">Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>	
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p style="text-align: right;">Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>	
<p>Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form</p>		<p>Not Applicable</p>

Wetland name or number B

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Wetland name or number C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 2-2-2021
 Rated by: J. McManus Trained by Ecology? Yes X No Date of training: 2020
 HGM Class used for rating: Depressional Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (figures can be combined).
 Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics)

1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 – 27
- Category II – Total score = 20 – 22
- Category III – Total score = 16 – 19
- X Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	TOTAL
Score Based on Ratings	6			3			5			14

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H
 8 = H,H,M
 7 = H,H,L
 7 = H,M,M
 6 = H,M,L
 6 = M,M,M
 5 = H,L,L
 5 = M,M,L
 4 = M,L,L
 3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number C

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	3
Hydroperiods	D 1.4, H 1.2	3
Location of outlet <i>(can be added to map of hydroperiods)</i>	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	App. E
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	App. E

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream <i>(can be added to another figure)</i>	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants <i>(can be added to figure above)</i>	S 4.1	
Boundary of 150 ft buffer <i>(can be added to another figure)</i>	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
 At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- The wetland is on a slope (*slope can be very gradual*),
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
 The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
 The overbank flooding occurs at least once every 2 years.

Wetland name or number C

NO – go to 6

YES – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number C

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality	
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: <div style="border: 1px solid black; padding: 2px;">Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).</div> <p style="text-align: right;">points = 3</p> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 <div style="border: 1px solid black; padding: 2px;">Wetland has persistent, ungrazed plants > 1/10 of area</div> points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	1
D 1.4. Characteristics of seasonal ponding or inundation: <i>This is the area that is ponded for at least 2 months. See description in manual.</i> <div style="border: 1px solid black; padding: 2px;">Area seasonally ponded is > ½ total area of wetland</div> points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1	8

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?	Yes = 1 No = 0
Source:	Yes = 1 No = 0
Total for D 2	0

Rating of Landscape Potential If score is: 3 or 4 = H 1 or 2 = M X 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0
Total for D 3	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number C

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	4
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	0
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
The area of the basin is less than 10 times the area of the unit	points = 5	0
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	4

Rating of Site Potential If score is: 12-16 = H 6-11 = M X 0-5 = L *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	0

Rating of Landscape Potential If score is: 3 = H 1 or 2 = M X 0 = L *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	0
• Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the sub-basin.	points = 1	
The existing or potential outflow from the wetland is so constricted by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	0

Rating of Value If score is: 2-4 = H 1 = M X 0 = L *Record the rating on the first page*

Wetland name or number C

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
 - Emergent 3 structures: points = 2
 - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
 - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

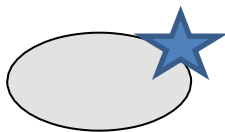
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- If you counted:
- > 19 species points = 2
 - 5 - 19 species points = 1
 - < 5 species points = 0

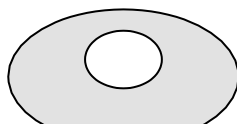
0

H 1.4. Interspersion of habitats

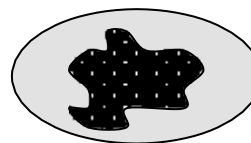
Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



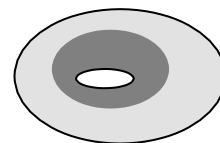
None = 0 points



Low = 1 point

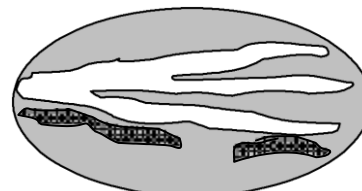
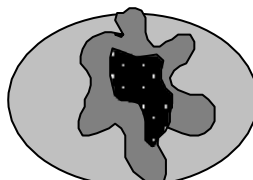
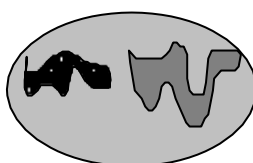


Moderate = 2 points



0

All three diagrams in this row are **HIGH** = 3points



Wetland name or number C

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	1
<p>Total for H 1</p> <p style="text-align: right;">Add the points in the boxes above</p>	1

Rating of Site Potential If score is: 15-18 = H 7-14 = M X 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u> 9.1 </u> + [(% moderate and low intensity land uses)/2] <u> 7.5 </u> = 16.6 % If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p><input style="border: 1px solid black;" type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>	1
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u> 17.7 </u> + [(% moderate and low intensity land uses)/2] <u> 23.6 </u> = 41.3 %</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p><input style="border: 1px solid black;" type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input style="border: 1px solid black;" type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input style="border: 1px solid black;" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>	0
<p>Total for H 2</p> <p style="text-align: right;">Add the points in the boxes above</p>	2

Rating of Landscape Potential If score is: 4-6 = H X 1-3 = M < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i>	
<p>Site meets ANY of the following criteria: points = 2</p> <p>— It has 3 or more priority habitats within 100 m (see next page)</p> <p>— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p>— It is mapped as a location for an individual WDFW priority species</p> <p>— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p>— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a <u> Shoreline Master Plan, or in a watershed plan </u></p>	
<p><input style="border: 1px solid black;" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p>	
<p>Site does not meet any of the criteria above points = 0</p>	

Rating of Value If score is: 2 = H X 1 = M 0 = L *Record the rating on the first page*

Wetland name or number C

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <p style="text-align: right;">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</p> <p style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</p> <p style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</p> <p style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

Wetland name or number C

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p style="text-align: right;">Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p style="text-align: right;">Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p style="text-align: right;">Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p style="text-align: right;">Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form</p>	

Not Applicable

Wetland name or number C

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Wetland name or number D

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland D Date of site visit: 2-2-2021
 Rated by: J. McManus Trained by Ecology? Yes X No Date of training: 2020
 HGM Class used for rating: Depressional Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (figures can be combined).
 Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics)

1. Category of wetland based on FUNCTIONS

- Category I – Total score = 23 – 27
- Category II – Total score = 20 – 22
- X Category III – Total score = 16 – 19
- Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H <u>(M)</u> L	H <u>(M)</u> L	H M <u>(L)</u>	
Landscape Potential	H <u>(M)</u> L	<u>(H)</u> M L	H <u>(M)</u> L	
Value	<u>(H)</u> M L	H <u>(M)</u> L	H <u>(M)</u> L	TOTAL
Score Based on Ratings	7	7	5	19

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H
 8 = H,H,M
 7 = H,H,L
 7 = H,M,M
 6 = H,M,L
 6 = M,M,M
 5 = H,L,L
 5 = M,M,L
 4 = M,L,L
 3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number D

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	3
Hydroperiods	D 1.4, H 1.2	3
Location of outlet <i>(can be added to map of hydroperiods)</i>	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	App. E
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	App. E

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream <i>(can be added to another figure)</i>	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants <i>(can be added to figure above)</i>	S 4.1	
Boundary of 150 ft buffer <i>(can be added to another figure)</i>	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
 At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- The wetland is on a slope (*slope can be very gradual*),
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
 The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
 The overbank flooding occurs at least once every 2 years.

Wetland name or number D

NO - go to 6

YES - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to 7

YES - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO - go to 8

YES - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number D

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality	
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 <div style="border: 1px solid black; padding: 2px; width: fit-content;">Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.</div> points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).</u> Yes = 4 No = 0	0
D 1.3. <u>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</u> Wetland has persistent, ungrazed, plants > 95% of area points = 5 <div style="border: 1px solid black; padding: 2px; width: fit-content;">Wetland has persistent, ungrazed, plants > ½ of area</div> points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	3
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland points = 4 <div style="border: 1px solid black; padding: 2px; width: fit-content;">Area seasonally ponded is > ¼ total area of wetland</div> points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1	7

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source: Yes = 1 No = 0	
Total for D 2	2

Rating of Landscape Potential If score is: 3 or 4 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)? Yes = 2 No = 0	2
Total for D 3	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

Wetland name or number D

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	2
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.		
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	3
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
The area of the basin is less than 10 times the area of the unit	points = 5	3
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	8

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	3

Rating of Landscape Potential If score is: X 3 = H 1 or 2 = M 0 = L Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.		
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		1
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
• Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the sub-basin.	points = 1	
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	1

Rating of Value If score is: 2-4 = H X 1 = M 0 = L Record the rating on the first page

Wetland name or number D

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
 - Emergent 3 structures: points = 2
 - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
 - Forested (areas where trees have > 30% cover) **1 structure: points = 0**
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated **2 types present: points = 1**
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

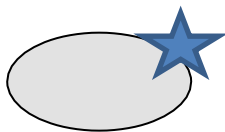
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- If you counted:
- > 19 species points = 2
 - 5 - 19 species points = 1
 - < 5 species points = 0

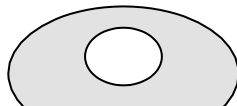
1

H 1.4. Interspersion of habitats

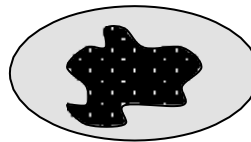
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



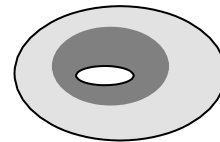
None = 0 points



Low = 1 point

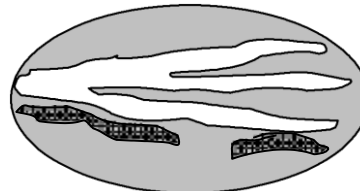
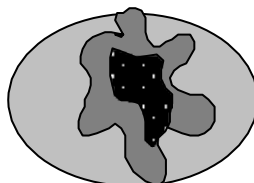
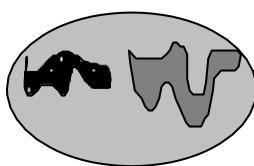


Moderate = 2 points



0

All three diagrams in this row are **HIGH** = 3points



Wetland name or number D

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	0
<p>Total for H 1</p> <p style="text-align: right;">Add the points in the boxes above</p>	2

Rating of Site Potential If score is: 15-18 = H 7-14 = M X 0-6 = L *Record the rating on the first page*

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u> 9.1 </u> + [(% moderate and low intensity land uses)/2] <u> 7.5 </u> = 16.6% If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>	1
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u> 17.7 </u> + [(% moderate and low intensity land uses)/2] <u> 23.6 </u> = 41.3%</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>	0
<p>Total for H 2</p> <p style="text-align: right;">Add the points in the boxes above</p>	2

Rating of Landscape Potential If score is: 4-6 = H X 1-3 = M < 1 = L *Record the rating on the first page*

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p>— It has 3 or more priority habitats within 100 m (see next page)</p> <p>— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p>— It is mapped as a location for an individual WDFW priority species</p> <p>— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p>— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan</p> <p>Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p>Site does not meet any of the criteria above points = 0</p>	

Rating of Value If score is: 2 = H X 1 = M 0 = L *Record the rating on the first page*

Wetland name or number D

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number D

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <p style="text-align: right;">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</p> <p style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</p> <p style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</p> <p style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

Wetland name or number D

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p style="text-align: right;">Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>	
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p style="text-align: right;">Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p style="text-align: right;">Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>	
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p style="text-align: right;">Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>	
<p>Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form</p>		<p>Not Applicable</p>

Wetland name or number D

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Wetland name or number E

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland E – 41st Avenue Date of site visit: 2/2/21

Rated by: J. McManus Trained by Ecology? Yes X No Date of training: 2020

HGM Class used for rating: Slope Wetland has multiple HGM classes? X Y N

NOTE: Form is not complete without the figures requested (figures can be combined).

Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics)

1. Category of wetland based on FUNCTIONS

 Category I – Total score = 23 – 27

 Category II – Total score = 20 – 22

 Category III – Total score = 16 – 19

X Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	TOTAL
Score Based on Ratings	6			4			5			15

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	Not Applicable

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	3
Hydroperiods	H 1.2	3
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	3
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	App. E
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	App. E

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO - go to 2

YES - the wetland class is **Tidal Fringe** - go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO - **Saltwater Tidal Fringe (Estuarine)**

YES - **Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO - go to 3

YES - The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
 At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO - go to 4

YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- The wetland is on a slope (*slope can be very gradual*),
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
 The water leaves the wetland **without being impounded**.

NO - go to 5

YES - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
 The overbank flooding occurs at least once every 2 years.

Wetland name or number E

NO - go to 6

YES - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO - go to 7

YES - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO - go to 8

YES - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number E

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i>		
Slope is 1% or less	points = 3	1
Slope is > 1%-2%	points = 2	
Slope is > 2%-5%	points = 1	
Slope is greater than 5%	points = 0	
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> : Yes = 3 No = 0		0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i>		
Dense, uncut, herbaceous plants > 90% of the wetland area	points = 6	3
Dense, uncut, herbaceous plants > ½ of area	points = 3	
Dense, woody, plants > ½ of area	points = 2	
Dense, uncut, herbaceous plants > ¼ of area	points = 1	
Does not meet any of the criteria above for plants	points = 0	
Total for S 1		4

Rating of Site Potential If score is: 12 = H 6-11 = M X 0-5 = L

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?		
	Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources:		0
	Yes = 1 No = 0	
Total for S 2		1

Rating of Landscape Potential If score is: X 1-2 = M 0 = L

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?		
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?		
	Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i>		0
	Yes = 1 No = 0	
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i>		2
	Yes = 2 No = 0	
Total for S 3		2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number E

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, rigid plants cover > 90% of the area of the wetland <input type="checkbox"/> All other conditions	0
points = 1	
points = 0	

Rating of Site Potential If score is: 1 = M X 0 = L *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 <input checked="" type="checkbox"/> No = 0	0

Rating of Landscape Potential If score is: 1 = M X 0 = L *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 <input checked="" type="checkbox"/> Surface flooding problems are in a sub-basin farther down-gradient points = 1 <input type="checkbox"/> No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 <input checked="" type="checkbox"/> No = 0	0
Total for S 6	Add the points in the boxes above 1

Rating of Value If score is: 2-4 = H X 1 = M 0 = L *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
 - Emergent 3 structures: points = 2
 - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
 - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

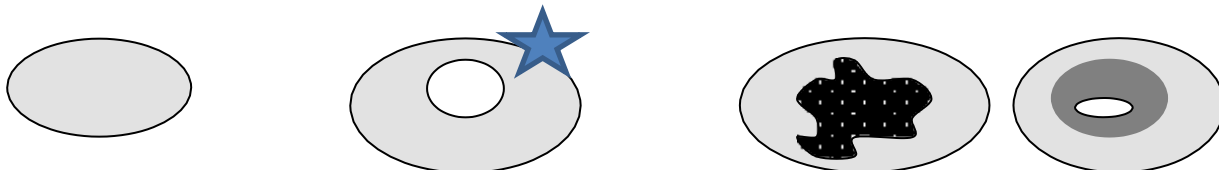
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- If you counted:
- > 19 species points = 2
 - 5 - 19 species points = 1
 - < 5 species points = 0

1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

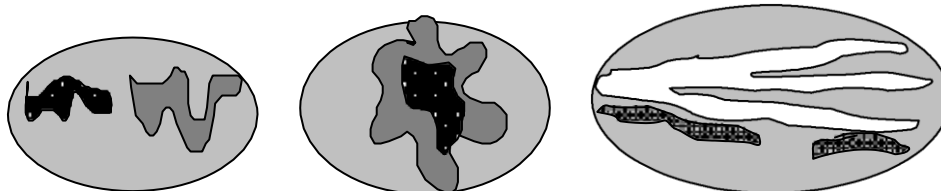


None = 0 points

Low = 1 point

Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



1

Wetland name or number E

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	0
<p>Total for H 1 Add the points in the boxes above</p>	4

Rating of Site Potential If score is: 15-18 = H 7-14 = M X 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat <u>9.1</u> + [(% moderate and low intensity land uses)/2] <u>7.5</u> = 16.6% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 <input style="border: 1px solid black;" type="checkbox"/> 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat <u>17.7</u> + [(% moderate and low intensity land uses)/2] <u>23.6</u> = 41.3% Undisturbed habitat > 50% of Polygon points = 3 <input style="border: 1px solid black;" type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input style="border: 1px solid black;" type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) <input style="border: 1px solid black;" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>	0
<p>Total for H 2 Add the points in the boxes above</p>	-3

Rating of Landscape Potential If score is: 4-6 = H X 1-3 = M < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?

<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a <u>Shoreline Master Plan, or in a watershed plan</u> <input style="border: 1px solid black;" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0</p>	
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Rating of Value If score is: 2 = H X 1 = M 0 = L *Record the rating on the first page*

Wetland name or number E

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <p style="text-align: right;">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</p> <p style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</p> <p style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</p> <p style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

Wetland name or number E

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p style="text-align: right;">Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p style="text-align: right;">Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p style="text-align: right;">Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p style="text-align: right;">Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form</p>	

Not Applicable

Wetland name or number E

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APPENDIX C: AKS TREE INVENTORY TABLE

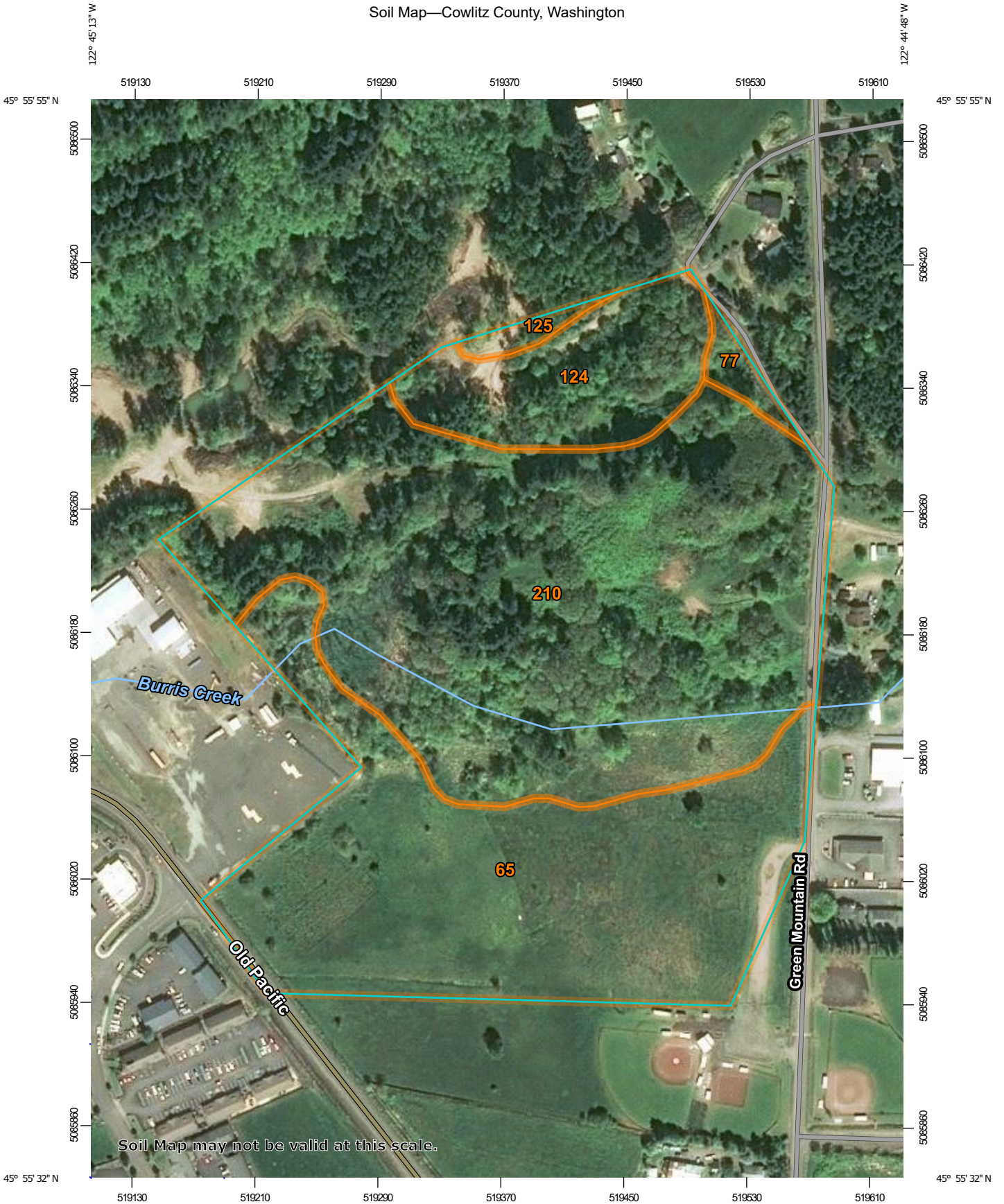
Detailed Tree Inventory for Jeffries Woodland Development

AKS Job No. 8344 - Evaluation Date: 02/02/2021 - Evaluated by: BRK

Tree #	DBH (in.)	Tree Species Common Name (<i>Scientific name</i>)	Comments	WTR*
11263	12	OR ASH		
11265	12	OR ASH		
11266	13	OR ASH		
11267	15	OR ASH		
11268	12	OR ASH		
11269	8	OR ASH		
11270	13,6	OR ASH		
11271	13	OR ASH		
11321	32,29	Oregon White Oak (<i>Quercus garryana</i>)		C
11324	25	OR ASH		
11325	24,16	OR ASH		
11326	30	Oregon White Oak (<i>Quercus garryana</i>)	Dead lower limbs typical of mature tree	C
11327	39	Oregon White Oak (<i>Quercus garryana</i>)	Dead lower limbs typical of mature tree	C
11328	15	Oregon White Oak (<i>Quercus garryana</i>)	Small cavity in base with sluffing bark	B
11329	17	Oregon White Oak (<i>Quercus garryana</i>)		C
11330	9	Oregon White Oak (<i>Quercus garryana</i>)		C
11386	35	Oregon White Oak (<i>Quercus garryana</i>)		C
11401	21	Oregon White Oak (<i>Quercus garryana</i>)		C
11402	34	Oregon White Oak (<i>Quercus garryana</i>)		C
11405	12	BIGLEAF MAPLE		
11434	47	Oregon White Oak (<i>Quercus garryana</i>)		C
11435	35	Oregon White Oak (<i>Quercus garryana</i>)	1-sided canopy (E)	B
11436	56	Oregon White Oak (<i>Quercus garryana</i>)	Multiple large cavities with decay in bole (~5'); Several failed limbs	A/B
11598	25	Oregon White Oak (<i>Quercus garryana</i>)	1-sided canopy (S); Lean (S)	B
11602	24	Oregon White Oak (<i>Quercus garryana</i>)	1-sided canopy (SW)	B
11603	31	Oregon White Oak (<i>Quercus garryana</i>)	Lean (NE); Weak Leader; Some dead branches	B
11624	36	Oregon White Oak (<i>Quercus garryana</i>)	1-sided canopy (S)	B
11650	7	Oregon White Oak (<i>Quercus garryana</i>)	Suppressed	B
11842	41	Oregon White Oak (<i>Quercus garryana</i>)		C

APPENDIX D: NRCS SOIL SURVEY DATA

Soil Map—Cowlitz County, Washington



Map Scale: 1:3,410 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 10N WGS84




MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cowlitz County, Washington

Survey Area Data: Version 21, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

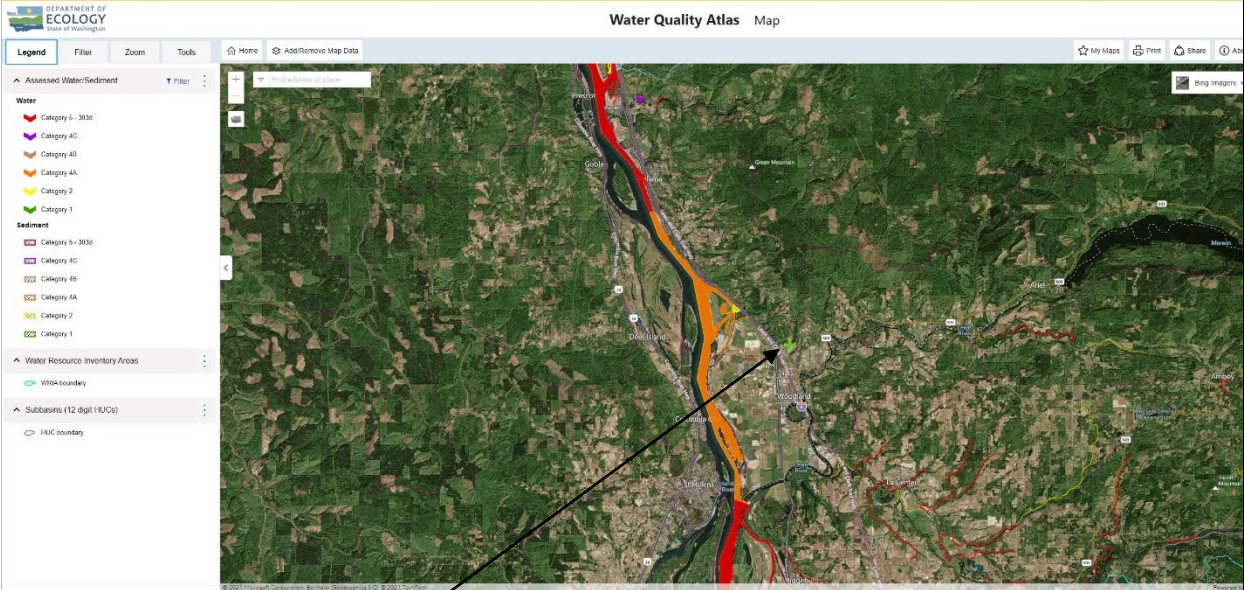
Date(s) aerial images were photographed: Apr 26, 2019—Jun 11, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

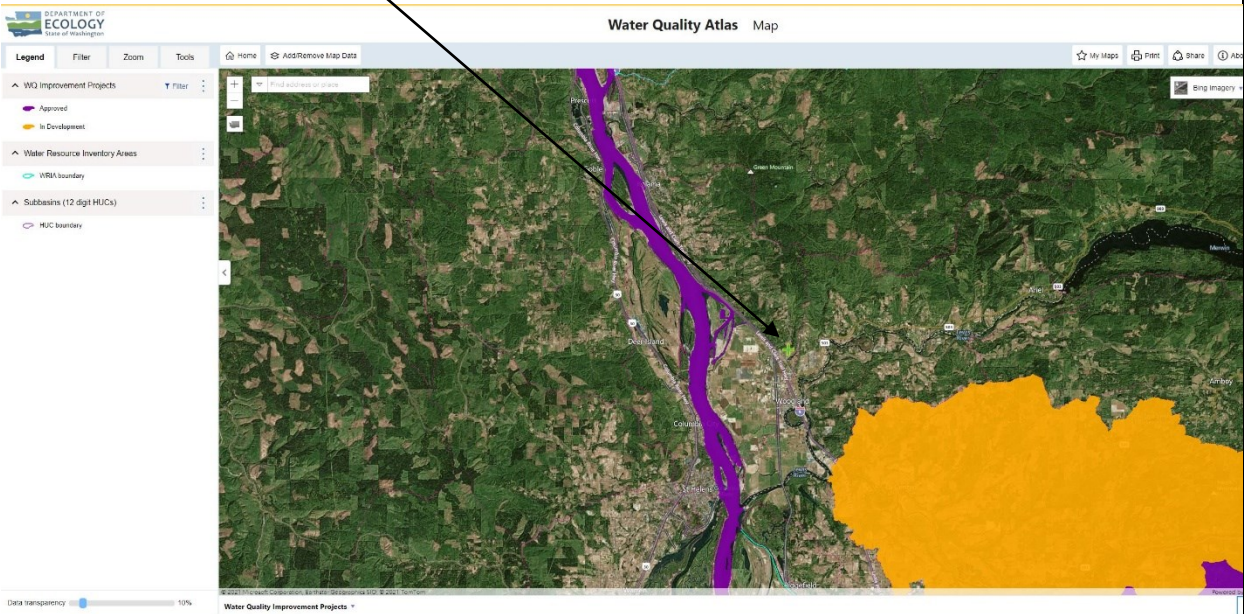
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
65	Godfrey silt loam, 0 to 3 percent slopes	13.2	35.3%
77	Hazeldell gravelly silt loam, 20 to 30 percent slopes	0.4	1.2%
124	Mart silt loam, 8 to 20 percent slopes	3.6	9.7%
125	Mart silt loam, 20 to 30 percent slopes	0.3	0.8%
210	Stella silt loam, 15 to 30 percent slopes	19.8	53.0%
Totals for Area of Interest		37.3	100.0%

APPENDIX E: 303(D) LISTED WATERS AND TDML DATA



Study Area



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

DATE: 6/21/2021
 DWN: JM
 PRJ. MGR: JM
 PROJ #: 3276.01

Oak Village Apartments
 303(d) Listed Waters & TMDL's
 41st Avenue Apartments
 41st Avenue, LLC
 Woodland Washington
 Section 12, Township 15N, Range,
 1W W.M.

APPENDIX F: NATIONAL WETLANDS INVENTORY DATA



June 30, 2021

Wetlands

- | | | | | | |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland |  | Lake |
|  | Estuarine and Marine Wetland |  | Freshwater Forested/Shrub Wetland |  | Other |
| | |  | Freshwater Pond |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.