

CRITICAL AREAS REPORT

November 1, 2020



Woodland Creek Delineation Woodland, Washington

Prepared for

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INTRODUCTION

Ecological Land Services, Inc. (ELS) has completed this critical areas report including a buffer averaging plan on behalf of the applicant, Hinton Development, LLC, for the development of the Woodland Creek subdivision, a 150-lot residential subdivision located within Cowlitz County Tax Parcels 508260100, 508250100, 508240100, 508230100, 508220100, 508210100, and 508190100. The property is located at 2308 Lewis River Road in Woodland, Washington, within a portion of Section 7, Township 5 North, and Range 1 East 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* (February 2017).

PROJECT DESCRIPTION

Project Location

The proposed site of the Woodland Creek Subdivision is located within Cowlitz County Tax Parcels 508260100, 508250100, 508240100, 508230100, 508220100, 508210100, and 508190100. The approximately 36.78-acre project area is located at 2308 Lewis River Road in Woodland, Washington, within a portion of Section 7, Township 5 North, and Range 1 East of the Willamette Meridian (Figure 1).

Proposed Development Project

The applicant is proposing a 150-lot residential subdivision for single-family dwellings on the property that will include clearing, grading, lot preparation, utility installation, construction of interior streets, and the construction of two stormwater detention facilities. A 4-foot wide woodchip walking path is also proposed north of the subdivision (Figure 3). Impacts will be avoided and minimized by the use of best management practices (BMPs) including installing silt fencing along the outer wetland buffer boundary during construction, applying native grass seed to disturbed areas not being paved when grading is complete, and making a water truck available to prevent dust blowing during construction. Additional BMPs, are discussed in the Avoidance and Minimization Section later in this report. Permanent 5-foot tall split-rail fencing will be installed and located along the outer edge of the wetland buffer 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 buffer in the eastern portion of the property wherein existing impervious surfaces such as a concrete and gravel parking pad are located. Construction is anticipated to start upon receipt of permits. The applicant is proposing riparian and wetland buffer averaging to ensure no direct impacts to the onsite wetland, wetland buffer, or Robinson Creek occur as a result of construction. Construction of the two stormwater conveyance facilities in the northeast portion of the property will result in 0.009 acres (380 sq. ft.) of temporary impacts to the buffer of Robinson Creek (Figure 3). However, these impacts will not persist after construction of the subdivision is complete, as stormwater currently generated onsite drains into Robinson Creek untreated, whereas stormwater will be treated onsite within the two proposed vegetated stormwater ponds prior to draining into the stream after project completion. Additionally, specific BMPs will be employed to ensure constructing the stormwater conveyance facilities results in minimal and temporary impacts. These BMPs are discussed in the

avoidance and minimization section later in this report. The proposed stormwater facilities consist of two vegetated detention basins with two corresponding vegetated filter strips. Both vegetated filter strips will convey water north into a gravel outfall to reduce flow velocity prior to draining into Robinson Creek.

SITE DESCRIPTION

The approximately 36.78-acre property consists of Parcels 508260100, 508250100, 508240100, 508230100, 508220100, 508210100, and 508190100, all of which are zoned Low Density Residential (LDR-8.5) by the City of Woodland. Topography throughout most of the property is gently sloped to the northwest with grades ranging from 0- to 2- percent. However, the northern portion of the property is relatively steep with a southward slope that faces an agricultural drainage ditch along the northern property boundary (Figure 2). No development is present throughout the property, excluding a small gravel parking pad in the eastern portion that provides access via Lewis River Road. Most of the property consists of herbaceous grasses which are regularly mowed and haved (Photoplate 1). The western portion of the property is situated lower in elevation, forested with deciduous species, and contains a portion of the aforementioned farm ditch. Onsite ditches are discussed further in the following paragraph. Surrounding properties to the north are outside of Woodland's urban growth area and are undeveloped, consisting of unzoned forested land. Surrounding properties to the south and west consist of single-family residences and are zoned Low Density Residential (LDR-6). The eastern property boundary is formed by Lewis River Road. Properties on the adjacent eastern side of Lewis River Road are zoned Low Density Residential (LDR-7.2) and consist of single-family residences and storage areas (Figure 6). 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 Lewis River sub-watershed, which is within the 12-digit Hydrologic Unit Code (HUC): 170800020606.

Agricultural Drainage Ditches

ELS identified two man-made farm ditches during the site visit, one of which seasonally flows northwest through the western portion of the property (Ditch 1), and one of which drains into the property from the north and intersects with Ditch 1 (Ditch 2) (Figure 2). During the site visit, the ditch was approximately 4-feet wide and 1- to 2-feet deep with soil saturation present in the vicinity of the wetland, and entirely absent hydrology in the northern portion of the property. The channel of Ditch 1 begins in the central portion of the onsite wetland, areas further south do not contain a consolidated stream channel (Photoplate 1). Ditch 1 drains north along the western property boundary before draining east along the northern property boundary (Figure 2). Ditch 1 Eventually drains into Robinson Creek, which is located offsite to the northeast. During the site visit, the channel of Ditch 2 was approximately 2-3 feet wide and 1-foot deep. The ditch channel was entirely dry during the site visit. Ditch 2 seasonally drains into the property from the north and flows south for approximately 300 feet before intersecting Ditch 1 (Figure 2). The channel of Ditch 2 in the vicinity of the property exists on a relatively steep grade (15 to 30 percent slopes). Vegetation in the vicinity of the ditches included tree, scrub-shrub, and herbaceous species. (Photoplate 2). According to an adjacent landowner, Tom Thomas (Benjamin A Thomas Jr.), the onsite farm ditches were dug in 1971 by Phil Jones, uncle to Tom Thomas. The ditches were needed to maintain the property for agriculture, as the outflow from the wetland area had previously been to the west, but development along Gun Club Road had pushed the water back to

the east. From 1971 to present, the ditch has been periodically cleaned out for maintenance with a Caterpillar bulldozer to continue to facilitate drainage on the property. According to the 1974 Soil Survey of Cowlitz County Area, Washington, areas to the west of the property along Gun Club Road have historically been used for agricultural purposes (NRCS 1974).

Streams

A small portion of Robinson Creek flows southeast through the northeast corner of the property. According to DNR, Robinson Creek is a Type F (Fish bearing) body of water (Figure 2). During the site visit, the stream channel was approximately 4-6 feet wide and 3-4 feet deep with minimal flow. Robinson Creek exits the property in the northeast corner and flows east for about 200 feet before draining into the Lewis River, passing through a box culvert along the way (Lewis River Road). Dominant riparian vegetation included red alder (*Alnus rubra*), salmonberry (*Rubus spectabilis*), Himalayan blackberry, reed canarygrass, 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.

One wetland, hereinafter referred to as Wetland A, was delineated onsite on June 26, 2020. Vegetation, soils, and hydrology information was collected from eight 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, and test plot locations were flagged with consecutively numbered orange pin-flags, both of which were mapped and recorded using a handheld GPS unit. Test plot data sheets can be found in Appendix A.

In addition to the wetland delineation, the OHWM of Robinson Creek 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 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 in the wetland test plots consisted of **trees:** Oregon Ash (*Fraxinus latifolia*, FACW), red alder (*Alnus rubra*, FAC), and black hawthorne (*Crataegus douglasii*, FAC); **shrubs:** Himalayan blackberry (*Rubus armeniacus*, FAC), Sitka willow (*Salix sitchensis*, FACW), and rose spirea (*Spiraea douglasii*, FACW); and **herbs:** reed canarygrass (*Phalaris arundinacea*, FACW).

Uplands

Vegetation observed in the upland test plots was dominated by: **trees:** black cottonwood (*Populus balsamifera*, FAC) and red alder; **shrubs:** Himalayan blackberry, Sitka willow; and **herbs:** reed canarygrass, field horsetail (*Equisetum arvense*, FAC), colonial bentgrass (*Agrostis capillaris*, FAC), sweet vernalgrass (*Anthoxanthum odoratum*, FACU), bird's-foot trefoil (*Lotus corniculatus*, FAC), and creeping buttercup (*Ranunculus repens*, FAC).

SOILS

Natural Resources Conservation Service (NRCS) designates soils onsite as Caples silty clay loam, 0 to 3 percent slopes, Clato silt loam, 0 to 3 percent slopes, Godfrey silt loam, 0 to 3 percent slopes, Greenwater fine sandy loam, 0 to 8 percent slopes, Kelso silt loam, 15 to 30 percent slopes, Newberg fine sandy loam, 0 to 3 percent slopes, and Pilchuck loamy fine sand, 0 to 8 percent slopes (Figure 3). Caples silty clay loam is characterized as a somewhat poorly drained soil formed on floodplains and derived from alluvium, with a typical profile consisting of silty clay loam from 0 to 60 inches below ground surface (BGS). Clato silt loam is characterized as a well-drained soil formed on floodplains and derived from Alluvium. A typical profile of Clato silt loam consists of silt loam from 0 to 80 inches BGS. Godfrey silt loam is typically characterized as a poorly drained soil formed on floodplains and derived from alluvium, with a soil profile that is generally described

as silt loam from 0 to 5 inches, silty clay loam from 5 to 27 inches, and sandy clay from 27 to 60 inches BGS. Greenwater fine sandy loam is characterized as a somewhat excessively drained soil formed on escarpments and terraces. Greenwater fine sandy loam is derived from alluvium and pumice with volcanic ash. Kelso silt loam is characterized as a moderately well-drained soil formed on escarpments and terraces and derived from alluvium, with a typical profile consisting of silt loam from 0 to 60 inches BGS. Derived from alluvium, Newberg fine sandy loam is typically characterized as a well-drained soil formed on floodplains. A typical profile of Newberg fine sandy loam consists of fine sandy loam from 0 to 10 inches and very fine sandy loam from 10 to 28 inches BGS. Pilchuck loamy fine sand is derived from alluvium and formed on floodplains, with a typical profile consisting of loamy fine sand from 0 to 12 inches, fine sand from 12 to 36 inches, and gravelly sand from 12 to 36 inches BGS. Pilchuck loamy fine sand is described as a somewhat excessively drained soil (NRCS 2019a). According to the NRCS Hydric Soils List, Caples silty clay loam and Godfrey silt loam are classified as hydric soils (2019b). Wetland A was delineated primarily within the mapped Godfrey silt loam soil unit (Figures 2 and 3). 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.

All soils evaluated within wetland test plots consisted of silt loams that satisfied requirements for the hydric soil indicators "redox dark surface" or "depleted matrix". In upland areas, soils within TP's 3 and 5 satisfied requirements for the hydric soil indicator redox dark surface. However, these locations lacked either indicators of wetland hydrology or hydrophytic vegetation.

HYDROLOGY

Wetland A

Wetland A is located along a seasonally flowing farm ditch (Ditch 1) in the western portion of the property (Figure 2). Stream 1 has an approximately 2-4-foot wide channel which conveys water north through the central portion of the wetland. During the site visit, no surface water was observed within the wetland. Sources of wetland hydrology include runoff from adjacent impervious surfaces to the west, as well as runoff from the adjacent regularly mowed field bordering the wetland to the south and east. Additional sources of wetland hydrology include precipitation and a seasonally high groundwater table. Hydroperiods of the wetland include seasonally flooded and saturated only, with the saturated only hydroperiod comprising the majority of Wetland A's area. 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. 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 palustrine, forested, scrub-shrub, and seasonally flooded wetland (PFO/SSC) located along the western property boundary with portions extending north in the same general location as Ditch 1, and portions extending offsite to the west (Figures 2 and 4). ELS findings are generally in agreement with this wetland designation, as Wetland A was delineated in the same general location. However, portions

of the wetland mapped by NWI extending north in the same location as Ditch 1 are likely a reflection of seasonal water conveyance, not of a wetland, and ELS' observations indicate Wetland A is a forested wetland. Additionally, the offsite portion of the palustrine wetland mapped by NWI is likely not present, given it is mapped over existing impervious surfaces. Furthermore, NWI indicates the presence of permanently flooded freshwater pond (PUBH) in the central portion of Wetland A. ELS findings are not in agreement with this wetland designation, as onsite observations were indicative of a seasonally flooded depressional wetland - no evidence of a permanently flooded freshwater pond was observed (Photoplate 1). NWI and CCWI maps are typically used to gather wetland information about a region and due to the large scale necessary for regional mapping are limited in accuracy for localized analyses.

CRITICAL AREAS SUMMARY

Wetland A

Wetland A was delineated on June 26, 2020 in the central portion of the study area (Figure 2). According to the *Washington State Wetland Rating System for Western Washington: 2014 Update (Rating System)* (Hruby 2014); Wetland A is a forested depressional wetland spanning approximately 2.97 acres onsite (129,373 square feet) (Figure 2). 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 hawthorne, Himalayan blackberry, Sitka willow, rose spirea, and reed canarygrass. Sources of wetland hydrology include runoff from adjacent impervious surfaces to the west, as well as runoff from the adjacent regularly mowed field bordering the wetland to the south and east. Additional sources of wetland hydrology include seasonally flooded and saturated only, with the saturated only hydroperiod comprising the majority of Wetland A's area (Figure 6). According to the *Rating System*; Wetland A is a riverine Category III wetland scoring 5 points for water quality functions, 6 points for hydrologic functions, and 5 points for habitat functions. The wetland rating form can be found in Appendix B.

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 III wetland. According to *WMC*, a habitat score of 5 is considered moderate (*WMC Table 15.08.400-1*). However, according to Washington State Department of Ecology's Washington State Wetland Rating System for Western Washington, which was updated in July of 2018, habitat scores of 3-5 are considered low (Washington State Ecology 2018). Therefore, Wetland A is a Category III wetland with a low habitat score and high land use intensity. *WMC Table 15.08.400-1* indicates the required buffer width for Wetland A is 80 feet. Table 1 summarizes the critical areas onsite.

Streams

Stream 1

Robinson Creek flows southeast through the northeast corner of the property. According to DNR, Robinson Creek is a Type F (Fish bearing) body of water (Figure 2). During the site visit, the stream channel was approximately 4-6 feet wide and 3-4 feet deep with minimal flow. Robinson Creek exits the property in the northeast corner and flows east for about 200 feet before draining into the Lewis River, passing through a box culvert along the way (Lewis River Road). Dominant riparian vegetation included red alder (Alnus rubra), salmonberry (Rubus spectabilis), Himalayan blackberry, reed canarygrass, swordfern (Polystichum munitum), American black nightshade (Solanum americanum), English ivy (Hedera helix), and bull thistle (Cirsium vulgare). According to WMC Table 15.08.730-1, Robinson 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).

Critical Area	Category ¹ /Cowardin Class ² /HGM Class ³ /Type ⁴	Size (onsite)	Habitat Score ⁵	Buffer Width ^{6,7}
Wetland A	III/Forested/Depressional	2.97 acres (129,373 sq. ft.)	5 (low)	80 feet
Robinson Creek	Type F (fish bearing)	N/A	N/A	150 feet

Table 1. Critical Areas Summary

'Hruby 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

RIPARIAN BUFFER AVERAGING

The applicant is proposing a 150-lot residential subdivision for single-family dwellings on the property that will include clearing, grading, lot preparation, utility installation, construction of interior streets, and the construction of two stormwater detention facilities (Figure 3). This project proposes riparian buffer averaging to maximize the useable cleared and levelled area and allow space for stormwater management in the northern portion of the property. According to WMC 15.08.720-(G-3) (excerpted 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 Robinson Creek is 150 feet. The applicant proposes a reduction in buffer width in the northern portion of the property in the vicinity of the stormwater detention ponds and lots 114 and 115 from 150 feet to 115 feet at its narrowest point, equating to 0.45 acres (19,704 sq. ft.) of reduced riparian buffer area. In exchange, the western portion of the riparian buffer associated with Robinson Creek will be increased from the designated 150-foot width to approximately 200 feet, equating to 0.45 acres (19,704 sq. ft.) of increased riparian buffer area and resulting in no net loss of total riparian buffer area. Existing riparian buffer functionality in the area of riparian buffer reduction is nominal. The buffer reduction area is generally flat, and existing vegetation diversity in the area is minimal, consisting entirely of invasive reed canarygrass and herbaceous orchard grasses that are regularly maintained and mowed, providing little waterquality improvements to the stream. The north-central area of the property wherein the riparian buffer width will be increased contains a higher degree of vegetative diversity, including several native shrub and herbaceous species, as well as several scattered trees (Figure 3). Therefore, increasing the riparian buffer width in this area is expected to provide increased riparian buffer functionality than that currently provided by the riparian buffer associated with Robinson Creek, ensuring no net loss of riparian buffer functionality. Furthermore, the area of buffer reduction is adjacent to the proposed vegetated detention basins, which constitute a low land use intensity, whereas the area of buffer addition resides near residential development, which in this case constitutes high land use intensity. Increasing the riparian buffer in the vicinity of residential development provides greater buffer functionality than the area wherein buffer reduction is proposed. The two proposed stormwater facilities will treat stormwater generated onsite prior to discharging into the stream, as opposed to current conditions which involve untreated stormwater draining into the stream without a reduction in flow velocity or sediment content. Therefore, the proposed stormwater ponds provide enhanced water quality functionality as opposed to that which is currently provided, which will benefit local salmonid species which are likely present seasonally. The average riparian buffer will not be less than 115 feet at its narrowest point (approximately 76 percent of original width).

Identifier	Original Buffer	Modified Buffer	Buffer Average	Buffer Average
	Width	Width	In	Out
Robinson Creek Buffer	150 feet	115 feet ¹	-0.45 acres (19,704 sq. ft.)	+0.45 acres (19,704 sq. ft.)

Table 2. Summary	of Riparian	Buffer	Averaging

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

WETLAND BUFFER AVERAGING

Additionally, this project proposes wetland buffer averaging to maximize the usable cleared and levelled area. According to *WMC 15.08.400-(G) (excerpted 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 western portion of Wetland A's buffer from 80 feet to approximately 58 feet at its narrowest point, equating to 0.33 acres (14,273 sq. ft.) and approximately 72 percent of the required buffer width. In exchange, the northern portion of Wetland A's buffer will be increased from the designated 80-foot width by 0.33 acres (14,273 sq. ft.) to achieve no net loss of wetland buffer area (Figure 3). The area proposed for buffer reduction consists entirely of regularly mowed and haved herbaceous species such as orchard grass and invasive reed canarygrass, whereas the area proposed for buffer addition is completely undisturbed, consisting of a dense tree, shrub, and herbaceous community. Areas proposed for increased buffer width provide considerably more habitat opportunities to local wildlife, as well as providing greater water quality improvement than the buffer currently associated with Wetland A. 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 75-foot intervals which will be installed on permanent split-rail fencing. The splitrail 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. (Figure 3).

Identifier	Original Buffer	Modified Buffer	Buffer Average	Buffer Average
	Width	Width	In	Out
Wetland A Buffer	80 feet	56 feet ¹	-0.33 acres (14,273 sq. ft.)	+0.33 acres (14,273 sq. ft.)

¹Modified buffer width refers to wetland 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 150 lot subdivision has gone through several revisions to minimize critical area impacts to the maximum extent possible while still providing housing opportunities that are consistent with the City's zoning requirements and housing needs. Through the use of riparian and wetland buffer averaging, the proposed subdivision entirely avoids direct impacts to wetlands, wetland buffers, and the riparian buffer associated with Robinson Creek. Only a small amount of temporary impacts

are expected to occur as a result of constructing the stormwater conveyance facilities partially within the riparian buffer of Robinson Creek (380 sq. ft, 0.009 acres), which is allowed per *WMC 15.08.730* (Figure 3).

The proposed 150 lot subdivision is located within the Low-Density Residential District (LDR-8.5) according to the City of Woodland's Comprehensive Plan, which is a zoning designation intended for single-family residences between 4-6 units per acre. The proposed subdivision contains approximately 4.1 units per acre. Although buffer averaging has eliminated all direct wetland, wetland buffer, and riparian buffer impacts related to the proposed project, 380 square feet of temporary impacts to the onsite riparian buffer are expected to occur during project construction. However, completely avoiding temporary riparian buffer impacts entirely would not be feasible given the topography of the site and the goals of Woodland's comprehensive plan. The proposed project is already at approximately 4.1 units per acre, therefore, avoiding temporary impacts via a reduction in total lots would render the project out of concurrence with City zoning requirements. Furthermore, the northeast corner of the property is the lowest point topographically of the site. Locations of the proposed vegetated stormwater 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. The two ponds will each have an associated vegetated filter strip which will convey water northeast towards Robinson Creek, slowing flow velocity and trapping sediment as water is conveyed. Prior to discharging to the stream, the vegetated filter strips will intersect at a gravel outfall, further reducing flow velocity prior to stream discharge (Figure 3). Water quality improvements associated with treating all stormwater generated onsite prior to discharging to the stream far outweigh the drawbacks of 380 square feet of temporary impacts, as untreated stormwater currently generated onsite and from Lewis River Road drains into the stream without prior treatment.

During construction, temporary riparian buffer impacts will be further minimized by the use of best management practices (BMPs) including installing temporary silt fencing along the wetland and riparian buffer during construction, applying native grass seed to disturbed areas not being paved when grading is complete, and making a water truck available to prevent wind erosion and dust blowing during construction. After construction, permanent 5-foot tall split-rail fencing 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 2-foot wide trench will be installed and isolated by backfilling a short section of the trench with bentonite prior to reaching the stream to form an impenetrable barrier or plug.
- 2. The remaining trench 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 0.009 acres (380 sq. ft.) of the riparian buffer associated with Robinson Creek as a result of constructing stormwater conveyance facilities partially within the buffer, which is allowed per *WMC 15.08.730* (Figure 3). However, these 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 two vegetated storm ponds prior to discharging to the stream. Current conditions allow untreated stormwater generated onsite and from Lewis River Road to drain into the stream untreated. There are no direct wetland, wetland buffer, or riparian buffer impacts expected to occur as a result of this project. A wetland impact summary is provided in Table 4.

Impact	Туре	Impact	Impact
Area		Type	Amount
Robinson Creek	Type F (fish-bearing)	Direct	0.009 acres (380 sq. ft.)

Table 4. Summary of Wetland Impacts.

¹ WMC 15.08.350

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

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FIGURES AND PHOTOPLATES



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LEGEND:



LEGEND cont:

Temporary Riparian Buffer Impacts (380 sq. ft.)

Wetland Buffer Avg. In - 14,273 sq.ft.

Wood Chip Walking Path

Wooden Foot Bridge

Permanent Split-Rail Fence and Habitat Signage





Map provided online by NRCS at web address: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey











APPENDIX A: WETLAND DETERMINATION DATA FORMS

Project/Site: Woodland Creek Redelineation	City/County: Woodland/Cowlitz	Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC	State: WA	Sampling Point: TP1
Investigator(s): Godinho, Shawn and McManus, Jacob	Section, Township, Range: S7, T	5N, R1E
Landform (hillslope, terrace, etc.): Flood plains	Local relief: (concave, convex, none): non	e Slope (%):0-3%
Subregion (LRR): A Lat: 45.929	7625° Long: -122.725788°	Datum: NAD83
Soil Map Unit Name: (65) Godfrey silt loam	NWI classification	: PFO/SSC
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes No (If no, explain Rema	arks.)
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances" pr	esent? Yes 🛛 No 🗌
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers in R	emarks.)
SUMMARY OF FINDINGS – Attach site map showing s	ampling point locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes ⊠ No □ Hydric Soils Present? Yes □ No ⊠ Wetland Hydrology Present? Yes □ No ⊠	Is the Sampled Area within a Wetland? Yes	
Remarks: TP-1 was located in the western portion of Cowlitz County herbaceous species. The hydrophytic vegetation criterion was met g indicator statuses. However, there was no evidence of hydric soil or	⁷ Tax Parcel 508240100, north of Wetland A iven 100% of the dominant species within t wetland bydrology indicators observed with	A. Vegetation in this test plot consisted of he plot have FAC, FACW, or OBL in this test plot, therefore, it is not

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test Worksheet		
Tree Stratum (Plot size:30 ft radius)	% Cover	Species?	Status			
1	%			Number of Dominant Species	1	(A)
2.	%			That Are OBL, FACW, or FAC:		
3.	%			1		
4.	%			Total Number of Dominant	1	(B)
50% = 20% =	%	=Total Cover		Species Across All Strata:		. ,
				Percent of Dominant Species		
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				That Are OBL, FACW, or FAC	100	(A/B)
<u></u>	%			Prevalence Index worksheet		<u> </u>
2.	%			Total % Cover of:	Multiply by:	
3.	%			OBL species	x 1=	_
4.	%			FACW species	x 2=	-
5.	%			FAC species	x 3=	-
50% = 20% =	%	=Total Cover		FACU species	x 4=	-
Herb Stratum (Plot size: 5 ft radius)		-		UPL species	x 5=	-
1. Phalaris arundinacea	95%	ves	FACW	Column Totals:	(A)	(B)
2. Fauisetum arvense	5%	no	FAC	Prevalence Index =	B/A=	
3	%			Hydrophytic Vegetation Indica	ators:	
4	<u> </u>			\Box 1 – Rapid Test for Hydrop	hytic Vegetation	
5	<u> </u>			\boxtimes 2 – Dominance Test is >50	1%	
6	<u> </u>			\square 3 - Prevalence Index is <3	0 ¹	
7	<u> </u>				ions ¹ (Provide	
8	%			supporting data in Remark	s or on a senarate	
0.	0/_			sheet)		
10				5 - Wotland Non-Vascular	Plante ¹	
11					Fidilits	
50% - 50, 20% - 20	100%	-Total Covor		Problematic Hydrophytic \	(agotation ¹ (Evaluin	
50% = 50% = 20% = 20% Woody Vino Stratum (Plot size: 15 ft radius)	100 /6)
1	0/			¹ Indicators of hydric soil and wo	tland hydrology	
1. 2				must be present unless disturbe	and or problematic	
Z	/0	-Total Cover		must be present, unless disturbe		
50% = 20% =	70			Hydrophytic		
				Vogotation		
				Present?		1
% Bare Ground in Herb Stratum 0%						
Remarks: The hydrophytic vegetation criterion was m	net given 100°	6 of the domina	nt species	within the plot have FAC, FACW	or OBL indicator	
statuses.						

SOIL

	n needed to document	the indicator or co	nfirm the	absence of indicators.)	
Depth Matrix	Redo	x Features			
(inches) Color (moist) %	Color (moist)	% Type ¹	Loc ²	Texture	Remarks
0-7 10YR 3/3 97%	10YR 4/6 3	3% C	М	loam	
<u>7-16</u> 10YR 3/4 95%	10YR 4/6 5	6% C	М	silt loam	See Remarks Below
		<u>%</u>		<u> </u>	
		<u>%</u>			
<u></u>		<u>%</u>			
<u> </u>		<u>%</u>			
<u>%</u>		%			
¹ Type: C=Concentration, D=Depletion, RM	I=Reduced Matrix, CS=C	overed or Coated S	and Grains	s. ² Location: PL=Po	re Lining, M=Matrix
Hydric Soil Indicators: (Applicable to all I	RRs, unless otherwise	noted.)		Indicators for Problema	atic Hydric Soils
Li Histosal (A1)	Sandy Redox (S5)	2)		2 cm Muck (A10)	
					F2)
	Loamy Mucky Min	eral (F1) (except M	LRA 1)	Very Shallow Dark Sur	face (TF12)
		trix (F2)		U Other (Explain in Rema	arks)
Depleted Below Dark Surface (A11)	Depleted Matrix (F	3)		31. 1	
Construction Minerals (21)	Redox Dark Surface	Ce (F6)		Vetland hydrology mu	Vegetation and
Sandy Mucky Minerals (S1)				unless disturbed or pro	blematic
		S (F8)			
Restrictive Layer (if present):					
Type:					
Depth (inches):			Hvo	dric Soil Present?	Yes⊟ No⊠
Remarks: No evidence of hydric soil indicate	ors observed within this te	est plot.			
III DROEDOT					
Watland Usakalami Indiaatara					
Wetland Hydrology Indicators:					
Wetland Hydrology Indicators: Primary Indicators (min. of one required; che	eck all that apply)			Secondary Indica	ators (2 or more required)
Wetland Hydrology Indicators: Primary Indicators (min. of one required; che Surface Water (A1)	eck all that apply)	ives (B9) (except N	ILRA 1, 2,	Secondary Indica	ators (2 or more required) d Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicators: Primary Indicators (min. of one required; che □ Surface Water (A1) □ High Water Table (A2)	eck all that apply)	ives (B9) (except N	ILRA 1, 2,	Secondary Indica 4A, UWater-Stained 4A, and 4	ators (2 or more required) d Leaves (B9) (MLRA 1, 2, B)
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Wetland Hydrology Indicators: Primary Indicators (min. of one required; che Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	eck all that apply) Uater-Stained Lea and 4B) Salt Crust (B11) Aquatic Invertebra	ives (B9) (except N tes (B13)	ILRA 1, 2,	AA, Secondary Indica 4A, Water-Stained 4A, and 4 Drainage Patt Dry-Season V	ators (2 or more required) d Leaves (B9) (MLRA 1, 2, B) terns (B10) Vater Table (C2)
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Wetland Hydrology Indicators: Primary Indicators (min. of one required; che 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 (Bi Field Observations: Surface Water Present? Yes Saturation Present? Yes Includes Capillary fringe) Describe Recorded Data (Stream gauge motion)	eck all that apply) Water-Stained Lea and 4B) Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Invertebra) Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in F8) No Integration Depth (Inverted to the property	tes (B9) (except N tes (B13) Ddor (C1) teres along Living R ced Iron (C4) tion in Tilled Soils (d Plants (D1) (LRR cemarks) Ches): None ches): None ches): None	ILRA 1, 2, oots (C3) C6) A) Wetl	A, Secondary Indica 4A, Water-Stained 4A, and 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC Neutral ⁻ Raised Ant M Frost-Heave F Iand Hydrology Present?	ators (2 or more required) d Leaves (B9) (MLRA 1, 2, B) terns (B10) Vater Table (C2) sible on Aerial Imagery (C9) Position (D2) ard (D3) Test (D5) ounds (D6) (LRR A) Hummocks (D7) Yes □ No ⊠
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Wetland Hydrology Indicators: Primary Indicators (min. of one required; che 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 (Bi Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes Includes Capillary fringe) Describe Recorded Data (Stream gauge, mode)	eck all that apply) Water-Stained Lea and 4B) Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresses Other (Explain in F8) No Depth (Incomposition of the pertect) Distribution of the pertect) Depth (Incomposition of the pertect)	tes (B9) (except N tes (B13) Odor (C1) teres along Living R ced Iron (C4) tion in Tilled Soils (d Plants (D1) (LRR Remarks) Ches): None ches): None ches): None ches): None	ILRA 1, 2, oots (C3) C6) A) Wetl ions), if av	AA, Secondary Indica 4A, Water-Stained 4A, and 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC Neutral Raised Ant M Frost-Heave F Iand Hydrology Present? railable:	ators (2 or more required) d Leaves (B9) (MLRA 1, 2, B) terns (B10) Vater Table (C2) sible on Aerial Imagery (C9) Position (D2) tard (D3) Test (D5) ounds (D6) (LRR A) Hummocks (D7) Yes □ No ⊠
Wetland Hydrology Indicators: Primary Indicators (min. of one required; che 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 (Bi Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes Includes Capillary fringe) Describe Recorded Data (Stream gauge, model)	eck all that apply) Water-Stained Lea and 4B) Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in F B) No I Depth (Inc State I Depth (Inc Interview Interview	tes (B9) (except M tes (B13) Odor (C1) teres along Living R ced Iron (C4) tion in Tilled Soils (d Plants (D1) (LRR Remarks) Ches): None ches): None ches): None ches): None	ILRA 1, 2, oots (C3) C6) A) Weth ions), if av	A, Secondary Indica 4A, Water-Stained 4A, and 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC Neutral Raised Ant M Frost-Heave F Iand Hydrology Present? Tailable:	ators (2 or more required) d Leaves (B9) (MLRA 1, 2, B) terns (B10) Vater Table (C2) sible on Aerial Imagery (C9) Position (D2) tard (D3) Test (D5) ounds (D6) (LRR A) Hummocks (D7) Yes □ No ⊠
Wetland Hydrology Indicators: Primary Indicators (min. of one required; che 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 (Bi Field Observations: Surface Water Present? Yes Saturation Present? Yes Includes Capillary fringe) Describe Recorded Data (Stream gauge, mode) Remarks:No evidence of wetland hydrology	eck all that apply) Water-Stained Lea and 4B) Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in F B) No Image: Depth (Incomposition on the stresse Imad	tes (B9) (except N tes (B13) Ddor (C1) teres along Living R ced Iron (C4) tion in Tilled Soils (d Plants (D1) (LRR Remarks) ches): None ches): None ches): None ches): None ches): None ches): None	ILRA 1, 2, oots (C3) C6) A) Weth ions), if av	AA, Secondary Indica 4A, Water-Stained 4A, and 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC Neutral Raised Ant M Frost-Heave F Iand Hydrology Present? railable:	ators (2 or more required) d Leaves (B9) (MLRA 1, 2, B) terns (B10) Vater Table (C2) sible on Aerial Imagery (C9) Position (D2) ard (D3) Test (D5) ounds (D6) (LRR A) Hummocks (D7) Yes □ No ⊠
Wetland Hydrology Indicators: Primary Indicators (min. of one required; chell 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 (Bried Observations: Surface Water Present? Yes Saturation Present? Yes Includes Capillary fringe) Describe Recorded Data (Stream gauge, model) Remarks:No evidence of wetland hydrology	eck all that apply) Water-Stained Lea and 4B) Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Invertebra) Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in F8) No Intervention No Depth (Invertebra) No Depth (Invertebra) No Depth (Invertebra) No Depth (Invertebra) Indicators observed within	tes (B9) (except N tes (B13) Odor (C1) teres along Living R ced Iron (C4) tion in Tilled Soils (d Plants (D1) (LRR Remarks) ches): None ches): None ches): None ches): None ches): None ches): None	ILRA 1, 2, oots (C3) C6) A) wet ions), if av	AA, Secondary Indica 4A, Water-Stained 4A, and 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC Neutral ⁻ Raised Ant M Frost-Heave F Iand Hydrology Present? railable:	ators (2 or more required) d Leaves (B9) (MLRA 1, 2, B) terns (B10) Vater Table (C2) sible on Aerial Imagery (C9) Position (D2) ard (D3) Test (D5) ounds (D6) (LRR A) Hummocks (D7) Yes □ No ⊠
Wetland Hydrology Indicators: Primary Indicators (min. of one required; chell 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 (B) Field Observations: Surface Water Present? Yes Saturation Present? Yes Includes Capillary fringe) Describe Recorded Data (Stream gauge, model) Remarks:No evidence of wetland hydrology	eck all that apply) Water-Stained Lea and 4B) Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Invertebra) Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresset Other (Explain in F8) No Image: Depth (Invertebra) Image: Depth (Invertebra) <	tes (B9) (except N tes (B13) Odor (C1) teres along Living R ced Iron (C4) ttion in Tilled Soils (d Plants (D1) (LRR Remarks) ches): None ches): None ches): None ches): None ches): None	ILRA 1, 2, oots (C3) C6) A) Wetl ions), if av	AA, Water-Stained 4A, Water-Stained 4A, and 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC Neutral ⁻ Raised Ant M Frost-Heave F Iand Hydrology Present? ailable:	ators (2 or more required) d Leaves (B9) (MLRA 1, 2, B) terns (B10) Vater Table (C2) sible on Aerial Imagery (C9) Position (D2) aard (D3) Test (D5) ounds (D6) (LRR A) Hummocks (D7) Yes □ No ⊠

Project/Site: Woodland Creek Redelineation	City/County: Woodland/Cowlitz	Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC	State: WA	Sampling Point: TP2
Investigator(s): Godinho, Shawn and McManus, Jacob	Section, Township, Range: S7, T5	5N, R1E
Landform (hillslope, terrace, etc.): Flood plains	Local relief: (concave, convex, none): Con	cave Slope (%):0-3%
Subregion (LRR): A Lat: 45.929	062983° Long: -122.7259°	Datum: NAD83
Soil Map Unit Name: (65) Godfrey silt loam	NWI classification:	PFO/SSC
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" pro	esent? Yes⊠ No⊡
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers in R	emarks.)
SUMMARY OF FINDINGS – Attach site map showing s	ampling point locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes 🛛 No 🗌	la the Sampled Area	
Hydric Soils Present? Yes 🛛 No 🗌	is the Sampled Area	
Wetland Hydrology Present? Yes 🛛 No 🗌		

Remarks: TP-2 was located in the western portion of Cowlitz County Tax Parcel 508240100, within the northern portion of Wetland A. Vegetation in this test plot consisted of tree, scrub-shrub, and emergent species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. Additionally, the hydric soil indicator Depleted Matrix (F3) was observed, along with the following wetland hydrology indicators: Oxidized Rhizospheres Along Live Roots (C3), a positive FAC-Neutral Test (D5), and Geomorphic Position (D2). 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	Dominant	Indicator	Dominance Test Worksheet		
Tr	ee Stratum (Plot size: <u>30</u> ft radius)	% Cover	Species?	Status			
1.	Fraxinus latifolia	15%	yes	FACW	Number of Dominant Species	4	(A)
2.	Crataegus douglasii	15%	yes	FAC	That Are OBL, FACW, or FAC:		
3.		%			7		
4.		%			Total Number of Dominant	4	(B)
	$50\% = 15\ 20\% = 6$	30%	=Total Cover		Species Across All Strata:		
			_		Demonstraf Demoissant Organian		
C	unling/Chruch Chrothum (Dist sizes 45 ft redius)				That Are OBL FACIAL or FAC	100	(A / D)
<u>36</u>	<u>(Piot Size: 15 it. radius)</u>	250/			That Are OBL, FACW, of FAC	100	(А/В)
1.	Spiraea dougiasii	25%	yes	FACW	Tetel % Cover of	Multiply by	
2.		<u>%</u>					_
3.		<u> </u>				x 1=	-
4.	<u>.</u>	<u> </u>				x 2=	-
5.		<u>%</u>				x 3=	-
	50% = 13 20% = 5	25%	= I otal Cover		FACU species	x 4=	-
He	erb Stratum (Plot size: 5 ft radius)				UPL species	x 5=	
1.	Phalaris arundinacea	50%	yes	FACW	Column Totals:	(A)	(B)
2.	Equisetum arvense	10%	no	FAC	Prevalence Index =	B/A=	
3.	Rubus ursinus	10%	no	FACU	Hydrophytic Vegetation Indica	ators:	
4.		%			1 – Rapid Test for Hydrop	hytic Vegetation	
5.		%			2 – Dominance Test is >50	0%	
6.		%			3 - Prevalence Index is ≤3	.0 ¹	
7.		%			4 - Morphological Adaptati	ons ¹ (Provide	
8.		%			supporting data in Remark	s or on a separate	Э
9.		%			sheet)		
10.		%			5 - Wetland Non-Vascular	Plants ¹	
11.		%			7		
	50% = 35 20% = 14	70%	=Total Cover		Problematic Hydrophytic V	egetation ¹ (Explai	n)
W	oody Vine Stratum (Plot size: 15 ft radius)		-			0	,
1.		%			¹ Indicators of hydric soil and wet	land hydrology	
2.		%			must be present, unless disturbe	ed or problematic.	
	E0%/ 20%/	%	=Total Cover				
	50% = 20% =		-		Hydrophytic		
					Vegetation		
					Present?	Yes⊠ No	
%	Bare Ground in Herb Stratum <u>30%</u>						
Re	marks:The hydrophytic vegetation criterion was n	net given 1009	% of the domina	nt species	within the plot have FAC, FACW, o	or OBL indicator	
stati	ises.	5		•	•		

SOIL					Sampling Point: <u>TP2</u>
Profile Description: (Describe t	o the depth needed to docu	ment the indicator o	r confirm th	ne absence of indicators.)	
Depth Matrix		Redox Features			
(inches) Color (moist)	% Color (moist)	<u>%</u> Type ¹	Loc ²	Texture	Remarks
$\frac{0.3}{3.16}$ $\frac{10YR 3/4}{10YP 4/1}$ $\frac{10}{9}$	JU%	<u> </u>		Silt Ioam	Soo Pomarks Bolow
	%	<u> </u>		Siit Idain	See Remarks Delow
	%	%			
	%	%			
<u> </u>	%	%			
—— —	<u>%</u>	<u>%</u>			
	70 Plotion PM-Poducod Matrix	CS-Covered or Cost	d Sand Gra	ains ² l ocation: Pl –Por	o Lining M-Matrix
Hydric Soil Indicators: (Applica	ble to all I RRs. unless othe	erwise noted.)		Indicators for Problema	tic Hydric Soils
Histosal (A1)	Sandy Redo	x (S5)		2 cm Muck (A10)	
Histic Epipedon (A2)	Stripped Ma	trix (S6)		Red Parent Material (TI	F2)
Black Histic (A3)	Loamy Muck	ky Mineral (F1) (excep	ot MLRA 1)	Very Shallow Dark Surf	face (TF12)
Hydrogen Sulfide (A4)	🗌 Loamy Gley	ed Matrix (F2)		Other (Explain in Remains)	arks)
Depleted Below Dark Surface	(A11)	atrix (F3)			
Thick Dark Surface (A12)	Redox Dark	Surface (F6)		³ Indicators of hydrophytic \	vegetation and
Sandy Mucky Minerals (S1)	Depleted Da	irk Surface (F7)		vvetiana nyarology mus	st de present, blematic
Sandy Gleyed Matrix (S4)	☐ Redox Depr	essions (F8)			
Restrictive Layer (if present):					
Type:					
Depth (inches):				Ivdric Soil Present?	Yes⊠ No⊡
Remarks: Requirements for the h	vdric soil indicator Depleted N	Aatrix (F3) were met w	ithin this tes	st plot given the presence of a	soil laver with at least
60% matrix value of 4 or more an	d a chroma of 2 or less with d	istinct or prominent re	dox concen	trations.	
HYDROLOGY					
Wetland Hydrology Indicators:					
Primary Indicators (min. of one re	quired; check all that apply)			Secondary Indica	ators (2 or more required)
Surface Water (A1)	U Water Stein	ad Loover (PO) (aver	A MIDA 1	2 4 Water Stainer	
High Water Table (A2)	and 4B)		JUNIERA I,	4A , A and 4	B)
\Box Saturation (A3)	□ Salt Crust (E	311)		Drainage Patt	erns (B10)
Water Marks (B1)		rtebrates (B13)		Drv-Season W	Vater Table (C2)
Sediment Deposits (B2)	Hydrogen S	ulfide Odor (C1)		Saturation Vis	ible on Aerial Imagery (C9)
Drift Deposits (B3)	⊠ Oxidized Rh	izospheres along Livir	ng Roots (C	3) — Geomorphic F	Position (D2)
Algal Mat or crust (B4)	Presence of	Reduced Iron (C4)		Shallow Aquita	ard (D3)
Iron Deposits (B5)	Recent Iron	Reduction in Tilled So	ils (C6)	🛛 FAC Neutral T	Fest (D5)
Surface Soil Cracks (B6)	Stunted or S	tressed Plants (D1) (I	.RR A)	Raised Ant Mo	ounds (D6) (LRR A)
Inundation Visible on Aerial Im	agery (B7)	iin in Remarks)		Frost-Heave H	Hummocks (D7)
Sparsely Vegetated Concave	Surface (B8)				
Field Observations:					
Surface Water Present? Yes		oth (Inches): None	144		
Vater Table Present? Yes	L No⊠ Dep D No⊠ Der	oth (Inches): None	vv	retiand Hydrology Present?	
(Includes Capillary fringe)		fin (inches). None			
Describe Recorded Data (Stream	gauge, monitoring well, aeria	l photos, previous ins	pections), if	available:	
	1 1 1 1 1 				
Remarks: The primary wetland hy	drology indicator Oxidized Rh	IZOSPheres Along Live	Roots (C3)) was observed within this test	t plot. Additionally,
			ai i est (D3)	שבול שמושווכט.	

Project/Site: Woodland Creek Redelineation	City/County: Woodland/Cowlitz	Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC	State: WA	Sampling Point: TP3
Investigator(s): Godinho, Shawn and McManus, Jacob	Section, Township, Range: S7	7, T5N, R1E
Landform (hillslope, terrace, etc.): Escarpments, terraces Lo	cal relief: (concave, convex, none):	none Slope (%):0-3%
Subregion (LRR): A Lat: 45.92846	Long: -122.7262011°	Datum: NAD83
Soil Map Unit Name: (69) Greenwater fine sandy loam	NWI classifica	tion: PFO/SSC
Are climatic / hydrologic conditions on the site typical for this time of year	ar? Yes🛛 No🗌 (If no, explain R	emarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances	s" present? Yes⊠ No⊡
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers	in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing san	pling point locations, transe	ects, important features, etc.
Hydrophytic Vegetation Present? Yes 🛛 No 🗌	Is the Sampled Area	
Hydric Soils Present? Yes 🛛 No 🗌	within a Wotland?	
Wetland Hydrology Present? Yes 🗌 No 🛛		
Remarks: TP-1 was located in the southwest portion of Cowlitz County	Tax Parcel 508250100, east of Wetl	and A. Vegetation in this test plot consisted
of herbaceous species. The hydrophytic vegetation criterion was met gi	ven 100% of the dominant species v	vithin the plot have FAC, FACW, or OBL
indicator statuses. Additionally, the hydric soil indicator Redox Dark Sur	face (F6) was observed. However, t	here was no evidence of 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	Dominant	Indicator	Dominance Test Worksheet		
<u>Tree Stratum</u> (Plot size: <u>30</u> ft radius)	% Cover	Species?	Status	Number of Dominant Species	_	(•)
1. Ainus rubra	25%	yes	FAC	That Aro OBLEACW or EAC	5	(A)
2.	<u>%</u>			That Ale OBL, FACW, OF FAC.		
3.	%			Total Number of Dominant	_	
4	%			Species Across All Strata:	5	(B)
$50\% = \underline{13} \ 20\% = \underline{5}$	25%	=Total Cover		opeoles Across Air Otrata.		
				Percent of Dominant Species		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15 f</u> t. radius)				That Are OBL, FACW, or FAC	<u>100</u>	(A/B)
1. Rubus armeniacus	25%	yes	FAC	Prevalence Index worksheet		
2. Salix sitchensis	15%	yes	FACW	Total % Cover of:	Multiply by:	
3	%			OBL species	x 1=	_
4	%			FACW species	x 2=	_
5.	%			FAC species	x 3=	_
50% = 20 $20% = 8$	40%	=Total Cover		FACU species	x 4=	
Herb Stratum (Plot size: 5 ft radius)		_		UPL species	x 5=	_
1. Phalaris arundinacea	20%	yes	FACW	Column Totals:	(A)	(B)
2. Equisetum arvense	20%	yes	FAC	Prevalence Index =	B/A=	
3.	%			Hydrophytic Vegetation Indica	itors:	
4.	%			1 – Rapid Test for Hydrop	nytic Vegetation	
5.	%			2 – Dominance Test is >50)%	
6.	%			☐ 3 - Prevalence Index is ≤3	.0 ¹	
7.	%			4 - Morphological Adaptati	ons ¹ (Provide	
8.	%			supporting data in Remark	s or on a separate	
9.	%			sheet)		
10.	%			5 - Wetland Non-Vascular	Plants ¹	
11.	%					
$50\% = \underline{20} \ 20\% = \underline{8}$	40%	=Total Cover		Problematic Hydrophytic V	egetation ¹ (Explair	ר)
Woody Vine Stratum (Plot size: <u>15</u> ft radius)						
1.	%			¹ Indicators of hydric soil and wet	land hydrology	
2.	%			must be present, unless disturbe	ed or problematic.	
50% = 20% =	%	=Total Cover				
		-		Hydrophytic		
				Vegetation		_
% Para Ground in Harb Stratum 60%				Present?	Yes⊠ No_] [
Remarks: The hydrophytic vegetation criterion was m	let given 1009	% of the domina	nt species	within the plot have FAC, FACW, o	or OBL indicator	
รเสเนรยร.						

SOIL								Sampling Point: TP3
Profile D	escription: (Desc	ribe to the depth	needed to do	cument the ind	licator or cor	nfirm the a	absence of indicators.)	
Depth	Matri	x		Redox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	10YR 3/2	97%	5YR 4/6	3%	C	М	Silt loam	See Remarks Below
5-16	10YR 3/2	90%	5YR 4/6	10%	С	М	Silt loam	See Remarks Below
		<u>%</u>		<u>%</u>				
		<u> %</u>		%				
				%				
				<u> </u>				
		<u> </u>						
Type:	C=Concentration	D=Depletion RM-	-Reduced Matr	ix CS=Covered	or Coated Sa	and Grains	² Location: PL=Po	re Lining M=Matrix
Ivdric S	oil Indicators: (A	pplicable to all L	Rs. unless o	therwise noted	.)		Indicators for Problema	atic Hydric Soils
] Histos	al (A1)		Sandy Re	edox (S5)	-,	1	2 cm Muck (A10)	····· , ·····
Histic	Epipedon (A2)		Stripped I	Matrix (S6)			Red Parent Material (T	F2)
Black	Histic (A3)		🗌 Loamy M	ucky Mineral (F1	I) (except ML	.RA 1)	Very Shallow Dark Sur	face (TF12)
] Hydro	gen Sulfide (A4)		Loamy G	leyed Matrix (F2)		Other (Explain in Rema	arks)
	ted Below Dark Su	urface (A11)	Depleted	Matrix (F3)	,		_ 、 .	,
 Thick	Dark Surface (A12	2)	Redox Da	ark Surface (F6)		:	³ Indicators of hydrophytic	vegetation and
 □ Sandy	Mucky Minerals (, S1)	Depleted	Dark Surface (F	7)		Wetland hydrology mu	st be present,
 ☐ Sandv	Gleved Matrix (S	4)	☐ Redox De	epressions (F8)	,		unless disturbed or pro	blematic
Postricti	ve Laver (if prese	() ()						
(conicu	ve Layer (il prese	ing.						
Гуре:								
Depth (in	ches):					Hyd	ric Soil Present?	Yes⊠ No⊡
YDROI	_OGY							
Vetland Primary I	Hydrology Indican ndicators (min. of a	ators: one required; cheo	k all that apply	')			Secondary Indica	ators (2 or more required)
Surfac	ce Water (A1)		U Water-Sta	ained Leaves (B	9) (except M I	LRA 1, 2, 4	4A, 🗌 Water-Staine	d Leaves (B9) (MLRA 1, 2 ,
	vater Table (A2)			iB)			4A, and 4	B)
	Allon (A3)			l (BII)	2)			lems (BTU)
	Walks (DT)			Sulfide Oder (C	3) 1)			valer Table (CZ)
	ieni Deposits (D2)			Bhizophoroo ol	/l) Iona Livina Da	rate (C2)		Societion (D2)
	Mot or orust (P4)			of Poducod Iror		1018 (03)		rord (D2)
] Aiyai i] Iron D	oposite (B5)			on Reduction in	Tillod Soils (C	` 6)		Tost (D5)
	epusits (DJ) 20 Soil Cracks (B6	\		r Strossod Plant		∧)		(D5)
	tion Visible on Ac) vrial Imagony (B7)		n Stresseu Flam		n)		Hummocks (D7)
	alion visible on Ae				5)			
	ely vegetated Col	icave Sunace (Do)					
	Nator Present?		No 🕅 🛛	Denth (Inches):	None			
Nater Ta	ble Present?	Yes 🗌		Depth (Inches):	None	Wetl	and Hydrology Present?	•
Saturatio	n Present?	Yes 🗌		Depth (Inches):	None			Yes 🗌 No 🕅
Includes	Capillary fringe)							
Describe	Recorded Data (S	Stream gauge, mor	nitoring well, ae	erial photos, prev	vious inspection	ons), if ava	ailable:	
Remarks	No evidence of w	etland hydrology ir	ndicators obser	rved within this to	est plot during	g the site v	isit.	

Project/Site: Woodland Creek Redelineation		City/Co	unty: Wood	lland/Cowlitz S	Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC		State: V	VA S	Sampling Point: TP4	
Investigator(s): Godinho, Shawn and McManus, Jaco	b	Sectio	n, Townshi	p, Range: <u>S7, T5N, R1E</u>	
Landform (hillslope, terrace, etc.): Escarpments, terra	ces	_Local relief: (c	concave, co	onvex, none): Concave	Slope (%): <u>0-8%</u>
Subregion (LRR): A	Lat: 45.92	848402°	Long: -12	2.7263433°	_ Datum: <u>NAD83</u>
Soli Map Unit Name: (69) Greenwater fine sandy loal	n, for this time o	tugar? Vac		NVVI classification: PFO/S	50
Are Vegetation Soil or Hydrology significant	thy disturbed?	iyeai? tes⊠ ∆r	Normal (II	ricumstances" present? V	
Are Vegetation, Soil, or Hydrology significant	vroblematic?	(If need	ed explain	any answers in Remarks	
SUMMARY OF FINDINGS - Attach site may		eamnling no	int locati	one transacte impo	, rtant foaturos oto
		samping po		ons, transects, impo	
Hydrophytic Vegetation Present? Yes ⊠ No Hydric Soils Present? Yes ⊠ No Wetland Hydrology Present? Yes ⊠ No		Is the Sar within a V	npled Area Vetland?	a Yes⊠ No	
Remarks: TP-4 was located in the southwest portion of	of Cowlitz Cou	inty Tax Parcel	508250100), within the southern porti	on of Wetland A. Vegetation in
this test plot consisted of tree, scrub-shrub, and emer within the plot have FAC, FACW, or OBL indicator sta were observed, along with the following wetland hydro Given this test plot satisfied all three wetland indicator	gent species. tuses. Additio ology indicator criteria, it is c	The hydrophyti nally, the hydrid rs: A High Wate considered to be	c vegetatio c soil indica er Table (A2 e within a w	n criterion was met given 7 tors Depleted Matrix (F3) 2), Saturation (A3), and Sp retland area.	00% of the dominant species and Redox Dark Surface (F6) arsely Vegetated Surface (B8).
VEGETATION – Use scientific names of pla	ants.				-
	Absolute	Dominant	Indicator	Dominance Test Work	sheet
<u>I ree Stratum</u> (Plot size: <u>30</u> ft radius)	% Cover	Species?	Status	Number of Dominant Sn	
	50%	yes	FAC	That Are OBL, FACW, c	$\frac{5}{100}$ (A)
2	<u> </u>				
4	<u> </u>	·		Total Number of Domina	ant 5 (B)
50% = 25 20% = 10	50%	=Total Cover		Species Across All Strat	a: (-/
Sopling/Shrub Stratum (Blat aiza) 15 ft radius)				Percent of Dominant Sp	
Saping/Sillub Stratum (Flot Size, 15 it. Tadius)	10%	VAS	FAC\M	Prevalence Index work	rsheet
2 Rubus armeniacus	20%	ves	FAC	Total % Cover of	Multiply by:
3.	%		17.0	OBL species	x 1=
4.	%	·		FACW species	x 2=
5.	%			FAC species	x 3=
50% = 30 $20% = 12$	60%	=Total Cover		FACU species	x 4=
Herb Stratum (Plot size: <u>5</u> ft radius)				UPL species	x 5=
1. Phalaris arundinacea	10%	yes	FACW	Column Totals:	(A) (B)
2. Equisetum arvense	5%	yes	FAC	Prevalence	Index = B/A=
3	%			Hydrophytic Vegetatio	n Indicators:
4	<u> % </u>			1 – Rapid Test for	Hydrophytic Vegetation
5	<u> % </u>				St IS >50%
0.	<u> </u>	·		3 - Prevalence inc	$Adaptations^1$ (Provide
8	%			supporting data in	Remarks or on a separate
9	<u> </u>	·		sheet)	
10.	%			5 - Wetland Non-V	/ascular Plants ¹
11.	%	·			
$50\% = \overline{7.5} \ 20\% = \overline{3}$	15%	=Total Cover		Problematic Hydro	phytic Vegetation ¹ (Explain)
Woody Vine Stratum (Plot size: 15 ft radius)		-			
1	%			¹ Indicators of hydric soil	and wetland hydrology
2	%	<u></u>		must be present, unless	disturbed or problematic.
50% = 20% =	%	=Total Cover		Hydrophytic Vegetation	
				Present?	Yes⊠ No
% Bare Ground in Herb Stratum 85%					
Remarks: The hydrophytic vegetation criterion was m	net given 100%	6 of the domina	int species	within the plot have FAC,	FACW, or OBL indicator
statuses.	0				

SOIL								Sampling Point: TP4
Profile D	Description: (Desc	ribe to the dept	h needed to doc	ument the indi	cator or col	nfirm the a	absence of indicators.)	
	-	-		_				
Depth	Matrix	<u> </u>		Redox Featu	res			
(inches)	Color (moist)	<u>%</u>	Color (moist)		Type ¹		Texture	Remarks
0-5	<u>10YR 3/1</u>	95%	5YR 4/6	5%	<u> </u>	PL	Silt loam	See Remarks Below
5-16	10YR 4/1	80%	5YR 4/6	20%	C	IVI	Silty clay loam	See Remarks Below
		<u> </u>						
		<u> </u>						
		<u> </u>						
		<u> </u>						
¹ Type [.]	C=Concentration	D=Depletion RM	=Reduced Matrix	CS=Covered	or Coated S	and Grains	² l ocation: Pl =Po	re Lining M=Matrix
Hvdric S	Soil Indicators: (A	pplicable to all L	RRs. unless ot	nerwise noted.))		Indicators for Problema	atic Hydric Soils
Histor	sal (A1)		Sandy Red	lox (S5)	,	1	2 cm Muck (A10)	
Histic	Epipedon (A2)		Stripped M	atrix (S6)		ĺ	Red Parent Material (T	F2)
Black	Histic (A3)		Loamy Mu	cky Mineral (F1)	(except MI	LRA 1)	Very Shallow Dark Sur	face (TF12)
Hvdro	aen Sulfide (A4)		☐ Loamy Gle	ved Matrix (F2)	•	, ,	Other (Explain in Rema	arks)
	ted Below Dark Su	urface (A11)		Aatrix (F3)				-,
	Dark Surface (A12	2)	Redox Dar	k Surface (F6)		3	³ Indicators of hydrophytic	vegetation and
	v Mucky Minerals (-, S1))ark Surface (F7	7)		Wetland hydrology mu	st be present,
	y Gloved Matrix (S	4)		pressions (F8)	/		unless disturbed or pro	blematic
		+)					•	
Restricti	ive Layer (if prese	ent):						
Tunoi								
Depth (in	ches).					Hvd	Iric Soil Present?	
Deptil (ii	iciles).		dia atan Damlata d			this test of		
60% mot	riv value of 4 or m	rine nyaric soli in	of 2 or loss with	distinct or prom	e met within	concontrat	ior given the presence of a	a soli layer with at least
indicator	Redox Dark Surfa	re (F6) have bee	n satisfied in this	test plot given t	he presence		aver with a matrix value of	3 or less and a chroma of
2 or less	with 5% or more d	istinct or promine	nt redox concent	rations occurrin	a as soft ma	sses or po	re lininas.	
		·			0		0	
HYDRO	LOGY							
Wotland		tors						
Primary I	indicators (min. of (one requirea; che	ck all that apply)				Secondary Indica	ators (2 or more required)
Surfa	ce Water (A1)		Water-Stai	ned Leaves (B9) (except M	LRA 1, 2, 4	4A, 🗌 Water-Stained	d Leaves (B9) (MLRA 1, 2,
High V	Water Table (A2)		and 4E	3)	/ ·		4A, and 4	B)
Satur:	ation (A3)		Salt Crust	(B11)			Drainage Patt	terns (B10)
☐ Wate	r Marks (B1)		Aquatic Inv	vertebrates (B13	3)		Dry-Season V	Vater Table (C2)
☐ Sedin	nent Deposits (B2)		Hvdrogen	Sulfide Odor (C	1)		Saturation Vis	sible on Aerial Imagery (C9)
	Deposits (B3)			hizospheres alo	, na Livina Re	oots (C3)	Geomorphic F	Position (D2)
	Mat or crust (B4)			of Reduced Iron	(C.4)	()	Shallow Aquit	ard (D3)
	Penosits (B5)			n Reduction in T	Tilled Soils ((26)		Test (D5)
	ce Soil Cracks (B6)		Stressed Plants		Δ)	Raised Ant M	ounds (D6) $(I RR A)$
	ation Visible on Ac	, rial Imagory (B7)		Jain in Pomarke		~)		
	aliun visible on Ae)			Hummocks (D7)
		cave Sunace (Do	D)					
Field Ob	Notor Procent?			onth (Inchor):	lono			
Water Te	blo Procont?			eptin (inches). If		Woth	and Hydrology Procent?	
Saturatio	n Present?			eptin (inches). C	5	Well	and fryulology Fresent?	
(Includes	Capillary fringe)			optir (mones). c	,			
Describe	Recorded Data (S	tream gauge, mo	nitoring well, aer	ial photos, prev	ious inspecti	ions), if ava	ailable:	
2000.100		gaage,e	, active and the second s			,,		
Remarks	A High Water Tab	le (A2) was obse	rved at a depth o	of 6 inches and	Saturation (A3) was of	served at a depth of 6 inc	hes below ground surface
Additiona	ally, this test plot w	as located within	a Sparselv Vene	tated Concave S	Surface (B8)			
	,, , , <u>, , , , , , , , , , , , , , , ,</u>		-,,		(=0)			

Project/Site: Woodland Creek Redelineation	City/County: Woodland/Cowlitz	Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC	State: WA	Sampling Point: TP5
Investigator(s): Godinho, Shawn and McManus, Jacob	Section, Township, Range: S7, T5N	I, R1E
Landform (hillslope, terrace, etc.): Escarpments, terraces	Local relief: (concave, convex, none): conca	ave Slope (%):0-8%
Subregion (LRR): A Lat: 45.928	Long: -122.7262235°	Datum: NAD83
Soil Map Unit Name: (69) Greenwater fine sandy loam	NWI classification:	None
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes No (If no, explain Remar	ks.)
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances" pres	sent? Yes 🛛 No 🗌
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers in Rel	marks.)
SUMMARY OF FINDINGS – Attach site map showing s	ampling point locations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes 🛛 No 🗌	Is the Sampled Area	
Hydric Soils Present? Yes 🛛 No 🗌	within a Wetland? Yes	No
Wetland Hydrology Present? Yes 🗌 No 🛛		
Remarks: TP-5 was located in the southwest portion of Cowlitz Court	nty Tax Parcel 508260100, within a drainage	swale east of Wetland A. Vegetation in
this test plot consisted of herbaceous species. The hydrophytic vege	etation criterion was met given 67% of the do	minant species within the plot have
FAC, FACW, or OBL indicator statuses. Additionally, the hydric soil	indicator Redox Dark Surface (F6) was obser	ved. However, there was no evidence
of wetland hydrology indicators observed within this test plot, therefore	ore, it is not considered to be within a wetland	area.
VEGETATION – Use scientific names of plants.		

	Absolute	Dominant	Indicator	Dominance Test Worksheet		
Tree Stratum (Plot size: <u>30</u> ft radius)	% Cover	Species?	Status			
1.	%			Number of Dominant Species	2 (A	()
2.	%			That Are OBL, FACW, or FAC:		
3.	%			1		
4.	%			Total Number of Dominant	3 (B	5)
50% = 20% =	%	=Total Cover		Species Across All Strata:		,
				Percent of Dominant Species		
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				That Are OBL, FACW, or FAC	<u>67</u> (A	√B)
1.	%			Prevalence Index worksheet		
2.	%			Total % Cover of: Multi	ply by:	
3.	%			OBL species x 1=		
4.	%			FACW species x 2=		
5.	%			FAC species x 3=		
50% = 20% =	%	=Total Cover		FACU species x 4=		
Herb Stratum (Plot size: 5 ft radius)		_		UPL species x 5=		
1. Phalaris arundinacea	50%	ves	FACW	Column Totals: (A)	((B)
2. Agrostis capillaris	20%	yes	FAC	Prevalence Index = B/A=		()
3. Anthoxanthum odoratum	20%	yes	FACU	Hydrophytic Vegetation Indicators:		
4. Epilobium ciliatum	5%	no	FACW	1 – Rapid Test for Hydrophytic Veget	ation	
5. Vicia americana	3%	no	FAC	2 – Dominance Test is >50%		
6. Equisetum arvense	2%	no	FAC	□ 3 - Prevalence Index is $\leq 3.0^1$		
7.	%			4 - Morphological Adaptations ¹ (Provi	ide	
8.	%			supporting data in Remarks or on a s	eparate	
9.	%			sheet)	-	
10.	%			5 - Wetland Non-Vascular Plants ¹		
11.	%					
50% = 50 $20% = 20$	100%	=Total Cover		Problematic Hydrophytic Vegetation ¹	(Explain)	
Woody Vine Stratum (Plot size: <u>15</u> ft radius)						
1	%			¹ Indicators of hydric soil and wetland hydro	logy	
2	%			must be present, unless disturbed or proble	ematic.	
50% = 20% =	%	=Total Cover				
		-		Hydrophytic		
				Vegetation	_	
0/ Dana Oracum din Llank Otratum 00/				Present? Yes	🛛 No 🗌	
% Bare Ground in Herb Stratum U%						
Remarks:The hydrophytic vegetation criterion was n	net given 67%	of the dominan	t species w	vithin the plot have FAC, FACW, or OBL indic	ator statuse	es.

SOIL								Sampling Point: TP5
Profile D	Description: (Desc	ribe to the dept	h needed to doc	ument the ind	icator or cor	nfirm the a	absence of indicators.)	
Depth	Matrix	ĸ		Redox Featu	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 3/2	95%	5YR 4/6	5%	<u> </u>	PL	Loam	See Remarks Below
	. <u> </u>	<u>~</u>		%				
		<u> </u>		%				
		%		%				
		%		%				
——				%				
	C-Concentration	<u> </u>	-Reduced Matrix		or Coated Sa	and Grains	² l ocation: Pl –Po	re Lining M-Matrix
Hvdric S	Soil Indicators: (A	pplicable to all l	LRRs. unless oth	erwise noted.			Indicators for Problema	atic Hvdric Soils
Histo:	sal (A1)	•	Sandy Red	lox (S5)	,		2 cm Muck (A10)	,
Histic	Epipedon (A2)		Stripped M	atrix (S6)			Red Parent Material (T	F2)
Black	Histic (A3)		🗌 Loamy Mu	cky Mineral (F1) (except ML	.RA 1)	Very Shallow Dark Sur	face (TF12)
Hydro	ogen Sulfide (A4)		Loamy Gle	yed Matrix (F2))		Other (Explain in Rema	arks)
	eted Below Dark Su	Irface (A11)		1atrix (F3)			21 H A A A A A A A A A A A A A A A A A A	
	Dark Surface (A12	<u>2)</u>	Redox Dar	k Surface (F6)			^o Indicators of hydrophytic	vegetation and
	y Mucky Minerals (51)		Vark Surrace (F	7)		unless disturbed or pro	blematic
	y Gleyed Matrix (S	4)		pressions (F8)				
Restrict	ive Layer (if prese	ent):						
Type:								
Depth (in	nches):					Нус	dric Soil Present?	Yes⊠ No⊡
Remarks	: Requirements for	the hydric soil ir	ndicator Redox Da	ark Surface (F6	i) have been s	satisfied ir	n this test plot given the pre	esence of a soil layer with
a matrix	value of 3 or less a	ind a chroma of 2	2 or less with 5%	or more distinc	t or prominen	t redox co	incentrations occurring as	soft masses or pore
linings.								
HYDRO	LOGY							
Wetland	Hydrology Indica	itors:						
Primary I	Indicators (min. of	one required; che	eck all that apply)				Secondary Indica	ators (2 or more required)
🗌 Surfa	ce Water (A1)		Water-Stain	ned Leaves (B	9) (except MI	LRA 1, 2,	4A, 🗌 Water-Stained	d Leaves (B9) (MLRA 1, 2,
High	Water Table (A2)		and 4E	B)			4A, and 4	B)
Satur:	ation (A3)		Salt Crust ((B11)			Drainage Patt	terns (B10)
U Wate	r Marks (B1)		Aquatic Inv	ertebrates (B1	3)		🗌 Dry-Season V	Vater Table (C2)
Sedin	nent Deposits (B2)		Hydrogen S	Sulfide Odor (C	:1)		Saturation Vis	sible on Aerial Imagery (C9)
	Deposits (B3)		∐ Oxidized R	hizospheres al	ong Living Ro	oots (C3)		Position (D2)
	Mat or crust (B4)			of Reduced Iror	n (C4)		Shallow Aquit	ard (D3)
	Deposits (B5)	,		Reduction in	Tilled Soils (C	26) •)		lest (D5)
	ce Soll Cracks (Bo) rial Imagan ((BZ)	Stunted or	Stressed Plant	S (D1) (LRR /	A)		ounas (D6) (LRR A)
	alion visible on Ae	nai inagery (B7)		an in Remark	5)			
	servations.	cave Sunace (D		,				
Surface	Water Present?	Yes 🗌	No 🖂 🛛 De	epth (Inches):	None			
Water Ta	able Present?	Yes 🗌	No 🖾 🛛 De	epth (Inches):	None	Wetl	and Hydrology Present?	,
Saturatio	on Present?	Yes 🗌	No 🛛 🛛 De	epth (Inches):	None			Yes 🗌 No 🛛
(Includes	s Capillary fringe)						- labla.	
Describe	Recorded Data (S	aream gauge, mo	Shitoring well, aer	iai priotos, prev	nous inspection	ons), ii ava		
Remarks	:No evidence of w	etland hydrology	indicators observ	ed within this te	est plot during	g the site v	/isit.	· · · · ·

Project/Site: Woodland Creek Redelineation	City/County: Woodland/Cowlitz	Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC	State: WA	Sampling Point: TP6
Investigator(s): Godinho, Shawn and McManus, Jacob	Section, Township, Range: S7, T5N, F	R1E
Landform (hillslope, terrace, etc.): Flood plains	Local relief: (concave, convex, none): Concave	e Slope (%):0-3%
Subregion (LRR): A	_at: 45.92912795° Long: -122.7259932°	Datum: NAD83
Soil Map Unit Name: (65) Godfrey silt loam	NWI classification: PF	D/SSC
Are climatic / hydrologic conditions on the site typical for t	his time of year? Yes⊠ No□ (If no, explain Remarks.	
Are Vegetation, Soil, or Hydrology significantly d	listurbed? Are "Normal Circumstances" presen	t? Yes⊠ No⊡
Are Vegetation, Soil, or Hydrology naturally prob	elematic? (If needed, explain any answers in Rema	rks.)
SUMMARY OF FINDINGS – Attach site map sl	howing sampling point locations, transects, im	portant features, etc.

Hydrophytic Vegetation Present? Hydric Soils Present? Wetland Hydrology Present?	Yes ⊠ No □ Yes ⊠ No □ Yes ⊠ No □	Is the Sampled Area within a Wetland?	Yes⊠ No□	
--	--	---------------------------------------	----------	--

Remarks: TP-6 was located in the western portion of Cowlitz County Tax Parcel 508240100, within the eastern portion of Wetland A. Vegetation in this test plot consisted of tree, scrub-shrub, and emergent species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. Additionally, the hydric soil indicator Redox Dark Surface (F6) was observed, along with the following wetland hydrology indicators: Saturation (A3), Sparsely Vegetated Surface (B8), and Water Stained Leaves 9B9). 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	Dominant	Indicator	Dominance Test Worksheet		
Tree Stratum (Plot size:30 ft radius)	% Cover	Species?	Status			
1. Fraxinus latifolia	90%	yes	FACW	Number of Dominant Species	3	(A)
2.	%			That Are OBL, FACW, or FAC:		,
3.	%					
4.	%			Total Number of Dominant	3	(B)
50% = 45 20% = 18	90%	=Total Cover		Species Across All Strata:		,
		-				
Conding (Ohmuh Otastum (Distaine) 45 ft and ive)				Percent of Dominant Species	100	
<u>Sapling/Snrub Stratum</u> (Plot size: <u>15 ft.</u> radius)	F 0/			That Are OBL, FACW, of FAC	100	(A/B)
1. Spiraea dougiasii	5%	yes	FACW	Prevalence Index worksheet	M. R. L. L	
2	%			Total % Cover of:		
3.					x 1=	-
4.				FACW species	x 2=	-
5.	%			FAC species	x 3=	-
50% = 2 $20% = 1$	5%	=Total Cover		FACU species	x 4=	_
Herb Stratum (Plot size: <u>5</u> ft radius)				UPL species	x 5=	_
1. Phalaris arundinacea	10%	yes	FACW	Column Totals:	(A)	(B)
2.	%			Prevalence Index =	B/A=	
3	%			Hydrophytic Vegetation Indica	ators:	
4	%			1 – Rapid Test for Hydropl	hytic Vegetation	
5.	%			2 – Dominance Test is >50	0%	
6.	%			☐ 3 - Prevalence Index is ≤3	.0 ¹	
7.	%			4 - Morphological Adaptati	ons ¹ (Provide	
8.	%			supporting data in Remark	s or on a separate	e
9.	%			sheet)	-	
10.	%			5 - Wetland Non-Vascular	Plants ¹	
11.	%					
50% = 5 20% = 2	10%	=Total Cover		Problematic Hydrophytic V	/egetation ¹ (Explai	n)
Woody Vine Stratum (Plot size: 15 ft radius)		_				,
1.	%			¹ Indicators of hydric soil and wet	land hydrology	
2.	%			must be present, unless disturbe	ed or problematic.	
	%	=Total Cover				
50% = 20% =		-		Hydrophytic		
				Vegetation		
				Present?	Yes⊠ No	ן ר
% Bare Ground in Herb Stratum 90%						_
Remarks: The hydrophytic vegetation criterion was r	met given 1009	% of the domina	nt species	within the plot have FAC, FACW.	or OBL indicator	
statuses.	5		-1	, ,		

Docth	N 4 = 4 - 1	,		Doday Cart	uroo					
Depth nches)	Color (moist)	<u> </u>	Color (moist)	Redox Feat	Ures Type ¹	L oc ²	- Te	avture	Remar	ks
0-10	10YR 3/2	90%	5YR 4/6	10%	<u> </u>	 PL	Sil	t loam	See Remarks E	Below
10-16	10YR 3/2	80%	5YR 4/6	20%	C	M	Sil	t loam		
		%		%						
		%		%						
		%		%						
		%		%						
		<u>%</u>		%					· .	
		<u>%</u>		<u> </u>			21		- Lining M. Matri	
Type: (C=Concentration,	D=Depletion, R	M=Reduced Matrix	(, CS=Covered	or Coated S	Sand Grain	IS. ² LOC	ation: PL=Por	e Lining, M=Matri	X
THistos	al ($\Delta 1$)	phicable to all		lox (S5)	.)				lic Hyuric Solis	
] Histic	Epipedon (A2)		Stripped M	atrix (S6)				nt Material (TF	=2)	
Black	Histic (Δ 3)			cky Mineral (F1	1) (excent N	II RA 1)	Very Sha	llow Dark Surf	-/ ace (TE12)	
	$\operatorname{ren Sulfide}(\Delta 4)$			ved Matrix (F2				nlain in Rema	rks)	
	ed Below Dark Su	urface (A11)		Aptrix (F3)	/				11(3)	
	Dark Surface (A12			k Surfaco (E6)			³ Indicators o	f bydropbytic y	vagatation and	
	Mucky Minorale (A12	- <i>)</i> ©1)		Nork Surface (F0)	7)		Wetland I	nydrology mus	t be present	
		31) 4)			()		unless di	sturbed or prot	olematic	
	Gleyeu Matrix (S	+)		Diessions (Fo)				•		
estrictiv	ve Layer (if prese	nt):								
Depth (ind	ches):					Hv	dric Soil Pre	sent?	Yes⊠ N	lo⊟
) omorkov	Boguiromonto foi	the hydric coil	indiantar Raday De	arle Currence /EC	N I I		41.4.4.1	+ air an the nee		
nings.	.OGY	nd a chroma of	2 or less with 5%	or more distinc	b) nave beer	int redox co	n this test plo	occurring as s	soft masses or po	yer with re
YDROL	-OGY Hydrology Indica	tors:	2 or less with 5%	or more distinc	5) nave beer	nt redox co	n this test plo	occurring as s	soft masses or po	yer with re
YDROL Vetland	-OGY Hydrology Indica	tors:	neck all that apply)	or more distinc	5) nave beer	nt redox co	n this test plo oncentrations	condary Indica	tors (2 or more re	yer with re equired)
YDROL YDROL Yotland Primary Ir Surfac High V	-OGY Hydrology Indica ndicators (min. of o vater Table (A2)	tors:	neck all that apply)	ned Leaves (B	9) nave beer t or promine 9) (except M	ILRA 1, 2,	n this test plo oncentrations	condary Indica Water-Stained 4A, and 4E	tors (2 or more re Leaves (B9) (ML 3)	yer with re equired) .RA 1, 2
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YDROL YDROL YUROL Vetland Primary Ir Surfac High V Satura Water Sedim Algal N Algal N Iron Do Surface Surface V Vater Tal Saturation Includes Describe	-OGY Hydrology Indica ndicators (min. of of the Water (A1) Vater Table (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or crust (B4) eposits (B5) the Soil Cracks (B6) attion Visible on Ae ely Vegetated Con servations: Vater Present? ble Present? the Present? capillary fringe) Recorded Data (S	tors: prial Imagery (B' cave Surface (Yes Yes Yes tream gauge, r	heck all that apply) A water-Stain and 4E Aquatic Inv Aquatic In	ned Leaves (B ned Leaves (B B) (B11) rertebrates (B1 Sulfide Odor (C hizospheres al of Reduced Iron n Reduction in Stressed Plant lain in Remark epth (Inches): epth (Inches): epth (Inches): epth (Inches):	 a) nave beer b) nave beer c) nave beer <li beer<="" is="" li="" nave="" style=""> <li is<="" style="" td=""><td>AltRA 1, 2, ALRA 1, 2, Roots (C3) (C6) A) Wet</td><td>AA, Canada Hydrolo railable:</td><td>condary Indica water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC Neutral T Raised Ant Mc Frost-Heave H</td><td>tors (2 or more re tors (2 or more re Leaves (B9) (ML 3) erns (B10) /ater Table (C2) ible on Aerial Ima 'osition (D2) ard (D3) fest (D5) bunds (D6) (LRR dummocks (D7) Yes 🛛</td><td>yer with re aquired) .RA 1, 2 .gery (C A)</td>	AltRA 1, 2, ALRA 1, 2, Roots (C3) (C6) A) Wet	AA, Canada Hydrolo railable:	condary Indica water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC Neutral T Raised Ant Mc Frost-Heave H	tors (2 or more re tors (2 or more re Leaves (B9) (ML 3) erns (B10) /ater Table (C2) ible on Aerial Ima 'osition (D2) ard (D3) fest (D5) bunds (D6) (LRR dummocks (D7) Yes 🛛	yer with re aquired) .RA 1, 2 .gery (C A)
a matrix v a matrix v nings. YDROL Vetland Primary Ir Surfac High V Sedim High V Sedim Drift D Algal N Iron De Surfac Inunda Sparse Surface V Vater Tal Surface V Vater Tal Secribe	-OGY Hydrology Indica ndicators (min. of of the Water (A1) Vater Table (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or crust (B4) eposits (B5) te Soil Cracks (B6) tition Visible on Ae ely Vegetated Com servations: Vater Present? ble Present? to Present? Capillary fringe) Recorded Data (S	tors: bne required; cl rial Imagery (B cave Surface (Yes Yes Yes tream gauge, r	heck all that apply) Water-Stain and 4E Salt Crust (Aquatic Inv	ned Leaves (B ned Leaves (B B) (B11) vertebrates (B1 Sulfide Odor (C hizospheres al of Reduced Iron h Reduction in Stressed Plant lain in Remark epth (Inches): epth (Inches): epth (Inches): epth (Inches):	 a) have been been been been been been been be	AltRA 1, 2, ALRA 1, 2, Roots (C3) (C6) RA) Wet tions), if av	AA,	condary Indica occurring as s water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC Neutral T Raised Ant Mc Frost-Heave H	tors (2 or more re Leaves (B9) (ML B) erns (B10) /ater Table (C2) ible on Aerial Ima osition (D2) ard (D3) fest (D5) bunds (D6) (LRR lummocks (D7) Yes ⊠	yer with re aquired) .RA 1, 2 .gery (C A) No []
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YDROL /etland	-OGY Hydrology Indica ndicators (min. of of the Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Ae ely Vegetated Corr servations: Vater Present? ble Present? to Present? Capillary fringe) Recorded Data (S Water Stained Lea d Concave Surface	tors: one required; ch rial Imagery (B reave Surface (Yes Yes Yes tream gauge, r aves (B9) and S e (B8).	neck all that apply) ⊠ Water-Stair and 4E Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iror Oxidized or Recent Iror Stunted or 7) Other (Exp B8) No ⊠ De No ⊠ De No ⊠ De No ⊠ De No ⊠ De No ⊠ De No ⊠ De	ned Leaves (B ned Leaves (B (B11) rertebrates (B1 Sulfide Odor (C hizospheres al of Reduced Iron n Reduction in Stressed Plant lain in Remark epth (Inches): epth (Inches): epth (Inches): ial photos, prev	 a) have been been been been been been been be	Alternative final sector of the sector of th	AA,	condary Indica Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC Neutral T Raised Ant Mc Frost-Heave H	tors (2 or more re Leaves (B9) (ML B) erns (B10) /ater Table (C2) ible on Aerial Ima fosition (D2) ard (D3) fest (D5) punds (D6) (LRR lummocks (D7) Yes Yes	yer with re aquired) .RA 1, 2 .gery (C A) No arsely

Project/Site: Woodland Creek Redelingation		City/Co	unty: Wood	land/Cowlitz Som	anling Date: 6/26/2020	
Applicant/Ourper: Hinter Development LLC			State: WA Sampling Date: 0/20/20/			
Applicant/Owner. Hinton Development LLC		Sactio	StateV		pling Point. TPT	
Londform (hillolong, torroog, etc.): Elond plains	00			D, Kaliye. <u>37, 15N, KTE</u>	Slana (9/):0	20/
Landrom (missiope, terrace, etc.). <u>Flood plains</u>					-3%	
Sublegion (LRR). A	10009	_LONG122		alum. NADos		
Soli Map Offic Name. (65) Goulley sill foam	for this time of	veer2 Vee		no explain Remarka		
Are Vegetation Soil or Hydrology conditions on the site typical	ior this time or	year? res	NOL (II	iroumotopooo" procent? Voo		
Are Vegetation, Soli, or Hydrology significant		All //f.maad		and another in Demorted		
	problematic?	(II need	ed, explain	any answers in Remarks.)		
SUMMARY OF FINDINGS – Attach site map	snowing s	ampling po	Int location	ons, transects, Importa	nt features, etc.	
Hydrophytic Vegetation Present? Yes 🛛 No		ls the Sar	nnlad Araa			
Hydric Soils Present? Yes No	\boxtimes	within a W	Notland?			
Wetland Hydrology Present? Yes No	\boxtimes	within a v	vetianu:			
Remarks: TP-7 was located in the western portion of (Cowlitz County	/ Tax Parcel 50)8240100, e	east of Wetland A. Vegetation	in this test plot consist	ed of
tree, scrub-shrub, and herbaceous species. The hydro	ophytic vegeta	tion criterion wa	as met give	n 100% of the dominant spec	cies within the plot have	FAC,
FACW, or OBL indicator statuses. However, there was	s no evidence	of hydric soil o	r wetland h	ydrology indicators observed	within this test plot,	
therefore, it is not considered to be within a wetland a	rea.					
VEGETATION – Use scientific names of pla	ants.					
· · · ·	Absoluto	Dominant	Indicator	Dominanco Tost Worksho		
Trop Stratum (Plot size:20 ft radius)		Species?	Status	Dominance rest workshe	Jel .	
<u>Thee Stratum</u> (Flot size. <u>30</u> it radius)	<u>76 COVEI</u>	Species		Number of Dominant Speci		(•)
	40%	yes	FACW	That Are OBL FACW or F	Δ <u>C:</u>	(A)
2	<u> </u>					
3	<u> % </u>			Total Number of Dominant	-	
4.	<u>%</u>			Species Across All Strata	5	(B)
50% = 20/20% = 8/20%	40%	= I otal Cover				
				Percent of Dominant Specie	es	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				That Are OBL, FACW, or F	AC 100	(A/B)
1. Rubus armeniacus	15%	ves	FAC	Prevalence Index worksh	eet	<u> </u>
2.	%			Total % Cover of:	Multiply by:	
3.	%			OBL species	x 1=	
4	%	·		FACW species	x2=	_
5	%	·		FAC species	x3=	_
50% = 7.5, 20% = 3	15%	-Total Cover		FACIL species	x 0=	_
Herb Stratum (Plot size: 5 ft radius)	1070			LIPL species	X 4 –	_
1 Lotus corniculatus	25%	VAS	FAC	Column Totals:	(A)	(B)
2 Equisitum anyonso	25%	yes	FAC	Broyalanco Ind	(/)	_ (0)
	20%	yes		Hudronbytic Vegetation I	ex = D/A=	
3. Ranunculus repens	20%	yes	FAC		dranky tic V a gatation	
4. Agrostis capillaris	15%	no	FAC			
5. Antnoxantnum odoratum	15%	no	FACU	Z – Dominance Test I	S >50%	
6.	<u> % </u>				IS ≤3.0'	
/	<u> % </u>			4 - Worphological Ada	aptations' (Provide	
8	<u>%</u>			supporting data in Re	marks or on a separate	e
9	%			sneet)		
10	%			☐ 5 - Wetland Non-Vase	cular Plants ¹	
111.	%					

100% =Total Cover

% Bare Ground in Herb Stratum 0%

50% = <u>50</u> 20% = <u>20</u>

Remarks: The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

Problematic Hydrophytic Vegetation¹ (Explain)

SOIL	econintian. (Deco	viho to the depth	noodod to d		iaatan an aanfi		harmen of indicators)	Sampling Point: TP7
Profile D	escription: (Desc	ribe to the depth	needed to d	ocument the Ind	icator or confi	rm the a	absence of indicators.)	
Depth	Matrix	<u> </u>		Redox Featu	ures	-		
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 3/2	100%		%			Loam	Soo Pomarka Polow
4-10	1018 3/3	<u> 100% </u>		<u> </u>			Siit ioani	See Remarks Delow
·		<u> </u>		<u> </u>				·
·		%		%			·	
		%		%				
		%		%				
<u> </u>		%		%				
¹ Type:	C=Concentration,	D=Depletion, RM=	Reduced Ma	trix, CS=Covered	or Coated San	d Grains	S. ² Location: PL=Por	e Lining, M=Matrix
Hydric S	oil indicators: (A	pplicable to all L		otherwise noted.)	1	Indicators for Problema	tic Hydric Solls
	Eninedon (A2)			Matrix (S6)			☐ Z CIII MUCK (ATO) ☐ Red Parent Material (TI	F2)
	Histic (A3)			Aucky Mineral (F1) (except MI R	Δ 1)	Verv Shallow Dark Surf	ace (TF12)
	gen Sulfide (A4)			Gleved Matrix (F2)			Other (Explain in Rema	urks)
	ted Below Dark Si	urface (A11)		d Matrix (E3)		'		
	Dark Surface (A12	2)		ark Surface (F6)		:	³ Indicators of hydrophytic y	vegetation and
☐ Sandv	Mucky Minerals (-, S1)		d Dark Surface (F	7)		Wetland hydrology mus	st be present,
☐ Sandy	Gleved Matrix (Se	4)		epressions (F8)	,		unless disturbed or pro	blematic
Restricti	ve Laver (if prese	ent):						
Type:	<u> </u>							
Depth (in	ches):					Hyd	Iric Soil Present?	Yes No
Remarks	: No evidence of h	ydric soil indicator	s within this te	est plot.				
HYDROL	_OGY							
Wetland	Hydrology Indica	itors:						
Primary I	ndicators (min. of o	one required; cheo	k all that app	y)			Secondary Indica	tors (2 or more required)
Surfac	e Water (A1)		U Water-S	tained Leaves (B) (except MLF	RA 1, 2, 4	4A, 🗌 Water-Stained	Leaves (B9) (MLRA 1, 2,
🗌 High V	Vater Table (A2)		and	4B)			4A, and 4I	B)
Satura	ation (A3)		Salt Cru	st (B11)			Drainage Patt	erns (B10)
U Water	Marks (B1)		Aquatic	Invertebrates (B1	3)		🗌 Dry-Season V	/ater Table (C2)
Sedim	ent Deposits (B2)		🗌 Hydroge	n Sulfide Odor (C	:1)		Saturation Vis	ible on Aerial Imagery (C9)
🗌 Drift D	eposits (B3)		Oxidized	Rhizospheres al	ong Living Roo	ts (C3)	Geomorphic F	Position (D2)
🗌 Algal I	Mat or crust (B4)		Presenc	e of Reduced Iror	n (C4)		Shallow Aquita	ard (D3)
Iron D	eposits (B5)		Recent I	ron Reduction in	Tilled Soils (C6)	FAC Neutral 1	ēst (D5)
Surfac	e Soil Cracks (B6))	Stunted	or Stressed Plant	s (D1) (LRR A))	Raised Ant Me	ounds (D6) (LRR A)
Inunda	ation Visible on Ae	rial Imagery (B7)	Other (E	xplain in Remarks	s)		Frost-Heave H	łummocks (D7)
Spars	ely Vegetated Con	cave Surface (B8)					
Field Ob	servations:			Depth (Inches)	Nama			
Surface v	blo Prosont?			Depth (Inches):	None	Wath	and Hydrology Procont?	
Saturation	n Present?			Depth (Inches):	None	wein	and hydrology Fresent?	Yes 🗖 No 🕅
(Includes	Capillary fringe)				None -	i		
Describe	Recorded Data (S	stream gauge, moi	nitoring well, a	erial photos, prev	vious inspectior	s), if ava	ailable:	
							,	
Remarks	No evidence of we	etland hydrology ii	ndicators obse	erved within this te	est plot during t	he site v	visit.	

Project/Site: Woodland Creek Redelineation	Ci	ty/County: Woodland/Cowli	tz Sampling Date: 6/26/2020			
Applicant/Owner: Hinton Development LLC		State: WA	Sampling Point: TP8			
Investigator(s): Godinho, Shawn and McManus, Jaco	b d	Section, Township, Range:	S7, T5N, R1E			
Landform (hillslope, terrace, etc.): Flood plains	Local re	lief: (concave, convex, none	e): Concave Slope (%):0-3%			
Subregion (LRR): A	Lat: 45.93066798°	Long: -122.7252007	° Datum: NAD83			
Soil Map Unit Name: (65) Godfrey silt loam		NWI classi	ication: None			
Are climatic / hydrologic conditions on the site typical	or this time of year? Y	es🛛 No🗌 (If no, explai	n Remarks.)			
Are Vegetation, Soil, or Hydrology significant	ly disturbed?	Are "Normal Circumstan	ces" present? Yes⊠ No⊡			
Are Vegetation, Soil, or Hydrology naturally	oroblematic? (If	needed, explain any answe	ers in Remarks.)			
SUMMARY OF FINDINGS – Attach site map	showing samplin	g point locations, tran	sects, important features, etc.			
Hydrophytic Vegetation Present? Yes 🛛 No		a Sampled Area				
Hydric Soils Present? Yes 🗌 No		in a Wotland?				
Wetland Hydrology Present? Yes No						
Remarks: TP-8 was located in the northern portion of	Cowlitz County Tax Pa	rcel 508240100, within the	OHWM of the seasonal stream which provides			
an outlet to Wetland A. Vegetation in this test plot consisted of tree and herbaceous species. The hydrophytic vegetation criterion was met given 100%						
of the dominant species within the plot have FAC, FA	CW, or OBL indicator st	atuses. However, there was	s no evidence of hydric soil or wetland			
hydrology indicators observed within this test plot, the	refore, it is not conside	ed to be within a wetland a	rea. Soils within this test plot consisted of a			
mixed matrix and appeared disturbed.						

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test Worksheet		
Tree Stratum (Plot size: 30 ft radius)	% Cover	Species?	Status			
1. Salix sitchensis	70%	yes	FACW	Number of Dominant Species	2	(A)
2.	%			That Are OBL, FACW, or FAC:		
3.	%			1		
4.	%			Total Number of Dominant	2	(B)
50% = <u>35</u> 20% = <u>14</u>	70%	=Total Cover		Species Across All Strata:		
				Percent of Dominant Species		
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				That Are OBL, FACW, or FAC	<u>100</u>	(A/B)
1.	%			Prevalence Index worksheet		
2.	%			Total % Cover of:	Multiply by:	
3.	%			OBL species	x 1=	
4.	%			FACW species	x 2=	
5.	%			FAC species	x 3=	_
50% = 20% =	%	=Total Cover		FACU species	x 4=	_
Herb Stratum (Plot size: 5 ft radius)		-		UPL species	x 5=	_
1. Phalaris arundinacea	55%	yes	FACW	Column Totals:	(A)	(B)
2.	%			Prevalence Index =	B/A=	,
3.	%			Hydrophytic Vegetation Indica	ators:	
4.	%			1 – Rapid Test for Hydrop	hytic Vegetation	
5.	%			2 – Dominance Test is >5	0%	
6.	%				5.0 ¹	
7.	%			4 - Morphological Adaptat	ions ¹ (Provide	
8.	%			supporting data in Remark	ks or on a separate	•
9.	%			sheet)		
10.	%			5 - Wetland Non-Vascular	Plants ¹	
11.	%					
50% = <u>28</u> 20% = <u>11</u>	55%	=Total Cover		Problematic Hydrophytic \	/egetation ¹ (Explai	n)
Woody Vine Stratum (Plot size: 15 ft radius)	-	_				
1.	%			¹ Indicators of hydric soil and we	tland hydrology	
2.	%			must be present, unless disturbe	ed or problematic.	
50% = 20% =	%	=Total Cover			•	
		-		Hydrophytic		
				Vegetation		
0/ Dana Oneversia Llank Otratura 450/				Present?	Yes⊠ No	
% Bare Ground in Herb Stratum 45%						
Remarks: The hydrophytic vegetation criterion was n	net given 1009	% of the domina	nt species	within the plot have FAC, FACW,	or OBL indicator	
statuses.						

SOIL									Sampling Point: <u>TP8</u>
Profile D	escription: (Desc	ribe to the depth	needed to doo	ument the ind	licator or confi	irm the a	absence of in	dicators.)	
Depth	Matrix	<		Redox Feat	ures				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Tex	ture	Remarks
0-16	10YR 4/1	60%		%	<u> </u>		Silty cla	ay loam	See Remarks Below
	10YR 4/4	30%		%_					. <u> </u>
	10YR 5/6	<u> 10% </u>		<u>%</u>	·				
		<u></u>		%	<u> </u>				
		<u> </u>		%					
		%		%					
		%		%					
¹ Type:	C=Concentration,	D=Depletion, RM=	Reduced Matri	x, CS=Covered	or Coated San	d Grains	s. ² Locat	ion: PL=Pore	e Lining, M=Matrix
Hydric S	oil Indicators: (A	pplicable to all L	RRs, unless of	herwise noted	.)		Indicators fo	or Problemat	tic Hydric Soils
	al (A1) Eninodon (A2)		Sandy Red	10X (S5) Actrix (S6)				(A10) • Motorial /TE	20)
	Epipedon (A2)			ialitx (50) icky Minoral (E1		A 1)		Waterial (Tr	-2) 200 (TE12)
	aen Sulfide (A1)			wed Matrix (F2		A 1)		lain in Roma	due (1712) rke)
	ted Below Dark Si	urface (A11)		Jatrix (F3))				11(3)
	Dark Surface (A12			rk Surface (F6)			³ Indicators of I	wdronhytic y	regetation and
	Mucky Minerals (- <i>)</i> S1)		Dark Surface (F	7)		Wetland hy	drology mus	t be present.
	Gleved Matrix (Se	4)		pressions (F8)	")		unless dist	urbed or prot	olematic
Restricti	ve Layer (if prese	ent):							
Type:									
Depth (in	ches):					Hyd	dric Soil Prese	ent?	Yes⊡ No⊠
Remarks	No evidence of h	ydric soil indicator	s observed with	in this test plot	during the site	visit. The	e soil layer fror	n 0-16 inche	s consisted of a mixed
matrix wit	h 3 distinct colors.	Soils within this to	est plot appeare	ed potentially dis	sturbed. This te	est plot w	vas located wit	hin the OHW	M of a seasonally flowing
stream w	hich provides the p	primary outlet for V	Vetland A.						
HYDROI	_OGY								
Wetland	Hydrology Indica	tors:							
Primary	ndicators (min. of (nors. one required: chec	k all that apply)				Casa	ndon (Indiaa	toro (O or more required)
Filliary I		She required, chec	k all that apply)				Seco	ndary Indica	tors (2 or more required)
Surfac	e Water (A1)		U Water-Sta	ined Leaves (B	9) (except MLF	RA 1, 2,	4A , □ ₩	ater-Stained	Leaves (B9) (MLRA 1, 2,
High V	Vater Table (A2)		and 4	3)				4A, and 4E	3)
Satura	ation (A3)		Salt Crust	(B11)				rainage Patte	erns (B10)
	Marks (B1)		Aquatic In	vertebrates (B1	3)			ry-Season W	(ater Table (C2)
	ient Deposits (B2)			Sulfide Odor (C	;1) 	(00)		aturation Visi	ble on Aerial Imagery (C9)
	eposits (B3)			chizospheres al	ong Living Roo	ts (C3)	∐G	eomorphic P	osition (D2)
	Mat or crust (B4)			of Reduced Iror	ר (C4) דייי ייס יי ייס י			hallow Aquita	ard (D3)
	eposits (B5)			n Reduction in	Tilled Soils (C6)		AC Neutral I	est (D5)
Surfac	e Soil Cracks (B6)	Stunted or	Stressed Plant	ts (D1) (LRR A))		aised Ant Mo	bunds (D6) (LRR A)
	ation Visible on Ae	rial Imagery (B7)	U Other (Exp	lain in Remark	s)			ost-Heave H	lummocks (D7)
	ely vegetated Con	cave Surface (B8))		<u>.</u>				
	Servations:			onth (Inchos):	Nono				
Water Ta	ble Present?			epth (Inches):	None	Wetl	land Hydroloc	v Present?	
Saturatio	n Present?	Yes 🗌		epth (Inches):	None			jy r resent.	Yes 🗔 No 🕅
(Includes	Capillary fringe)								
Describe	Recorded Data (S	tream gauge, mor	nitoring well, ae	rial photos, prev	vious inspectior	ns), if ava	ailable:		
<u> </u>									
Remarks	No evidence of we	etland hydrology ir	ndicators observ	ed within this t	est plot during t	the site v	visit.		

APPENDIX B: WETLAND RATING FORM

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland A – Woodland Creek
 Date of site visit:6/26/2020

 Rated by:
 KT Wills
 Trained by Ecology? Yes
 X
 No
 Date of training: 2015

 HGM Class used for rating:
 Depressional
 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 <u>Google Earth</u>

OVERALL WETLAND CATEGORY <u>III</u> (based on functions <u>X</u> 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	l Wa	Improving Water Quality			Hydrologic			Habitat		
					Circle	the ap	prop	riate ra	tings	
Site Potential	Н	M	L	Н	M	L	Н	Μ	\bigcirc	
Landscape Potential	Н	Ŵ	L	Ð	M	L	Н	\mathbb{M}	Ĺ	
Value	Н	Μ	\bigcirc	Н	Μ	O	Н	\mathbb{M}	L	ΤΟΤΑ
Score Based on Ratings		5			6			5		16

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	Ι	II	
Wetland of High Conservation Value	Ι		
Bog	Ι		
Mature Forest	I		
Old Growth Forest		Ι	
Coastal Lagoon	Ι	II	
Interdunal	I II	III IV	
None of the above	0	N/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	6
Hydroperiods	D 1.4, H 1.2	6
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	6
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	6
Map of the contributing basin	D 4.3, D 5.3	6
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	6
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	7
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	8

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	Н 1.1, Н 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
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 (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	
polygons for accessible habitat and undisturbed habitat		
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	Н 1.1, Н 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	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	
polygons for accessible habitat and undisturbed habitat		
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?

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

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).

 $\boxed{\text{NO}-\text{go to }4}$

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 <u>A</u>

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	HGM class to
being rated	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	Treat as
class of freshwater wetland	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.

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). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing ditch. Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = No = 0	0
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > ¹ / ₁₀ of area Wetland has persistent, ungrazed plants < ¹ / ₁₀ of area Wetland has persistent, ungrazed plants < ¹ / ₁₀ of area Points = 1 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 > ½ total area of wetlandpoints = 4Area seasonally ponded is > ¼ total area of wetlandpoints = 2Area seasonally ponded is < ¼ total area of wetland	0
Total for D 1Add the points in the boxes above	7
Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first pa	ge
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? e^{10} 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: Deer grazing & Exhaust Particulate (res = 1) No = 0	0
Total for D 2Add the points in the boxes above	2
Rating of Landscape Potential If score is: <u>3 or 4 = H</u> <u>X</u> 1 or 2 = M <u>0 = L</u> Record the rating on the file	rst 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?	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 $(0 = 0)$	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	0
Total for D 3 Add the points in the boxes above	0

DEPRESSIONAL AND FLATS WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradat	ion
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 = 4Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing ditchpoints = 1Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditchpoints = 1Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowingpoints = 0	2
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 $points = 5$	3
The wetland is a "headwater" wetland	
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	5
The area of the basin is 10 to 100 times the area of the unit points = 3	5
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 4Add 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	e 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? $ves = 1$ 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.)?	1
Total for D 5Add 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	e first page
D 6.0. Are the hydrologic functions provided by the site valuable to society?	
 D 6.1. <u>The unit is in a landscape that has flooding problems</u>. <i>Choose the description that best matches conditions around the wetland unit being rated</i>. Do not add points. <u>Choose the highest score if more than one condition is met</u>. 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 	0
 Surface noouning providents are in a sub-basin far ther down-gradient. Flooding from groundwater is an issue in the sub-basin 	U
The existing or not ontial outflow from the wotland is so constrained by human or natural conditions that the	
water stored by the wetland cannot reach areas that flood. <i>Explain why</i> points = 0	
There are no problems with flooding downstream of the wetland. $points = 0$	
D.C.2. Use the site been identified as important for flood storage or flood conveyence in a regional flood control plan?	
V = 0 V = 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

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.	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 X_Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points = 0	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . 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	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. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points Low = 1 point All three diagrams in this row are HIGH = 3points	0

 H 1.5. Special habitat features: Check the habitat features that are present in the wetland. The number of checks X_Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft logged by 2 in the wetland) Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plant over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft Stable steep banks of fine material that might be used by beaver or muskrat slope) OR signs of recent beaver activity are present (cut shrubs or trees the where wood is exposed) At least ¼ ac of thin-stemmed persistent plants or woody branches are present permanently or seasonally inundated (structures for egg-laying by amphibic strata) Total for H 1 	ts is the number of points. ong). ts extends at least 3.3 ft (1 m) (10 m) for denning (> 30 degree at have not yet weathered nt in areas that are ans) plants (see H 1.1 for list of he points in the boxes above	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
H 2.0. Does the landscape have the potential to support the habitat functions of	f the site?	
H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat <u>11%</u> + [(% moderate and low intensity latotal accessible habitat is: > ¹ / ₃ (<u>33.3%</u>) of 1 km Polygon 20-33% of 1 km Polygon 10-19% of 1 km Polygon < 10% of 1 km Polygon	and uses)/2] <u>14%</u> = <u>25</u> % If points = 3 points = 2 points = 1 points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat <u>13%</u> + [(% moderate and low intensity Undisturbed habitat > 50% of Polygon Undisturbed habitat 10-50% and in 1-3 patches Undisturbed habitat 10-50% and > 3 patches Undisturbed habitat < 10% of 1 km Polygon H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use	land uses)/2] <u>17.5%</u> = 30.5 % points = 3 points = 2 points = 1 points = 0	0
\leq 50% of 1 km Polygon is high intensity	points = 0	Ŭ
Total for H 2 Add t	he points in the boxes above	3
Rating of Landscape Potential If score is:4-6 = HX1-3 = M< 1 = L	Record the rating on a	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? C that applies to the wetland being rated. Site meets ANY of the following criteria: It has 3 or more priority habitats within 100 m (see next page) It provides habitat for Threatened or Endangered species (any plant or anima 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 It has been categorized as an important habitat site in a local or regional com Shoreline Master Plan, or in a watershed plan 	Choose only the highest score points = 2 al on the state or federal lists) tof Natural Resources aprehensive plan, in a	
X 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 Wetland Rating System for Western WA: 2014 Update	Record the rating on 14	the first page

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (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. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

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).
- _X **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: <u>Old-growth west of Cascade crest</u> Stands of at least 2 tree species, forming a multilayered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. <u>Mature forests</u> – 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.
- <u>X</u> 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
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
— The dominant water regime is tidal,	
— Vegetated, and	
— With a salinity greater than 0.5 ppt Yes –Go to SC 1.1 No= Not an estuarine wetland	
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?	Cat
Yes = Category I No - Go to SC 1.2	Cut. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less	Cat I
than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25)	Cut. I
— At least % of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-	
The wetland has at least two of the following features: tidal channels, depressions with open water, or	Cat. II
contiguous freshwater wetlands	
SC 2.0. Wetlands of High Conservation Value (WHCV)	
SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High	Cat I
Conservation Value? Ves – Go to SC 2.2 No – Go to SC 2.3	Cat. I
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
Fes = Calegory I No = Not a WHCV	2
http://www1.dpr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	
Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV	
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? Yes = Category I No = Not a WHCV	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
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? Yes – Go to SC 3.3 No – Go to SC 3.2	
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 10 in deep	
pond?	
SC 3.3 Does an area with neats 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? Yes = Is a Category I bog No – Go to SC 3.4	
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.	Cat. I
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?	
Yes = Is a Category I bog No = Is not a bog	

SC 4.0. Forested Wetlands	
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? If you answer YES you will still need to rate	
the wetland based on its functions.	
— 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 lorests (west of the cascade crest). Stands where the largest frees are so- 200 years on OK the species that make up the capopy have an average diameter (dbh) exceeding 21 in (53 cm)	
species that make up the carropy have an average diameter (abil) exceeding 21 in (35 em).	6 -4 4
Yes = Category I No = Not a forested wetland for this section	Cat. I
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
— 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)	Cat I
during most of the year in at least a portion of the lagoon (needs to be measured near the pottom).	
SC 5.1 Does the wetland meet all of the following three conditions?	
— 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).	Cat. II
— 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 ft ²)	
Yes = Category I No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If	
you answer yes you will still need to rate the wetland based on its habitat functions.	
In practical terms that means the following geographic areas:	
 Long Beach Peninsula: Lands west of SR 103 	.
— Grayland-Westport: Lands west of SR 105	Cat I
— Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yos – Go to SC 51 No – not an interdunal wetland for rating	
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	Cat. II
for the three aspects of function)? Yes = Category I No – Go to SC 6.2	
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	Cat. III
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	Cot N/
	Cat. IV
Category of wetland based on Special Characteristics	N/A
I If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number <u>A</u>

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