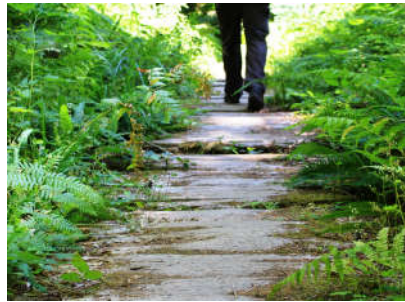




BANK USE PLAN

July 23, 2020



*Neighborhood Park Project
La Center, Washington*

Prepared for

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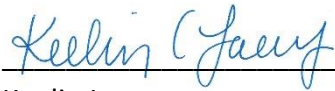
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SIGNATURE PAGE

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



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Addendum to the Critical Areas Report for Riverside Estates (ELS 2020)

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Corps Permit for Riverside Estates Reference NWS-2018-0167, ECM Riverside LLC

Appendix C

Critical Areas Report for Riverside Estates (ELS 2018)

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INTRODUCTION

Ecological Land Services, Inc. (ELS) prepared this Bank Use Plan for ECM Riverside LLC for indirect wetland impacts resulting from the proposed Neighborhood Park project north of the Riverside Estates subdivision in the City of La Center, Washington. The 5.19-acre project site is located on Parcel Number 986028825 within Section 33, Township 5 North, and Range 1 East of the Willamette Meridian (Figures 1 through 5). Construction is anticipated to begin in summer 2020.

The proposed project will indirectly impact 0.41 acres of Category III Wetland A to accommodate a paved trail associated with the park (Figure 3). Approximately 0.29 acres of temporary impacts from grading will occur within the buffer that will be restored to pre-project condition and one jurisdictional ditch will be crossed. Mitigation will consist of purchasing 0.21 credits from the East Fork Lewis Mitigation Bank (EFLMB) in order to:

- 1) Compensate for indirect Category III wetland impacts and
- 2) Ensure no net loss of ecological wetland and buffer functions

In accordance with Nationwide Permit NWS-2018-167 issued on December 20, 2018 for the Riverside Estates subdivision being constructed to the south, 1.29 acres of indirect impacts to a portion of Wetland A and 0.33 acres of indirect impacts to Wetland BB located offsite to the east were approved and mitigated at EFLMB. Only new indirect impacts outside of the previously approved and mitigated indirect impacts are being calculated for the Neighborhood Park project.

This Bank Use Plan was prepared according to the City of La Center Municipal Code (LCMC), *Chapter 18.300.090, Critical Lands* (2018), the Interagency Review Team (IRT) for Washington State's Guidance Paper, *Using Credits from Wetland Mitigation Banks: Guidance to Applicants on Submittal Contents for Bank Use Plans* (2009), the Washington State Department of Ecology (Ecology) *Wetland Mitigation in Washington State* (2006), and the U.S. Army Corps of Engineers' (Corps) *Compensatory Mitigation for Losses of Aquatic Resources* (33 C.F.R. §332 (2008)).

Critical area data used to prepare this Bank Use Plan is a compilation of data sourced from critical areas reports prepared by Loowit Consulting Group LLC (LCG) and Ecological Land Services, Inc. (ELS). LCG's report is titled *Critical Areas Report for Riverside Estates Project La Center, Washington* (LCG June 29, 2018) and is available upon request. ELS's report is also titled *Critical Areas Report for Riverside Estates Project La Center, Washington*, dated September 11, 2018 and is located in Appendix C. An additional site visit was conducted in January 2020 by ELS to reconfirm the eastern boundary of Wetland A (delineated by ELS) in preparation for development of the Neighborhood Park project. Changes to Wetland A's boundary and other minor revisions to ELS' 2018 report are addressed in an *Addendum to the Critical Areas Report for Riverside Estates La Center, Washington* dated July 23, 2020 located in Appendix A.

PROPOSED DESCRIPTION

PROJECT LOCATION

The project site consists of a 5.19-acre parcel, Tax Parcel Number 986028825 in La Center, Washington. The property is located near the intersection of Old Pacific Highway and Larsen Road and is directly north of the Riverside Estates subdivision (Figure 1).

PROPOSED DEVELOPMENT

The applicant is proposing a neighborhood park on the property with a paved 8-foot wide ADA pathway, sport courts, and parking area that will be accessed from Old Pacific Highway. The pathway will extend from the Riverside Estates subdivision to the south, cross the jurisdictional ditch, and wind around Wetland A, terminating at Old Pacific Highway. The paved parking area will be placed on the eastern side of the property, outside of Wetland A's buffer. A stormwater facility will be located south of the main parking area that will discharge treated water to a flow spreader located in southern portion of Wetland A's buffer. Catch basins will capture runoff from the north portion of the site and discharge treated water to a flow spreader in the northern portion of Wetland A's buffer. An 18-inch culvert will be placed in the ditch when it is dry to construct the crossing. The project will include clearing and grading of herbaceous vegetation within the buffer, which is considered a temporary impact (Figure 3). A water line and sanitary line will be extended from the Riverside Estate subdivision paralleling the trail in most locations. A portion of the waterline will be trenched through the graded buffer area. Prior to construction of the trail and other park elements, clearing limits will be demarcated with orange construction fencing or silt fencing. One construction access will be installed off of Old Pacific Highway and staging areas will be located in uplands outside of critical area buffers (Figure 3). Additional best management practices are discussed in the Avoidance and Minimization Section later in this report. Construction is anticipated to start upon receipt of permits in summer 2020.

Construction activities will indirectly impact 0.41 acres of Wetland A due to insufficient buffer and will involve 0.29 acres of temporary buffer impact to Wetland A from grading activities and utility trenching. All direct impacts have been avoided. The temporarily impacted areas will be reseeded with a native buffer seed mix upon completion of the project. The impacted areas within the buffer mostly consist of regularly mowed reed canarygrass (*Phalaris arundinacea*) and other herbaceous species, so the native seed mix will adequately restore the temporarily impacted areas to pre-project condition resulting in no net loss of function.

EXISTING CONDITIONS

EXISTING AND SURROUNDING LAND USES

The project site is bordered to the northeast by Old Pacific Highway and the Riverside Estates subdivision to the south. Additional surrounding properties consist of single-family residences and agricultural fields. Historically, the property has been used for farming and livestock and is currently vacant. Approximately 0.25 acres within Wetland A is an existing conservation area established as mitigation for an earlier project. There are no proposed impacts to this area. The property is zoned Medium Density Residential (MDR-16): single-family dwellings with associated shared driveways, stormwater facilities, utility installation, and road improvements.

LANDSCAPE POSITION

The project site is located on a high terrace above the East Fork Lewis River, approximately 1.5 miles from its confluence with the mainstem Lewis River. 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 Watershed, and is within the 12-digit Hydrologic Unit Code (HUC): 17080002507.

CRITICAL AREAS DESCRIPTIONS

ELS completed a critical areas assessment for the subject property on August 8 and 19, 2018 delineating Wetland A and the jurisdictional ditch. In January 2020, ELS also reconfirmed the eastern boundary for Wetland A. Small changes were made along the southeastern portion of the boundary and are discussed in the *Addendum to the Critical Areas Report for Riverside Estates* (ELS 2020) located in Appendix A. The original critical areas report prepared by ELS is included in Appendix C and contains detailed information regarding delineation methodology, wetland characteristics, and wetland ratings. Wetland BB, located east of the park project and shown on Figure 3, was delineated by LCG June 29, 2018. The Neighborhood Park project will not impact Wetland BB therefore it is not discussed further but is shown on the figures due to its proximity to the project site. Indirect impacts to the entirety of Wetland BB were approved and mitigated in accordance with NWS-2018-167 issued on December 20, 2018 for the Riverside Estates subdivision being constructed to the south.

Wetland A

Wetland A is a Category III emergent, scrub-shrub, slope and depressional wetland totaling 2.14 acres onsite that covers approximately half of the Neighborhood Park property. The majority of the wetland consists of a slope that was bordered by an obvious change in vegetation and hydrology. A man-made farm pond comprises the depressional portion of the wetland which was bordered by a berm along the southern edge that was approximately five feet high. Scrub-shrub vegetation within the wetland consists primarily of black hawthorn (*Crataegus douglasii*), red-osier dogwood (*Cornus sericea*), and willow (*Salix spp.*). Emergent areas were dominated by reed canarygrass (*Phalaris arundinacea*) and tall fescue (*Schedonorus arundinaceus*) and experience annual mowing. Wetland hydrology likely comes from upslope runoff, a seasonally high groundwater table, and precipitation. Hydroperiods of Wetland A include permanently flooded, seasonally flooded, and saturated only. The wetland functions to slow surface flow and

to recharge groundwater. The farm pond comprises at least ten percent of the total wetland area and therefore the depressional hydrogeomorphic (HGM) class was used for rating. According to the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Rating System), Wetland A is a Category III depressional wetland scoring a total of 19 points: 7 points for water quality functions, 5 points for hydrologic functions, and 7 points for habitat functions (Hruby 2014). According to *Table 18.300.090(6)(h)(i)-2* of the LCMC, designated buffer widths for a Category III wetland with a moderate habitat function and a moderate intensity land use is 110 feet.

Wetland Buffers

The buffer of Wetland A and uplands on the Neighborhood Park property are actively mowed and consist of pasture grasses and forbs including hairy cat's ear, sweet vernalgrass (*Anthoxanthum odoratum*), sheep sorrel (*Rumex acetosella*), velvetgrass (*Holcus lanatus*), red fescue (*Festuca rubra*), and bentgrass (*Agrostis* species) providing limited refuge, screening, and habitat opportunity functions. The buffers do allow wildlife movement (although not under cover) and provide forage. Those portions of the buffers uphill from the wetlands provide sediment trapping, nutrient uptake, and slow runoff, although these functions are also limited because of annual mowing.

Jurisdictional Ditch

A man-made, jurisdictional ditch averaging 3-feet-wide flows west along the southern boundary of Wetland A along the southern property boundary. The ditch continues offsite in a southwesterly direction to a farm pond adjacent to the north side of NW Hunter Lane. A stream appears to form south of NW Hunter Lane based on topography. This stream flows into the East Fork of the Lewis River and is mapped as a Type N Stream by the Department of Natural Resources (DNR) Forest Practices Application Mapping Tool (2018). The ditch is jurisdictional and is exempt from buffer requirements.

Oregon white oak

One 36-inch diameter at breast height (DBH) Oregon white oak (*Quercus garryana*) tree was mapped in the western portion of Wetland A. The isolated oak is not surrounded by other trees and is within a pasture that is regularly mowed. No project work will occur near the oak. According to *LCMC 18.300.090(2)(iv)*, Oregon white oak trees are considered priority habitat and species by the Washington Department of Fish and Wildlife (WDFW) therefore the City shall defer to WDFW in regards to classification, mapping, and interpretation of priority habitat species, and regulations.

Table 1 below summarized the critical area onsite.

Table 1. Summary of Critical Areas.

Critical Area	Category¹/Cowardin Class²/HGM Class³	Size Onsite	Buffer Width⁴
Wetland A	III/Emergent, Scrub-Shrub/Slope and Depressional	2.14 acres	110 feet
Jurisdictional Ditch	Seasonal	3 ft. wide	None
Oregon White Oak	N/A	36 inches DBH	None

¹Hruby 2014²Cowardin et al. 1979³NRCS 2008⁴LCMC 18.300.090(6)(h)(i)-2

AVOIDANCE AND MINIMIZATION OF IMPACTS

The preferred mitigation sequencing of first avoidance, then minimization, and finally compensation for unavoidable wetland impacts was taken into consideration during the project design process. The proposed development has been designed to avoid direct impacts to Wetland A. Due to site constraints from the wetland and topography, there is not enough room to avoid the buffer of Wetland A. The ditch crossing will be constructed in the dry to prevent sedimentation and an 18-inch culvert will be used to maintain adequate water flow. The trail will be constructed as far away as possible from wetland boundaries in the southeastern portion of the site given the proximity to the property lines and the ditch. Grading is needed to ensure the trail slopes are ADA compliant. Silt fencing will be installed at the edge of grading to prevent sedimentation and inadvertent intrusion in the wetland. Parking and sport court areas are located on the north/northeast side of the trail, away from the wetland and where topography is less sloped. Stormwater facilities will capture runoff and it will discharge to flow spreaders located within the buffer. The flow spreaders will prevent erosion and scour within the buffer and the discharged water will help maintain wetland hydrology. One construction entrance will be installed off of Old Pacific Highway and staging areas will be designated in upland areas outside of critical area buffers. Signage will be installed every 200 feet along the remaining buffer adjacent to the trail that reads "The area beyond this sign is a critical area or buffer. Alteration or disturbance is prohibited by law. Please call the City of La Center for more information." Signs will be affixed to wood treated or metal posts.

UNAVOIDABLE WETLAND IMPACT ACREAGE

All direct wetland impacts have been avoided; however due to site constraints from the wetland and topography, trail construction will indirectly impact 0.41 acres of Wetland A due to

insufficient buffer. In accordance with Nationwide Permit NWS-2018-167 issued on December 20, 2018 for the Riverside Estates subdivision being constructed to the south, 1.29 acres of indirect impacts to a portion of Wetland A were approved and mitigated at EFLMB. Only new indirect impacts outside of the previously approved and mitigated indirect impacts are being calculated for the park project. The buffer areas consist of regularly mowed herbaceous native and non-native species. Project impacts are summarized in Table 2 below.

Table 2. Summary of Wetland Impacts.

Impact Area	Category ¹	Cowardin Class ²	HGM Class ³	Impact Type	Impact Amount
Wetland A	III	Scrub-shrub/ Emergent	Slope/ Depressional	Indirect (insufficient buffer)	0.41 acres

¹Hruby 2004

²Cowardin et al. 1979

³NRCS 2008

TEMPORARY IMPACT RESTORATION

Grading and trenching will temporarily impact 0.29 acres of Wetland A's buffer. These areas consist of non-native and native grasses and forbs that are regularly mowed. Following grading activities and pipeline installation, disturbed areas will be seeded with the native seed mix described in Table 3 restoring the area to pre-project condition.

Table 3. Native Seed Mix

Sunmark Seeds Stream Bank Plus Mix			
Species	Composition	Spacing	Quantity
Native red fescue (<i>Festuca rubra</i> , FAC)	50%	2 lb/ 1,000 sq. ft	37.2 lbs (for 0.29 ac. or 18,590 sq. ft.)
California brome (<i>Bromus carinatus</i> , NI)	20%		
Blue wildrye (<i>Elymus glaucus</i>)	20%		
Large leaf lupine (<i>Lupinus polyphyllus</i> , FAC)	10%		
Total	100%		

IMPACTED WETLAND FUNCTIONS

WETLANDS A

No direct impacts will occur to Wetlands A; however, the wetland will be indirectly impacted due to insufficient buffer. Wetland buffers can reduce adverse impacts to wetland functions and values from adjacent development by moderating the effects of stormwater runoff including stabilizing soil to prevent erosion, filtering runoff, and moderating water level fluctuations. Buffers also provide habitat opportunity for forage, refuge, mobility, and thermal protection.

Additionally, buffers help screen the wetland from adjacent developments, blocking noise, providing visual separation, and providing protection from other human disturbances (Castelle et al 1992). Because the buffer area consists of annually mowed herbaceous vegetation it does not provide visual separation, noise, or other screening functions, or thermal protection and refuge. Other habitat functions including forage areas and wildlife movement may be affected. Stormwater facilities will treat and detain water before dispersing it into the remaining wetland buffer. Flow spreaders will be used to prevent erosion and scour of the discharged water.

MITIGATION SITE SELECTION RATIONALE

Wetland A is located within the service area for the EFLMB (Bank; Figure 4). The project site is located approximately 8 miles west of the Bank within the western portion of the service area. Recent wetland science from Ecology, the Corps, and the U.S. Environmental Protection Agency states that they promote mitigation that is:

“...located appropriately on the landscape, addresses restoration of watershed processes, is sustainable, and has a high likelihood of ecological success. Onsite mitigation may achieve these goals in many circumstances. However, we should not risk mitigation success or bypass opportunities for improving ecological processes in a watershed by unnecessarily prioritizing onsite mitigation over more effective and sustainable offsite options (Hruby *et al.* 2009).”

Additionally, the 2008 *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule* recommends purchasing mitigation bank credits for ecological considerations (lower risk of failure and lower temporal loss of resources and services) and to avoid the maintenance and contingency issues and outright failures that often accompany permittee-responsible mitigation sites. Use of the Bank substantially lowers the risk of failure and temporal loss of resource. Mitigating the impacts offsite at EFLMB will be more meaningful and beneficial to the overall watershed as the goals and objectives for the establishment and success of EFLMB directly address watershed concerns and priorities and correspond in-kind with the mitigation needs of the proposed project. Additionally, habitat function provided at the Bank is far greater than habitat functions provided by the regularly mowed pasture grasses being impacted. ELS therefore selected to mitigate offsite at EFLMB. As described below, the functional lift anticipated by the Bank will adequately compensate for wetland functions impacted by the proposed project.

WETLAND FUNCTIONS PROVIDED AT MITIGATION BANK

The following is excerpted or paraphrased from the East Fork Lewis Mitigation Banking Instrument (MBI):

Prior to establishment of the Bank, the site consisted of intensely farmed agricultural fields bisected by a series of ditches with groundwater was controlled by an extensive ditch and drain tile system. A Type F stream (tributary to Rock Creek) was historically

diverted across (east) the northern portion of the Bank site, then turns to flow south along the eastern boundary. The onsite ditches and stream were considered Category IV, riverine flow-through wetlands. A Category III, slope/depressional forested wetland is also located within the narrow strip of land along the western Bank boundary that continues offsite to the west.

The primary ecological goals of the East Fork Lewis Wetland Mitigation Bank are as follows:

- Restore wetland hydrology by disabling the extensive ditch and drain tile system currently used to convey water off of the site.
- Establish a variety of native wetland habitat types, comparable to pre-agricultural conditions and in accordance with targeted hydrologic regimes and elevations across the site.
- Control invasive species, including but not limited to, reed canarygrass (*Phalaris arundinacea*) and Himalayan blackberry (*Rubus armeniacus*) across the site.
- Create and enhance wildlife habitat, structure and function of the site.

Grading activities and installation of large woody material and other habitat features at the Bank were completed in 2013 and 2014, and plant installation was completed in March 2014.

HYDROLOGY

Prior to Bank construction, groundwater, runoff, and flood water from the tributary to Rock Creek entering the Bank site was quickly and effectively conveyed downstream through the extensive drain tile and ditch system. Disabling drain tiles and plugging ditches will allow the site to saturate, creating new wetland area (108+ acres), which will significantly increase flood water storage within the watershed. This reduces peak flows downstream of the Bank, decreases downstream erosion, and provides groundwater recharge that helps to alleviate low flows downstream of the Bank site during the dry season.

WATER QUALITY

The Bank's contributing basin includes rural residences and paved roads that contribute untreated stormwater runoff to the Bank site. Because the contributing basin is largely undeveloped, it is expected that future land use in the surrounding area will only increase the level of sediments, nutrients, and toxics that could potentially enter the site. Post-construction wetland functions related to water quality, such as removing sediments, nutrients, metals, and toxic organic substances will significantly increase as vegetation establishes. Specifically, the wetland will store water seasonally and during flood events, slowing and reducing sediment transport, and multiple vegetative classes will filter metals and toxic organic substances and remove nutrients in the increased aerobic conditions. Furthermore, trees and shrubs planted along the tributary to Rock Creek will help keep the stream temperature cooler during the hot summer months.

WILDLIFE HABITAT

Overall habitat suitability for invertebrates, amphibians, wetland-associated birds, and wetland-associated mammals will improve tremendously over existing conditions of the Bank site, specifically because of the increase in wetland area containing a variety of hydroperiods (permanent, seasonal, and occasional inundation and/or saturation), vegetative species richness, habitat interspersions, the habitat features (large woody debris and bird nesting boxes), eventual canopy closure of forested wetland areas, and corridors to adjacent upland areas. Although the site has been designed to exclude resident and anadromous fish to prevent stranding, fish habitat in the onsite ditches and downstream is enhanced because plantings along the tributary to Rock Creek will provide temperature regulation and leaf litter. The wetlands will also increase groundwater recharge that will supplement low flows during the dry season, and the wetland vegetation will improve water quality entering the stream.

ANTICIPATED FUNCTIONAL LIFT

The goal of the Bank site is to re-establish high quality wetland and associated wildlife habitat providing for significant overall functional lift. The Bank site location within the landscape and its overall design will provide a significant ecological benefit to not only the immediate surrounding area, but throughout a large portion of the watershed. The Bank is currently in the establishment period having been planted in spring of 2014. The post-construction Bank site will consist of a forested, scrub-shrub, and emergent depressional flow-through wetland system that will contain a seasonal stream and a fish-bearing, perennial stream. A variety of water regimes, vegetation interspersions, and habitat features will provide diverse habitat opportunity for wildlife. The re-established wetlands will also increase flood storage, improve water quality, help prevent downstream erosion, recharge groundwater to supplement low summer flows and keep summer water temperatures cooler, similar to pre-agricultural conditions. The anticipated functional lift post-construction of the Bank consists of an overall increase in functions related to habitat, water quality and water quantity.

WETLAND FUNCTIONS NOT MITIGATED AT MITIGATION BANK

Onsite stormwater detention and treatment will mitigate water quality and water quantity functions that may be indirectly impacted by the project. Runoff generated from the new impervious surfaces will be collected and conveyed to stormwater facilities for detention and treatment, which will help to recharge groundwater and will provide water quality treatment. All other impacted functions will be compensated at the mitigation bank.

PROPOSED MITIGATION CREDITS

Table 3 below is taken from the East Fork Lewis MBI and lists the recommended credit ratios for purchasing credits based on the impacted resource category.

Table 4. Credits Recommended for Wetland and Buffer Impacts at East Fork Lewis Mitigation Bank.

Resource Impact	Bank Credits:Impact Area
Category I Wetland	Case-by-case
Category II Wetland	1.2:1
Category III Wetland	1:1
Category IV Wetland	0.85:1
Critical Area Buffer	Case-by-case

This bank use plan proposes to purchase a total of 0.21 credits to compensate for 0.41 acres of indirect impact. Bank credits will be purchased from EFLMB at a 1:1 Category III ratio with a 0.50 multiplier. The 0.50 (50 percent) multiplier is based on the rationale that indirect impacts can be adequately compensated for by using 50 percent of the Bank's required ratio for direct wetland impacts. Indirect impacts adversely affect the ability of the wetland to provide functions and values which the wetland provided prior to disturbance over time. Examples are changes in drainage characteristics, changes in water levels, and changes in wetland characteristics. Direct impacts result in immediate changes of hydrological characteristics of a wetland, loss of habitat, loss of flood storage, and loss of nutrient removal or retention. Because indirect impacts do not result in these immediate changes, mitigating at 50 percent of the Bank's required ratio for direct wetland impacts is reasonable and scientifically sound. In addition, the 50 percent multiplier for indirect wetland impacts has been used on previous projects that were approved by both the Corps and Ecology. Purchasing 0.21 credits at the Bank will fully compensate for the quality of habitat lost and ensure there is no net loss of ecological function. Table 4 below details the mitigation ratios used to calculate the total number of bank credits needed to compensate for the project impacts.

Table 5. Mitigation Bank Credits Proposed for Project Impacts.

Impacted Resource	Impact Type	Impact Area Acres	Bank Ratio	Indirect Impact Multiplier	Credit Purchase
Category III Wetland A	Indirect	0.41	1:1	0.50	0.21
Total Credit Purchase					0.21

CREDIT PURCHASE OR TRANSFER TIMING

ECM Riverside LLC will enter into a Buy/Sell Agreement with EFL Mitigation Partners for purchasing mitigation credits as specified in Table 4 above to appropriately mitigate for the proposed project impacts. The actual purchase of credits will occur following permit issuance, and prior to project impacts from the development. In no case shall credits be applied (e.g. debited from the bank) to a receiving (impact) project unless and until permits have been issued for the underlying activity by the agencies with jurisdiction. Nothing in the mitigation credit Purchase Agreement shall be interpreted or construed to permit any activity that otherwise requires a federal, state, and/or local permit.

CONFIRMATION OF MITIGATION CREDIT AVAILABILITY

EFL Mitigation Partners, LLC, the Bank Sponsor, has met all the required terms and conditions for the release of mitigation credits from the East Fork Lewis Mitigation Bank. Proof of the current number of available mitigation credits at the East Fork Lewis Mitigation Bank site can be confirmed by approving agency(s) through the Interagency Review Team (see contact information of the following page).

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FIGURES

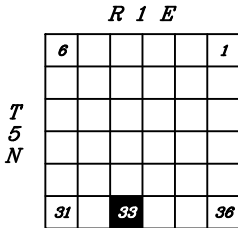
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WASHINGTON



45.8704° Latitude
-122.6888° Longitude

LOCATION MAP

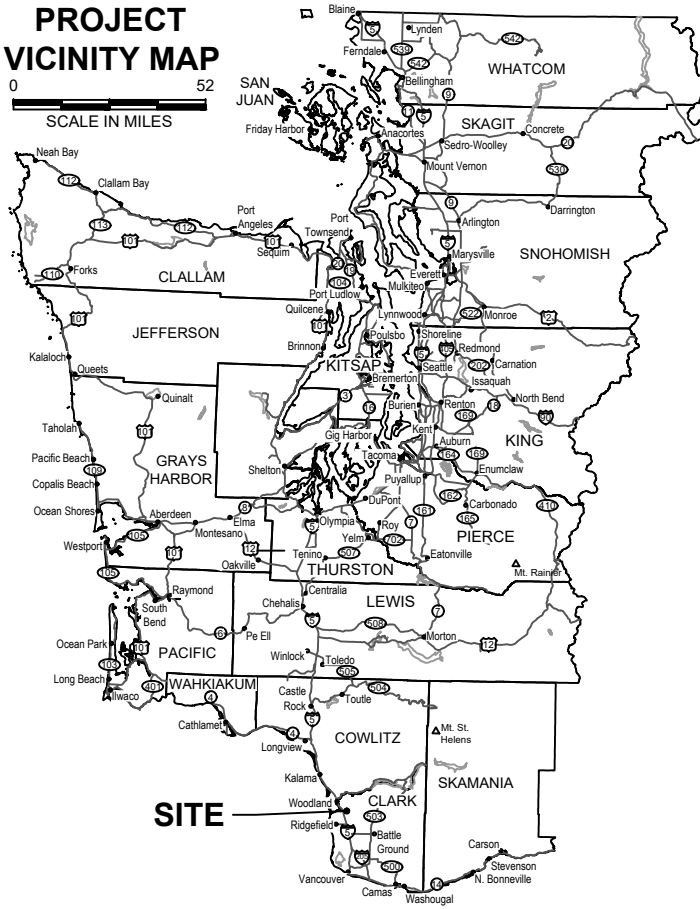


NOTE:

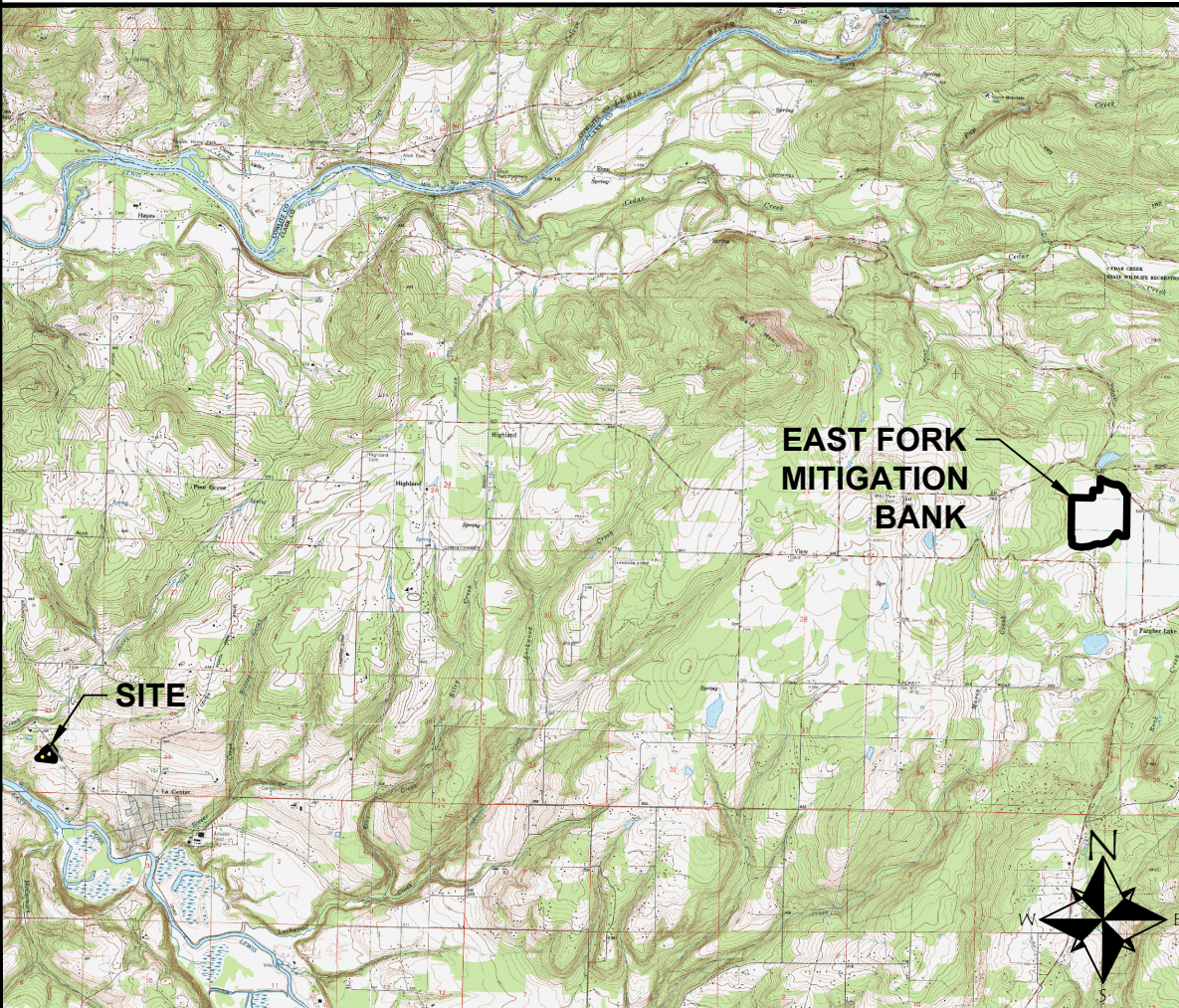
Quadrangle topographic map from USGS.

PROJECT VICINITY MAP

0 52
SCALE IN MILES



SITE



SITE

**EAST FORK
MITIGATION
BANK**

PROPOSED: Indirect Wetland Impacts

VICINITY MAP

APPLICANT: ECM Riverside LLC

PROJECT NAME: Riverside Estates Neighborhood Park

REFERENCE #:

SITE LOCATION ADDRESS:

34506 Old Pacific Highway

La Center, WA

PURPOSE:

Development of
Neighborhood Park

DATUM: NAD83

ADJACENT PROPERTY OWNERS:

1157 3rd Ave., Suite 220A

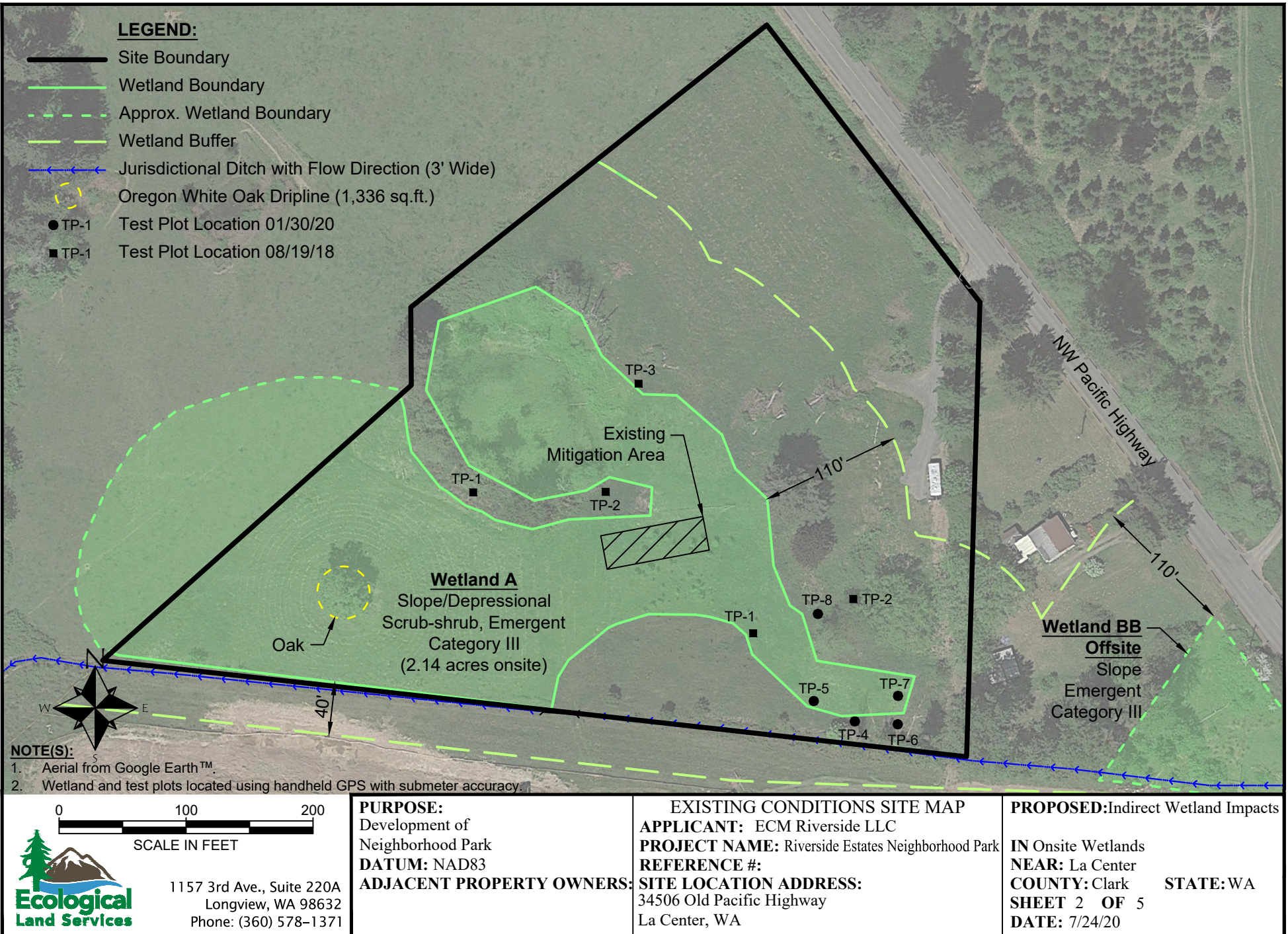
Longview, WA 98632

Phone: (360) 578-1371













0 1.5 miles 3 miles
SCALE IN FEET

0 1.5 miles 3 miles
SCALE IN FEET





LEGEND:

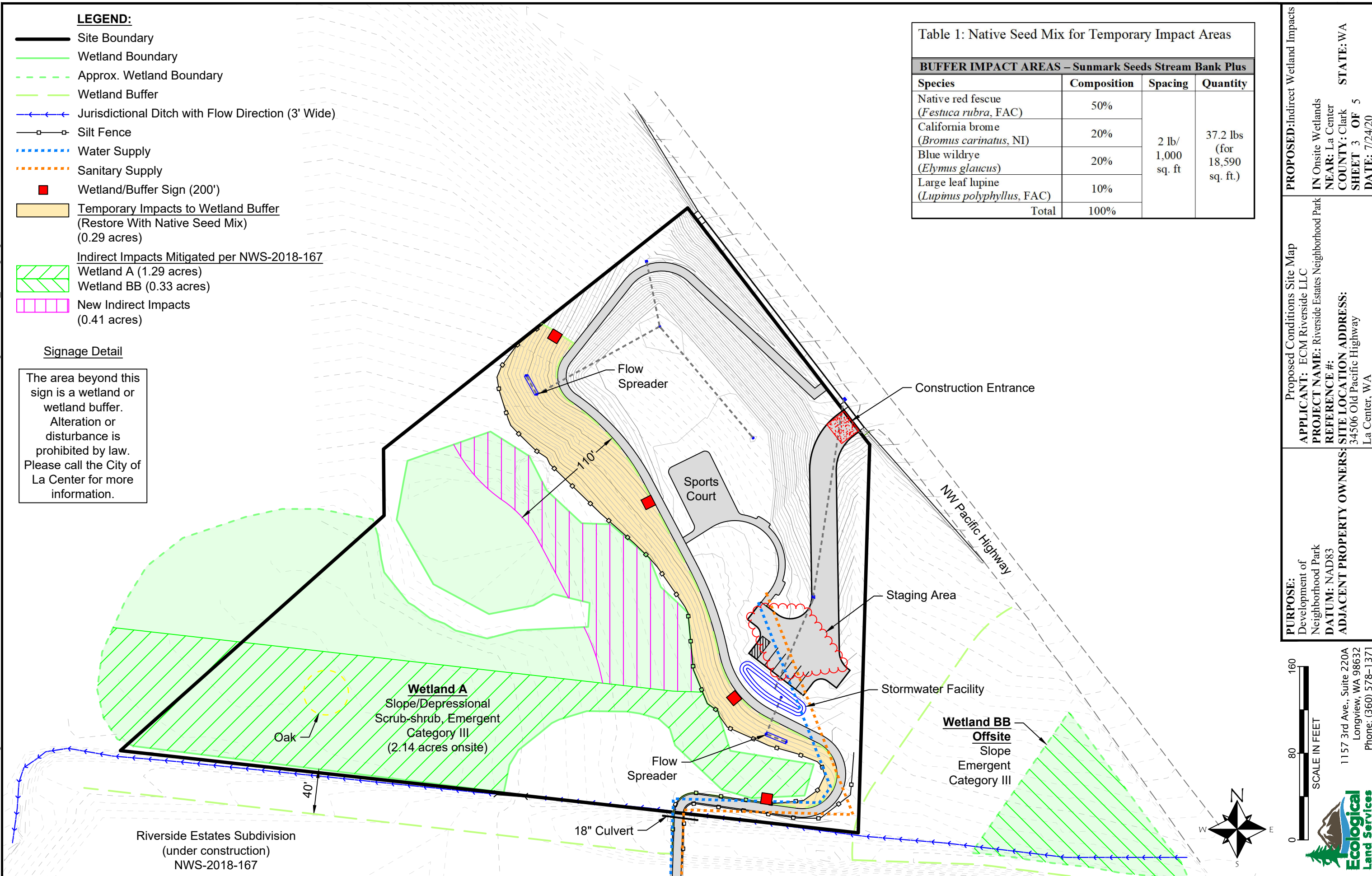
-  Site Boundary
 Wetland Boundary
 Approx. Wetland Boundary
 Wetland Buffer
 Jurisdictional Ditch with Flow Direction (3' Wide)
 Silt Fence
 Water Supply
 Sanitary Supply
 Wetland/Buffer Sign (200')
 Temporary Impacts to Wetland Buffer
 (Restore With Native Seed Mix)
 (0.29 acres)
 Indirect Impacts Mitigated per NWS-2018-167
 Wetland A (1.29 acres)
 Wetland BB (0.33 acres)
 New Indirect Impacts
 (0.41 acres)

Signage Detail

The area beyond this sign is a wetland or wetland buffer. Alteration or disturbance is prohibited by law. Please call the City of La Center for more information.

Table 1: Native Seed Mix for Temporary Impact Areas

BUFFER IMPACT AREAS – Sunmark Seeds Stream Bank Plus			
Species	Composition	Spacing	Quantity
Native red fescue (<i>Festuca rubra</i> , FAC)	50%	2 lb/ 1,000 sq. ft	37.2 lbs (for 18,590 sq. ft.)
California brome (<i>Bromus carinatus</i> , NI)	20%		
Blue wildrye (<i>Elymus glaucus</i>)	20%		
Large leaf lupine (<i>Lupinus polyphyllus</i> , FAC)	10%		
Total	100%		



PROPOSED: Indirect Wetland Impacts

IN Onsite Wetlands

NEAR: La Center

COUNTY: Clark

SHEET 3 OF 5

STATE: WA

Proposed Conditions Site Map

APPLICANT: ECM Riverside LLC

PROJECT NAME: Riverside Estates Neighborhood Park

REFERENCE #:

SITE LOCATION ADDRESS:

34506 Old Pacific Highway

La Center, WA

PURPOSE:

CONCLUSION: Development of

Neighborhood Park

DATUM: NAD83

ADJACENT PROPERTY OWNERS:

1

Age Group	Number of People
18-24	160
25-34	140
35-44	120
45-54	100
55-64	80
65-74	60
75+	40



SCALE IN FEET

1157 3rd Ave., Suite 220A

Ecological
Longview, WA 98632

and Services
Phone: (360) 578-1371

COWLITZ COUNTY

Mitigation Site (Fargher Lake Site)

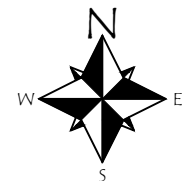
Site

LEGEND:

- SERVICE AREA
- COUNTY AND STATE BOUNDARY
- MAJOR ROADS
- MAJOR RIVERS AND STREAMS
- N

NOTES:

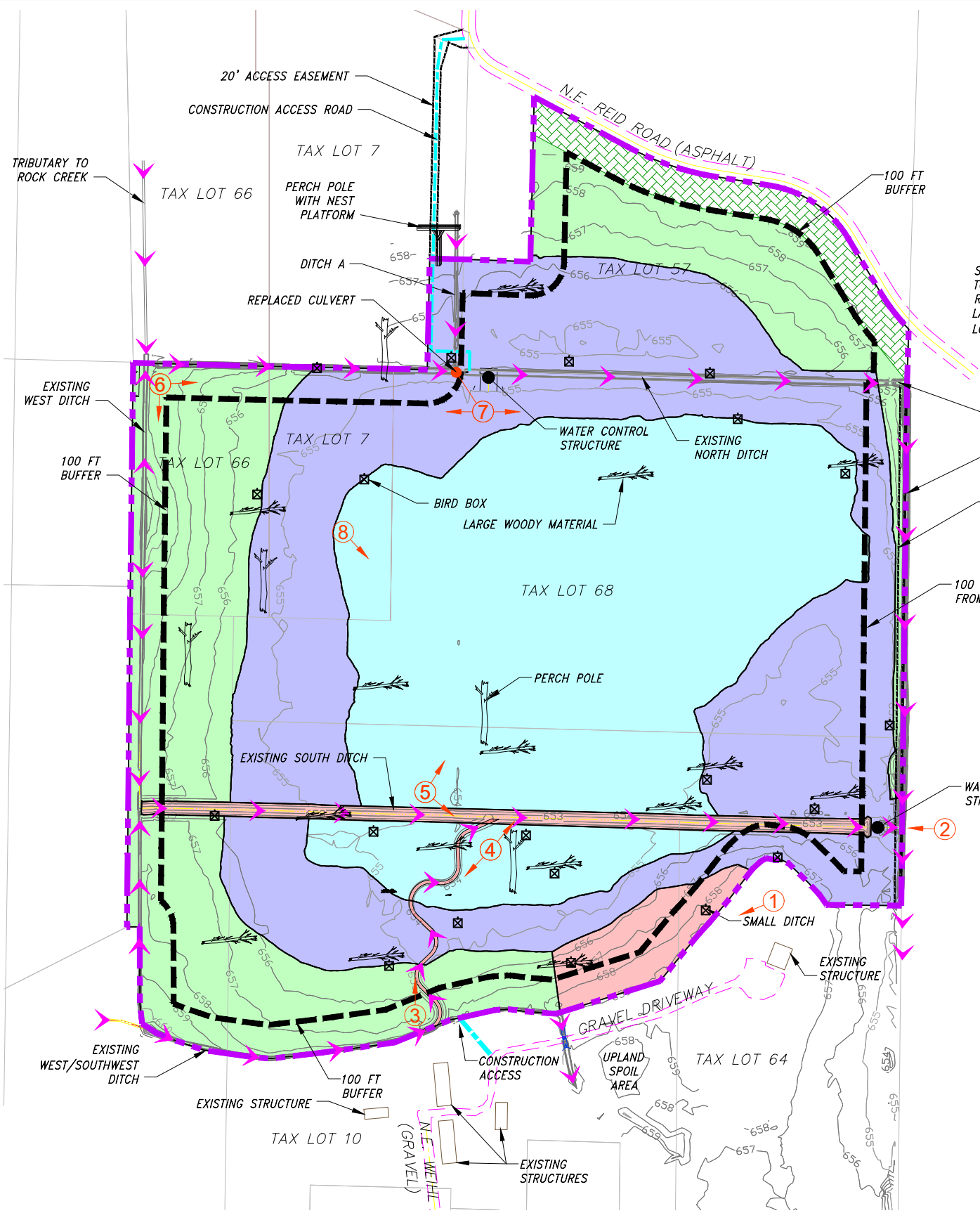
1. STATE, COUNTY, ROADS, RIVERS AND STREAM BOUNDARIES FROM ECOLOGY WEBSITE:
<http://www.wsdot.wa.gov/mapsdata/geodatacatalog/default.htm>
 2. SERVICE AREA BOUNDARY BASED ON MAP PREPARED BY STEPHEN STANLEY WETLAND
 RESTORATION BIOLOGIST WASHINGTON DEPARTMENT OF ECOLOGY SEA PROGRAM.
 3. MAP PREPARED BY ECOLOGICAL LAND SERVICES, INC., DECEMBER, 2007 AND JANUARY, 2010.



PURPOSE: Development of Neighborhood Park DATUM: NAD83 ADJACENT PROPERTY OWNERS:	East Fork Lewis Mitigation Bank Service Area Map APPLICANT: ECM Riverside LLC PROJECT NAME: Riverside Estates Neighborhood Park REFERENCE #: SITE LOCATION ADDRESS: 34506 Old Pacific Highway La Center, WA	PROPOSED: Indirect Wetland Impacts IN Onsite Wetlands NEAR: La Center COUNTY: Clark SHEET 4 OF 5 DATE: 2/6/20 STATE: WA
---	---	---

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





SECTIONS: 23
TOWNSHIP: T5N
RANGE: R2E
LAT = 45° 54' 4.62"N
LONG = 122° 31' 9.61"W

- LEGEND**
- PALUSTRINE FORESTED WETLAND (27.93 AC)
(10.15 AC IN BANK BUFFER)
 - PALUSTRINE SCRUB-SHRUB WETLAND (39.23 AC)
(6.59 AC IN BANK BUFFER)
 - PALUSTRINE EMERGENT WETLAND VARIANT (4.61 AC)
(1.66 AC IN BANK BUFFER)
 - PALUSTRINE EMERGENT WETLAND REESTABLISHMENT (38.32 AC)
(0.00 AC IN BANK BUFFER)
 - FORESTED UPLAND (3.63 AC)
(3.63 AC IN BANK BUFFER)

① PHOTO LOCATION

Habitat Features	
Type	Amount
Large woody material assemblage/root wad/downed log/perch pole	15
Standard nest box/nest platform/wood duck nest box/purple martin next house/bat box	21

Existing Conditions	Mitigation Bank Site Total (acres)	Area in Bank Buffer (acres)	Creditable Area (acres)
Upland Ag	107.96	16.65	--
Forested Upland	3.63	3.63	--
Palustrine Forested Wetland	0.39	0.39	--
Palustrine Emergent Wetland (includes all existing ditches on site)	1.28	0.28	--
Total Existing Conditions	113.26	20.95	--
Proposed Conditions	Mitigation Bank Site Total (acres)	Area in Bank Buffer (acres)	Creditable Area (acres)
Palustrine Forested Wetland (reestablishment)	27.80	10.09	17.71
Palustrine Scrub-Shrub Wetland (reestablishment)	17.86	2.70	15.16
Palustrine Scrub Shrub/Emergent Transition Wetland (reestablishment)	22.55	1.89	20.66
Palustrine Emergent Wetland Variant (reestablishment)	3.09	1.57	1.52
Palustrine Emergent Wetland (reestablishment)	36.90	0.81	36.09
South Ditch Palustrine Emergent Wetland (enhancement)	0.29	0	0.29
North Ditch Non-Creditable Area	0.43	0.26	0
East Ditch/Maintenance Access Non-Creditable Area	0.71	0	0
Upland Forest	3.63	3.63	0
Total Bank Site Area	113.26	20.95*	91.43**

*Does not include 0.71 acres of East Ditch/maintenance access which is considered non-creditable and not part of the buffer.
**Does not include 0.17 acres of the North Ditch which is considered non-creditable.

- SITE BOUNDARY (113.26 AC)
- LOT BOUNDARY
- BUFFER (20.95 AC)
- EXISTING CULVERTS
- DESIGN WATER SURFACE ELEVATION = 654.8
- MAJOR CONTOURS
- MINOR CONTOURS
- FLOW ARROWS
- SWALE

- NOTES:**
- Base map prepared by Ducks Unlimited.
 - Planting area boundaries mapped with a hand-held GPS unit with ≥ 3-foot accuracy.
 - Plants were installed in Spring 2014 by Tree Management Plus.

PURPOSE: Development of Neighborhood Park

APPLICANT: ECM Riverside LLC

PROJECT NAME: Riverside Estates Neighborhood Park

REFERENCE #: NAD83

ADJACENT PROPERTY OWNERS:

PROPOSED: Indirect Wetland Impacts

IN Onsite Wetlands

NEAR: La Center

COUNTY: Clark

STATE: WA

SHEET 5 OF 5

DATE: 2/6/20

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

Ecological Land Services

SCALE IN FEET

0 400 800

North Arrow

APPENDIX A



July 23, 2020

City of La Center, Planning Services
Senior Planner – Ethan Spoo, AICP
305 NW Pacific Highway
La Center, WA 98629

Subject: *Addendum to the Critical Areas Report for Riverside Estates*

Dear Mr. Spoo:

Ecological Land Services, Inc. (ELS) has prepared this *Addendum to the Critical Areas Report for Riverside Estates* to address changes to the boundary of Wetland A, which was originally delineated in August 2018 as part of the Riverside Estates subdivision located on the adjoining property to the south. The Riverside Estates subdivision property included Clark County Parcel Number 986028825, on which the majority of Wetland A lies. The U.S. Army Corps of Engineers issued a Section 404 Nationwide Permit (NWS-2018-167) on December 20, 2018 for Riverside Estates for direct and indirect wetland impacts associated with the subdivision. The eastern boundary of Wetland A was reevaluated by ELS on January 30, 2020 in preparation for development of the Neighborhood Park project on Parcel Number 986028825. The proposed park includes a paved trail along the eastern boundary of the wetland, as well as parking and sport courts. During the reevaluation, it was determined that the eastern wetland boundary inadvertently included some upland areas in the southeastern corner. The remaining eastern boundary was consistent with the 2018 delineation. Five additional test plots were taken to confirm the southeastern boundary changes, and several wetland flags delineating the wetland boundary were moved at this time (Figure 2). Most of these flags were moved based on lack of hydrology indicators and lack of hydric soil.

Test Plots 4, 6, and 8 were taken on January 30, 2020 in areas previously mapped as wetland in the 2018 delineation. Test plot data sheets are attached. None of these test plots contained hydric soils because the matrix chromas were too high. Additionally, despite the winter conditions, none of these test plots met wetland hydrology criteria. Test Plot 4 contained surface saturation; however, there was no water table associated with saturation so hydrology indicator A3 (Saturation) was not met. Surface saturation was likely due to recent rainfall. Test Plot 4 also did not meet the hydrophytic vegetation dominance test. Test Plot 6 did not contain any hydrology indicators. Test Plot 8 contained saturation at 14 inches depth, therefore did not meet hydrology indicator A3. Overall, the wetland test plots taken during the visit (Test Plots 5 and 7) contained surface saturation with associated water table, oxidized rhizospheres, stronger hydrophytic vegetation, and

contained hydric soils, whereas the newly included upland areas did not. For these reasons, the wetland boundary was revised as shown on Figure 1.

Following the wetland boundary verification site visit with the Corps and Ecology in 2018, the water quality function score of Wetland A was raised from 6 to 7 points. This did not change the overall wetland rating and it remains a Category III. The *Bank Use Plan for Riverside Estates* (ELS November 2018) reflects this change but the original critical areas report was not updated. The wetland score change included with this addendum and the updated rating form is attached. Wetland A remains a Category III emergent, scrub-shrub, slope and depressional wetland and now totals 2.14 acres onsite (original size was 2.18 acres). The park is considered a moderate intensity use, not high intensity like the subdivision. According to the *La Center Municipal Code (LCMC) Chapter 18.300 Table 18.300.090(5)(i)(i)-2*, Category III wetlands with an adjacent moderate intensity land use and a habitat score of 7 require a buffer of 110 feet.

During the wetland boundary verification visit, it was also determined that the farm ditch extending along the southern boundary of Parcel Number 986028825 was a jurisdictional ditch. The critical areas summary table below has been revised to reflect that change, as well as summarizes the revisions to Wetland A (acreage change and buffer width change). There have been no changes to the onsite oak habitat.

Table 1. Revised Critical Area Summary

Critical Area	Category ¹ /Cowardin Class ² /HGM Class ³	Size Onsite	Buffer Width ⁴
Wetland A	III/Emergent, Scrub-Shrub/Slope and Depressional	2.14 acres	110 feet
Jurisdictional Ditch	Seasonal	3 ft. wide	None
Oregon White Oak	N/A	36 inches DBH	None

¹Hruby 2014

²Cowardin et al. 1979

³NRCS 2008

⁴LCMC 18.300.090(6)(h)(i)-2

We believe this letter serves as an adequate addendum to the original *Critical Areas Report for Riverside Estates, La Center, Washington* (ELS 2018) to address the small changes made in the boundary of Wetland A and its rating form, and the change in the ditch categorization to jurisdictional. If you need any additional information or have any questions, please contact me at (360) 578-1371 or by email at steff@eco-land.com.

Best regards,



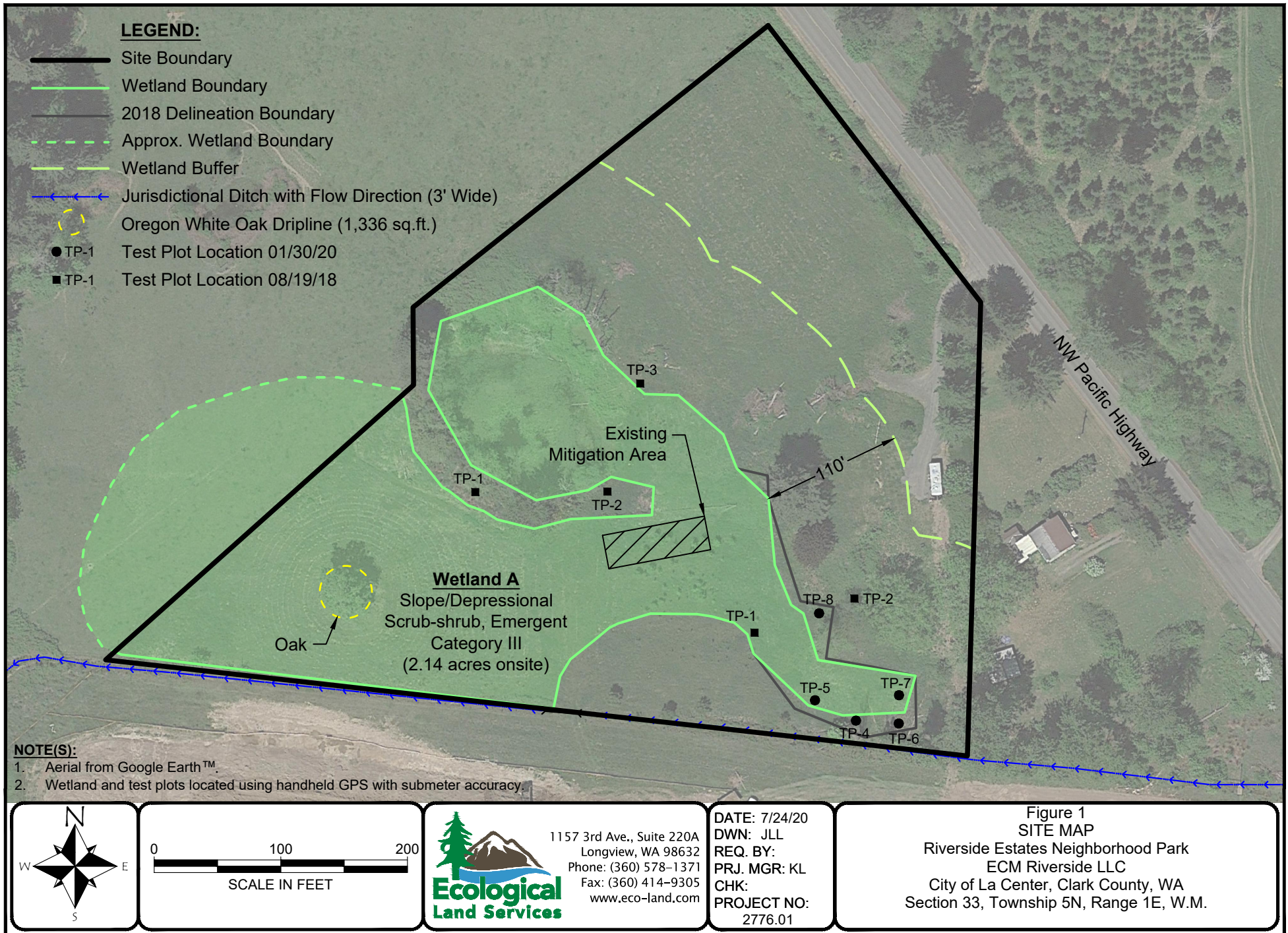
Steffanie Taylor

Senior Biologist/Principal

Attachments: Figure 1: Site Map (7/23/20)

Wetland Determination Data Forms for Test Plots 4 through 8 (1/30/20)

Revised Wetland Rating Form for Wetland A



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

Project/Site: Riverside Estates Neighborhood Park City/County: La Center/Clark Sampling Date: 01/30/20
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP-4
 Investigator(s): F. Naglich, K. Lacey, J. Bartlett Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): hillslope Local relief: (concave, convex, none): convex Slope (%): <5%
 Subregion (LRR): A Lat: 45.869931466091 Long: -122.688226204245 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes (OdB) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Test Plot 4 was conducted at the southeast corner of Wetland A to confirm the wetland boundary. This test plot was very close to the wetland boundary, so wetland hydrology was present, however hydric soils and hydrophytic vegetation were absent so this area was determined to be upland. The 2018 wetland boundary was adjusted slightly north of Test Plot 4.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC <u>50</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = ____ 20% = ____	%	=Total Cover		Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species <u>55</u> x 3= <u>165</u> FACU species <u>55</u> x 4= <u>220</u> UPL species _____ x 5= _____ Column Totals: <u>110</u> (A) <u>385</u> (B) Prevalence Index = B/A= <u>3.5</u>
Sapling/Shrub Stratum (Plot size: <u>20</u> ft. radius)				
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Herb Stratum (Plot size: <u>10</u> ft radius)				
1. <u>Schedonorus arundinaceus</u>	50%	yes	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Dactylis glomerata</u>	50%	yes	FACU	
3. <u>Vicia americana</u>	5%	yes	FAC	
4. <u>Galium aparine</u>	5%	no	FACU	
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>55</u> 20% = <u>22</u>	110%	=Total Cover		
Woody Vine Stratum (Plot size: _____ ft radius)				
1. _____	%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Hydrophytic vegetation criteria is not met because the dominance test was not met and the prevalence index is greater than 3.0.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/3	100%		%			silt loam	
16-18	10YR 4/3	90%	10YR 4/6	10%	C	M	silt loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Minerals (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

☐ 2 cm Muck (A10)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: No hydric soil indicators are met because the matrix chroma is too high to meet hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches):

Water Table Present? Yes ☐ No ☒ Depth (Inches):

Saturation Present? Yes ☒ No ☐ Depth (Inches): surface

(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:Wetland hydrology criteria is met because there is no water table associated with the saturation.

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

Project/Site: Riverside Estates Neighborhood Park City/County: La Center/Clark Sampling Date: 01/30/20
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP-5
 Investigator(s): F. Naglich, K. Lacey, J. Bartlett Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): hillslope Local relief: (concave, convex, none): convex Slope (%): <5%
 Subregion (LRR): A Lat: 45.8699730008622 Long: -122.688355000192 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes (OdB) NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Test Plot 5 was conducted just west of Test Plot 4 at the southeast corner of Wetland A. This area met all three wetland parameters so was determined to be wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Sapling/Shrub Stratum (Plot size: 20 ft. radius)				Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Herb Stratum (Plot size: 10 ft radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <i>Phalaris arundinacea</i>	100%	yes	FACW	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>55</u> 20% = <u>22</u>	110%	=Total Cover		
Woody Vine Stratum (Plot size: _____ ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
Remarks: Hydrophytic vegetation criteria is met because there is greater than 50 percent dominance by FACW specis.				

SOIL

Sampling Point: TP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	95%	7.5YR 4/6	5%	C	M	silt loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

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

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Hydric soil indicator F6: Redox Dark Surface because there is a dark layer with a matrix value of 3 or less and chroma of 2 or less with at least 5 percent redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Wetland hydrology criteria is met because there is saturation to the soil surface. Groundwater anticipated to fill test hole if left open long enough.

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

Project/Site: Riverside Estates Neighborhood Park City/County: La Center/Clark Sampling Date: 01/30/20
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP-6
 Investigator(s): F. Naglich, K. Lacey, J. Bartlett Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): hillslope Local relief: (concave, convex, none): convex Slope (%): <5%
 Subregion (LRR): A Lat: 45.86990600097149 Long: -122.688088999929 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes (OdB) NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Test Plot 6 was conducted near the southeast corner of Wetland A. This area was determined to be non-wetland because hydric soils and wetland hydrology were both absent. The 2018 wetland boundary was adjusted slightly to by moving it to the north.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = ____ 20% = ____	%	=Total Cover		Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
Sapling/Shrub Stratum (Plot size: <u>20</u> ft. radius)				
1. <u>Rubus spectabilis</u>	20%	yes	FAC	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>10</u> 20% = <u>4</u>	20%	=Total Cover		
Herb Stratum (Plot size: <u>10</u> ft radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Schedonorus arundinaceus</u>	50%	yes	FAC	
2. <u>Dactylis glomerata</u>	50%	yes	FACU	
3. <u>Vicia americana</u>	15%	yes	FAC	
4. <u>Poa sp.*</u>	15%	yes	FAC	
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>65</u> 20% = <u>26</u>	130%	=Total Cover		
Woody Vine Stratum (Plot size: _____ ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Hydrophytic vegetation criteria is met because there is greater than 50 percent dominance by FAC species. *Poa sp. assumed FAC.				

SOIL

Sampling Point: TP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/3	100%		%			silt loam	
8-16	10YR 4/3	100%		%			gravelly silt loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

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

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

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No hydric soil indicators are met because the matrix chroma is too high to meet the definition of a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

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

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:No wetland hydrology indicators were present here.

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

Project/Site: Riverside Estates Neighborhood Park City/County: La Center/Clark Sampling Date: 01/30/20
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP-7
 Investigator(s): F. Naglich, K. Lacey, J. Bartlett Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): hillslope Local relief: (concave, convex, none): concave Slope (%): <5%
 Subregion (LRR): A Lat: 45.869989000878 Long: -122.68809499982 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes (OdB) NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Test Plot 7 was conducted north of Test Plot 6 to confirm this area was wetland. All three wetland parameters were present in this area.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet	
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____	%				
3. _____	%				
4. _____	%			Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
50% = ____ 20% = ____	%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC	<u>100</u> (A/B)
Sapling/Shrub Stratum (Plot size: <u>20</u> ft. radius)				Prevalence Index worksheet	
1. _____	%			Total % Cover of: _____ Multiply by: _____	
2. _____	%			OBL species _____	x 1= _____
3. _____	%			FACW species _____	x 2= _____
4. _____	%			FAC species _____	x 3= _____
5. _____	%			FACU species _____	x 4= _____
50% = ____ 20% = ____	%	=Total Cover		UPL species _____	x 5= _____
Herb Stratum (Plot size: <u>10</u> ft radius)				Column Totals:	(A) _____ (B) _____
1. <u>Phalaris arundinacea</u>	100%	yes	FACW	Prevalence Index = B/A= _____	
2. _____	%			Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
3. _____	%				
4. _____	%				
5. _____	%				
6. _____	%				
7. _____	%				
8. _____	%				
9. _____	%				
10. _____	%				
11. _____	%				
50% = <u>55</u> 20% = <u>22</u>	110%	=Total Cover		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size: _____ ft radius)					
1. _____	%				
2. _____	%			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
50% = ____ 20% = ____	%	=Total Cover			
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: Hydrophytic vegetation criteria is met because there is greater than 50 percent dominance by FACW specis.					

SOIL

Sampling Point: TP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	95%	7.5YR 4/6	5%	C	M	silt loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Minerals (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☒ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

☐ 2 cm Muck (A10)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes☒ No☐

Remarks: Hydric soil indicator F6: Redox Dark Surface because ther is a dark layer with a matrix value of 3 or less and chroma of 2 or less with at least 5 percent redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☒ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes☐ No☒

Water Table Present? Yes☐ No☒

Saturation Present? Yes☐ No☒

(Includes Capillary fringe)

Depth (Inches): _____

Depth (Inches): _____

Depth (Inches): _____

Wetland Hydrology Present? Yes☒ No☐

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

Remarks:Wetland hydrology criteria is met because oxidized rhizospheres were present along living roots.

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

Project/Site: Riverside Estates Neighborhood Park City/County: La Center/Clark Sampling Date: 01/30/20
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP-8
 Investigator(s): F. Naglich, K. Lacey, J. Bartlett Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): hillslope Local relief: (concave, convex, none): convex Slope (%): <5%
 Subregion (LRR): A Lat: 45.8702020010705 Long: -122.688279000082 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes (OdB) NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Test Plot 8 was conducted north of Test Plots 5 through 7. This area was determined to be upland because hydric soils and wetland hydrology were absent and the boundary of the wetland was adjusted slightly west from the 2018 delineation	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Sapling/Shrub Stratum (Plot size: 20 ft. radius)				Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
1. <i>Rubus spectabilis</i>	50%	yes	FAC	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>25</u> 20% = <u>10</u>	50%	=Total Cover		
Herb Stratum (Plot size: 10 ft radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <i>Ranunculus repens</i>	60%	yes	FAC	
2. <i>Phalaris arundinacea</i>	50%	yes	FACW	
3. <i>Poa sp.*</i>	40%	yes	FAC	
4. <i>Cirsium vulgare</i>	10%	no	FAC	
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>80</u> 20% = <u>32</u>	160%	=Total Cover		
Woody Vine Stratum (Plot size: _____ ft radius)				
1. _____	%			
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Hydrophytic vegetation criteria is met because there is greater than 50 percent dominance by FAC and FACW species. *Poa sp. assumed FAC.				

SOIL

Sampling Point: TP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/3	100%		%			silty clay loam	
10-16	10YR 4/3	100%		%			silty clay	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Minerals (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

☐ 2 cm Muck (A10)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: No hydric soil indicators are met because the matrix chroma is too high to meet the definition of a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches):

Water Table Present? Yes ☐ No ☒ Depth (Inches):

Saturation Present? Yes ☒ No ☐ Depth (Inches): 14

(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:No primary or secondary wetland hydrology indicators were present here. Saturation was present too low in the soil profile to meet A3.

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 8/8/2018

Rated by KT Wills Trained by Ecology? Yes X No Date of training 9/2016

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 Google Earth

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

1. Category of wetland based on FUNCTIONS

 Category I – Total score = 23 – 27

 Category II – Total score = 20 – 22

X Category III – Total score = 16 – 19

 Category IV – Total score = 9 – 15

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

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

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	5
Hydroperiods	D 1.4, H 1.2	5
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	5
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	5
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 polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	6
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	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2

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

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

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

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

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

NO – go to 3

YES – The wetland class is **Flats**

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

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

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

NO – go to 4

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

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

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

NO – go to 5

YES – The wetland class is **Slope**

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

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

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

Wetland name or number A

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number A

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

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

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

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

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0
Total for D 3	4

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

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- | | | |
|---|------------|----------|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | 2 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | |

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

- | | | |
|--|------------|----------|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 3 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | |
| The wetland is a "headwater" wetland | points = 3 | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | |

D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.

- | | | |
|---|------------|----------|
| The area of the basin is less than 10 times the area of the unit | points = 5 | 3 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | |
| Entire wetland is in the Flats class | points = 5 | |

Total for D 4 Add the points in the boxes above

8

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0

0

D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0

1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0

1

Total for D 5 Add the points in the boxes above

2

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):

- | | | |
|---|------------|----------|
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | 0 |
| • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | |
| Flooding from groundwater is an issue in the sub-basin. | points = 1 | |

The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ points = 0

There are no problems with flooding downstream of the wetland. points = 0

No flooding problems based on personal knowledge as well as multiple dams on the mainstem Lewis River and levees near the mouth of mainstem Lewis River. No flooding on the EFL between site and confluence of mainstem a short distance downstream.

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0

0

Total for D 6 Add the points in the boxes above

0

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

Record the rating on the first page

Wetland Rating System for Western WA: 2014 Update

Rating Form – Effective January 1, 2015

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

<input checked="" type="checkbox"/> Aquatic bed	4 structures or more: points = 4
<input checked="" type="checkbox"/> Emergent	3 structures: points = 2
<input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
<input type="checkbox"/> Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

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*).

<input checked="" type="checkbox"/> Permanently flooded or inundated	4 or more types present: points = 3
<input checked="" type="checkbox"/> Seasonally flooded or inundated	3 types present: points = 2
<input type="checkbox"/> Occasionally flooded or inundated	2 types present: points = 1
<input checked="" type="checkbox"/> Saturated only	1 type present: points = 0

☐ Permanently flowing stream or river in, or adjacent to, the wetland

☐ Seasonally flowing stream in, or adjacent to, the wetland

☐ **Lake Fringe wetland** **2 points**

☐ **Freshwater tidal wetland** **2 points**

2

H 1.3. Richness of plant species

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

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

If you counted: > 19 species points = 2

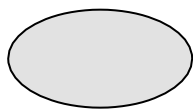
5 - 19 species points = 1

< 5 species points = 0

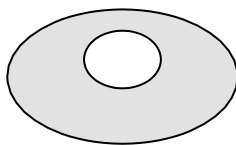
1

H 1.4. Interspersion of habitats

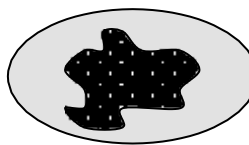
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



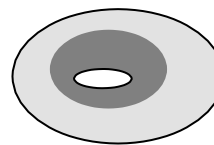
None = 0 points



Low = 1 point

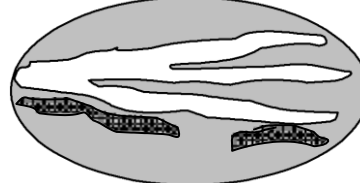
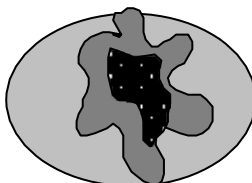
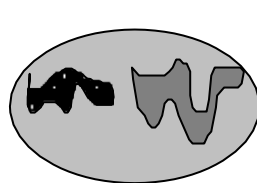


Moderate = 2 points



2

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



Wetland name or number A

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		2
Total for H 1	Add the points in the boxes above	9

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?

<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat $\frac{16.8 + [(\% \text{ moderate and low intensity land uses}) / 2]}{14.4} = \underline{31.2\%}$ If</p> <p>total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>		2
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat $\frac{32.6 + [(\% \text{ moderate and low intensity land uses}) / 2]}{29.3} = \underline{61.9\%}$</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>		0
Total for H 2	Add the points in the boxes above	5

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

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

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: points = 2

- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

~~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

1

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

Record the rating on the first page

Wetland name or number A

WDFW Priority Habitats

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

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

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

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

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
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 <div style="text-align: right;"> Yes – Go to SC 1.1 No = Not an estuarine wetland </div>	
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? <div style="text-align: right;"> Yes = Category I No - Go to SC 1.2 </div>	Cat. 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 than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <div style="text-align: right;"> Yes = Category I No = Category II </div>	Cat. I Cat. II
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 Conservation Value? <div style="text-align: right;"> Yes – Go to SC 2.2 No – Go to SC 2.3 </div> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <div style="text-align: right;"> Yes = Category I No = Not a WHCV </div> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf <div style="text-align: right;"> Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV </div> 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? <div style="text-align: right;"> Yes = Category I No = Not a WHCV </div>	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> 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? <div style="text-align: right;"> Yes – Go to SC 3.3 No – Go to SC 3.2 </div> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <div style="text-align: right;"> Yes – Go to SC 3.3 No = Is not a bog </div> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <div style="text-align: right;"> Yes = Is a Category I bog No – Go to SC 3.4 </div> 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. 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? <div style="text-align: right;"> Yes = Is a Category I bog No = Is not a bog </div>	Cat. I

Wetland name or number A

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

Wetland name or number A

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APPENDIX B



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, SEATTLE DISTRICT
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

Regulatory Branch

December 20, 2018

Mr. Peter Ettro
ECM Riverside LLC
340 Oswego Pointe Drive, Suite 208
Lake Oswego, Oregon 97034

Reference: NWS-2018-167
ECM Riverside LLC

Dear Mr. Ettro:

We have reviewed your application to place fill in 0.35 of an acre of wetlands to construct a residential development near La Center, Clark County, Washington. Based on the information you provided to us, Nationwide Permit (NWP) 29, Residential Developments (Federal Register January 6, 2017, Vol. 82, No. 4), authorizes your proposal as depicted on the enclosed drawings dated April 18, 2018.

In order for this authorization to be valid, you must ensure the work is performed in accordance with the enclosed *NWP 29, Terms and Conditions* and the following special conditions:

a. You shall implement and abide by the *Bank Use Plan, Riverside Estates* dated, November 6, 2018 and obtain mitigation bank credits from the East Fork Lewis Mitigation Bank in accordance with Table 4 of the Bank Use Plan.

b. You shall obtain from the East Fork Lewis Mitigation Bank sponsor documentation of the completed mitigation bank transaction. You shall submit to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch documentation on the completed mitigation bank transaction prior to performing work in waters of the U.S. authorized by this permit. All submittals must prominently display the reference number NWS-2016-167.

c. Your responsibility to complete the required compensatory mitigation as set forth in Special Conditions "a" through "b" will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch.

d. The permittee must install and maintain sediment and erosion controls during construction at the site until all disturbed soils have been revegetated or otherwise stabilized.

e. You shall implement and abide by the *Archaeological Monitoring and Discovery Plan for Sites 45CL1234 and 45CL1235, La Center, Washington*, dated August 20, 2018. A professional archaeologist shall be on-site to monitor for the presence of archaeological resources during all ground disturbing activities.

f. You shall prepare and submit a summary report of the findings of the archaeological monitoring (positive or negative) to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch within 60 days after monitoring has been completed. The report must prominently display the reference number NWS-2016-167.

g. If human remains, historic resources, or archaeological resources are encountered during construction, all ground disturbing activities shall cease in the immediate area and you shall immediately (within one business day of discovery) notify the U.S. Army Corps of Engineers (Corps), Seattle District, Regulatory Branch. You shall perform any work required by the Corps in accordance with Section 106 of the National Historic Preservation Act and Corps regulations.

We have reviewed your project pursuant to the requirements of the Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act and the National Historic Preservation Act. We have determined this project complies with the requirements of these laws provided you comply with all of the permit general and special conditions.

Please note that National General Condition 21, *Discovery of Previously Unknown Remains and Artifacts*, found in the *Nationwide Permit Terms and Conditions* enclosure, details procedures that must be followed should an inadvertent discovery occur. You must ensure that you comply with this condition during the construction of your project.

We are unable to determine whether or not your project requires individual Water Quality Certification (WQC) from the Washington State Department of Ecology (Ecology). Before you may proceed with the work authorized by this NWP, you must contact Ecology regarding these requirements at: Washington Department of Ecology, Federal Permit Coordinator, P.O. Box 47600, Olympia, Washington 98504-7660; telephone: (360) 407-6076; or email: ecyrefedpermits@ecy.wa.gov.

If more than 180 days pass from when you provide Ecology a copy of this letter and request your individual WQC review and you have not heard from Ecology, your requirement to obtain an individual WQC becomes waived. You may then proceed to construction.

You have not requested a jurisdictional determination for this proposed project. If you believe the U.S. Army Corps of Engineers does not have jurisdiction over all or portions of your project you may request a preliminary or approved jurisdictional determination (JD). If one is requested, please be aware that we may require the submittal of additional information to complete the JD and work authorized in this letter may not occur until the JD has been completed.

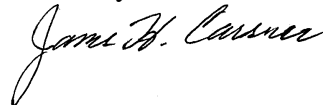
Our verification of this NWP authorization is valid until March 18, 2022, unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work has not been completed by that date and you have commenced or are under contract to commence this activity before March 18, 2022, you will have until March 18, 2023, to complete the activity under the enclosed terms and conditions of this NWP. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. You must also obtain all local, State, and other Federal permits that apply to this project.

You are cautioned that any change in project location or plans will require that you submit a copy of the revised plans to this office and obtain our approval before you begin work. Deviating from the approved plans could result in the assessment of criminal or civil penalties.

Upon completing the authorized work, you must fill out and return the enclosed *Certificate of Compliance with Department of the Army Permit*. Thank you for your cooperation during the permitting process. We are interested in your experience with our Regulatory Program and encourage you to complete a customer service survey. These documents and information about our program are available on our website at www.nws.usace.army.mil, select "Regulatory Branch, Permit Information" and then "Contact Us."

A copy of this letter with enclosures will be furnished to Ms. Steffanie Taylor of Ecological Land Services, Incorporated, 1157 3rd Avenue, Suite 220A, Vancouver, Washington 98632. If you have any questions, please contact me at (206) 316-3047 or james.h.carsner@usace.army.mil or.

Sincerely,



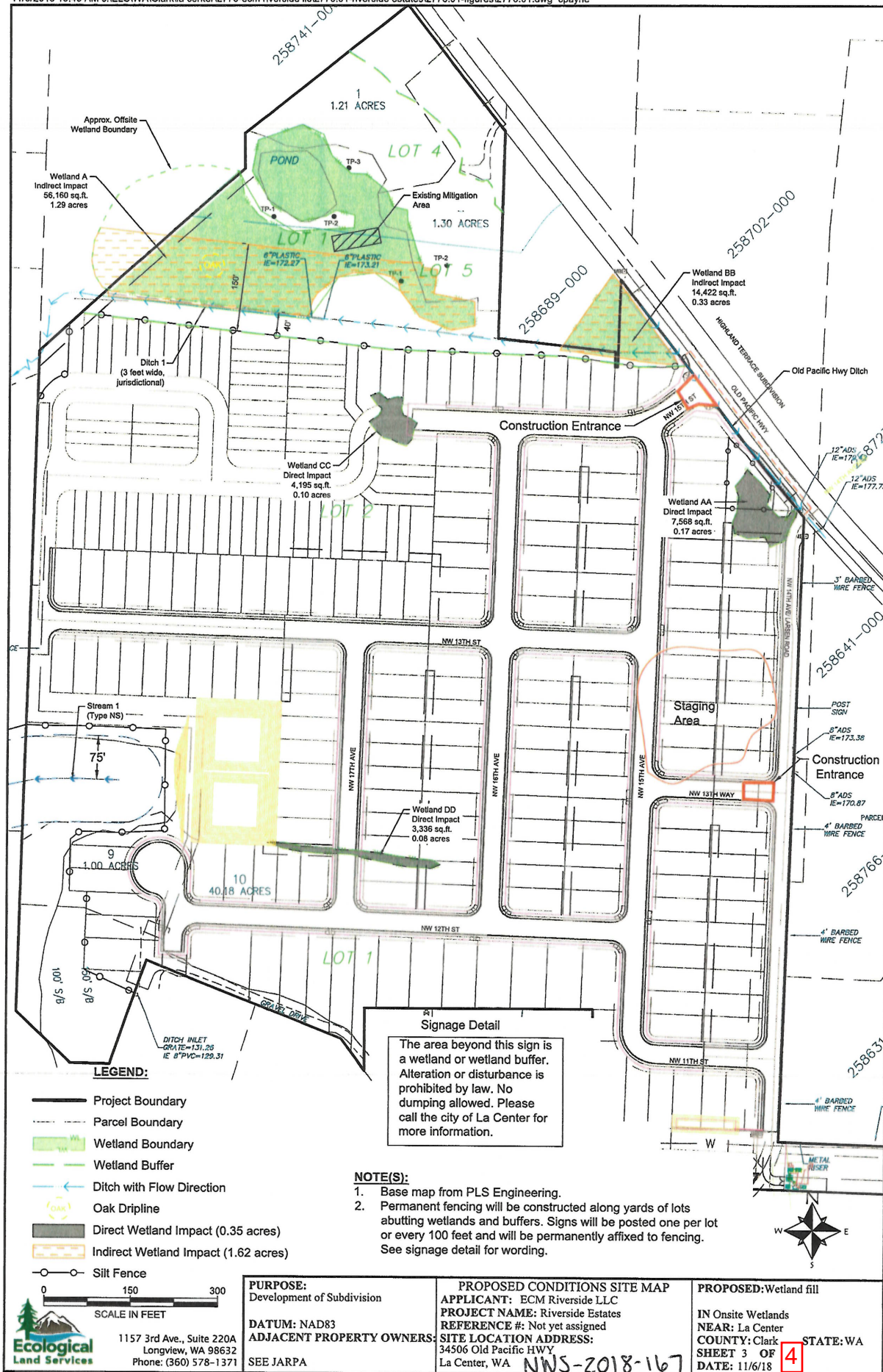
James H. Carsner, Project Manager
Regulatory Branch

Enclosures

cc: ecyrefedpermits@ecy.wa.gov



 <p>1157 3rd Ave., Suite 220A Longview, WA 98632 Phone: (360) 578-1371</p>	<p>PURPOSE: Development of Subdivision</p> <p>DATUM: NAD83</p> <p>ADJACENT PROPERTY OWNERS: SEE JARPA</p>	<p>EXISTING CONDITIONS SITE MAP</p> <p>APPLICANT: ECM Riverside LLC</p> <p>PROJECT NAME: Riverside Estates</p> <p>REFERENCE #: Not yet assigned</p> <p>SITE LOCATION ADDRESS: 34506 Old Pacific HWY La Center, WA NWS-2018-1167</p>	<p>PROPOSED:Wetland fill</p> <p>IN Onsite Wetlands</p> <p>NEAR: La Center</p> <p>COUNTY: Clark STATE: WA</p> <p>SHEET 2 OF 4</p> <p>DATE: 11/6/18</p>
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IN Onsite Wetlands
NEAR: La Center
COUNTY: Clark STATE: WA
SHEET 4 OF 4
DATE: 11/6/18



APPENDIX C



CRITICAL AREAS REPORT

September 11, 2018



Riverside Estates *La Center, Washington*

Prepared for

ECM Riverside LLC.
340 Oswego Pointe Drive , Suite 208
Lake Oswego, Oregon 97034
(503) 454-6551

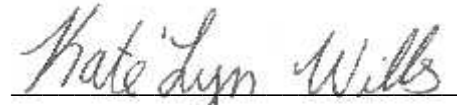
Prepared by

Ecological Land Services

1157 3rd Avenue, Suite 220A • Longview, WA 98632
(360) 578-1371 • Project Number 2776.01

SIGNATURES

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



Kate'Lyn (KT) Wills
Biologist IV

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Wetland Determination Data Forms

Appendix B:

Wetland Rating Forms for Western Washington

INTRODUCTION

Ecological Land Services, Inc. (ELS) has completed the following critical areas report on behalf of the applicant, ECM Riverside, LLC, for the future development of the property. The study area consists of Clark County Tax Parcels 986028-825, 986030-202, and 986030-201 located in Section 33, 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 the City of La Center Municipal Code (LCMC), *Chapter 18.300.090, Critical Lands* (2018).

SITE DESCRIPTION

The approximately 5-acre study area is zoned Medium Density Residential (MDR-16), by Clark County. The site has historically been used for farming and raising of animals and is currently vacant apart from decaying fence lines. An approximately 0.25-acre area in the central southern portion of the study area was planted as mitigation for an earlier project. Properties to the east, west, and north consist similarly of multiple acre parcels consisting of single-family homes and farmland. The property directly south of the study area is currently in development for the purpose of a residential subdivision. NW Pacific Highway runs along the northeastern boundary of the study area (Figure 2, Photoplates).

METHODOLOGY

The wetland delineation followed the Routine Determination Method according to the U.S. Army 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 Engineer Research and Development Center 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 (Corps), as “Waters of the State” by the Washington Department of Ecology (Ecology), and locally by *LCMC 18.300.090*.

ELS biologists conducted a reconnaissance of the property on August 8 and 19, 2018 to determine the presence or absence of any wetlands, streams, and other critical areas on the site and map their approximate locations. Prior to conducting the site visit, an ELS biologist reviewed current and historic aerial photographs dating back to 1990 and reviewed the Clark County GIS database information regarding soils, topography, wetlands, and habitat conservation areas. One depressional and slope wetland (Wetland A) was located within the central portion of the study area and continuing offsite to the east (Figure 2). Vegetation, soil,

and hydrology information was collected from five test plots to determine the location and extent of the wetland onsite (Appendix A). Wetland boundaries and test plot locations were flagged and recorded using a hand-held Trimble GPS unit with sub-meter accuracy. Additionally, the location, diameter at breast height (dbh) and dripline of one Oregon white oak (*Quercus garryana*) was recorded using the hand-held GPS unit.

VEGETATION

Wetlands

Vegetation found in the wetland test plot consists primarily of **saplings/shrubs**: black hawthorn (*Crataegus douglasii*, FAC), red-osier dogwood (*Cornus sericea*, FACW), and an unknown willow (*Salix spp.*, FACW); **herbs**: reed canarygrass (*Phalaris arundinacea*, FACW), and tall fescue (*Festuca arundinacea*, FAC).

Uplands

Vegetation found in the upland test plots consists primarily of **trees**: weeping willow (*Salix sepulcralis*, FACW), water birch (*Betula occidentalis*, FACW); **saplings/shrubs**: scotch broom (*Cytisus scoparius*, FACU), Pacific willow (*Salix lucida*, FACW); **herbs**: velvetgrass (*Holcus lanatus*, FAC), red fescue (*Festuca rubra*, FAC), bentgrass species (*Agrostis spp.*, FAC), Canada thistle (*Cirsium arvense*, FAC), and reed canarygrass; and **woody vines**: Himalayan blackberry (*Rubus armeniacus*, FAC).

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.

SOILS

The Natural Resources Conservation Service (NRCS) designates soils within the study area as Gee silt loam, 8 to 20 percent slopes (GeD) and Odne silt loam, 0 to 5 percent slopes (OdB) (Figure 3). Gee silt loam is characterized as moderately well drained while Odne silt loam is characterized as poorly drained; both soils are found on terraces. Odne silt loam, 0 to 5 percent slopes is considered hydric (NRCS 2017).

Wetlands

Evaluated soil within Test Plot 1 consisted of silty clay loam (10YR 3/2) with redoximorphic features (5YR 4/6) observed from 0-12 inches BGS as concentrations found as soft masses. Test Plot 1 meets the hydric soil indicator Redox Dark Surface (F6).

Uplands

Evaluated soils within upland test plots consisted of silt loam (10YR 3/2, 3/3, 4/2, and 4/3) throughout the profile with redoximorphic features (7.5YR5/6, 10YR4/6) observed in the lower portions of the profiles.

Mapped hydric soil does not necessarily mean 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. Specific soil information is recorded on the attached wetland determination data forms (Appendix A).

HYDROLOGY

Wetland A is located along a slope containing the farm pond in the central portion of the study area. During high water events the farm pond spills over and drains downslope. Wetland hydrology likely comes from upslope runoff, a seasonally high groundwater table, and precipitation. Hydroperiods of Wetland A include permanently flooded, seasonally flooded, and saturated only. The wetland functions to slow surface flow and to recharge groundwater. The wetland test plot contained the primary hydrology indicator, Oxidized Rhizospheres along Living Roots (C3). The following secondary hydrology indicators were also present: Saturation Visible on Aerial Imagery (C9) and a positive FAC-Neutral Test (D5).

NATIONAL WETLANDS INVENTORY

The National Wetlands Inventory (NWI) map indicates a Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (PUBHh) wetland in the location of the farm pond (Figure 4). Observations made by ELS were consistent with NWI mapping of the farm pond, however, a slope wetland was also identified as extending from the farm pond to the south. NWI 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

Wetlands

One emergent, scrub/shrub, slope and depressional wetland (Wetland A) totaling 2.18 acres was delineated in the central portion of the study area. The majority of the wetland consists of a slope that was bordered by an obvious change in vegetation and hydrology. The farm pond comprises the depressional portion of the wetland which was bordered by a berm along the southern edge that was approximately five feet high. Vegetation found in the wetland test plot consists primarily of black hawthorn, red-osier dogwood, willow, reed canarygrass, and tall fescue. The wetland experiences yearly mowing. Wetland hydrology likely comes from upslope runoff, a seasonally high groundwater table, and precipitation. Hydroperiods of Wetland A include permanently flooded, seasonally flooded, and saturated only. The wetland functions to slow

surface flow and to recharge groundwater. The farm pond comprises at least ten percent of the total wetland area and therefore the depressional HGM class was used for rating. According to the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Rating System), Wetland A is a Category III depressional wetland scoring a total of 18 points: 6 points for water quality functions, 5 points for hydrologic functions, and 7 points for habitat functions (Hruby 2014). A summary of Wetland A is shown in Table 1 below. According to *Table 18.300.090(6)(h)(i)-2* of the LCMC, designated buffer widths for a Category III wetland with a moderate habitat function and a high intensity land use is 150 feet. The wetland rating form can be found in Appendix B.

Farm Ditch

An approximately 3-foot wide, 3-foot deep ditch was mapped flowing east to west along the southern boundary of the study area. A driveway crosses the ditch where it is conveyed via culvert. The ditch abuts Wetland A west of the culvert and driveway crossing. The ditch was dry at the time of the site visit. The dominant vegetation in the ditch was composed of reed canarygrass and bentgrass.

Priority Habitat and Species

Oregon White Oak

According to *LCMC 18.300.090(2)(iv)*, Oregon white oak trees are considered priority habitat and species by the Washington Department of Fish and Wildlife (WDFW) therefore the City shall defer to WDFW in regards to classification, mapping, and interpretation of priority habitat species, and regulations.

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

ELS observed a single, mature oak that was approximately 36-inches DBH in the southwestern portion of the study area within Wetland A (Figure 2).

Table 1. Critical Areas Summary

Wetland	Category¹/Cowardin Class²/HGM Class³	Size	Buffer Width⁴
Wetland A	III/Emergent, Scrub-Shrub/Slope-Depressional	2.18 acres	150 feet
Farm Ditch	N/A	N/A	N/A
Oregon White Oak	N/A	36 inches DBH	N/A

¹Hruby 2014²Cowardin et al. 1979³NRCS 2008⁴LCMC 18.300.090(6)(h)(i)-2

LIMITATIONS

ELS bases the above listed determinations and conclusions on standard scientific methodology and best professional judgment. In our opinion, the conclusions should agree with local, state, and federal regulatory agencies. However, this should be considered a preliminary jurisdictional determination and should be used at your own risk until it has been reviewed and approved in writing by the appropriate regulatory agencies.

REFERENCES

- City of La Center. March 2018. *La Center Municipal Code, Chapter 18.300.090. Critical Lands*.
- Cowardin, L.M., C. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-78/31. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington D.C.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1. U.S. Army Corps of Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Hruby, T. 2014. *Washington State Wetland Rating System for Western Washington – 2014 Update*. Washington State Department of Ecology Publication #04-06-025.
- Larsen, E. M., and J. T. Morgan. 1998. *Management recommendations for Washington's priority habitats: Oregon white oak woodlands*. Washington Department of Fish and Wildlife, Olympia. 37pp.
- Natural Resource Conservation Service (NRCS). 2008. *Hydrogeomorphic Wetland Classification System: An Overview and Modification to Better Meet the Needs of the Natural Resources Conservation Service*. United States Department of Agriculture Technical Note, #190-8-76.
- Natural Resources Conservation Service (NRCS). 2018. Web Soil Survey. Available at: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed May 2018.
- U.S. Army Corps of Engineers. 2010. *Final Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-13. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Fish and Wildlife Service. 2018. *National Wetlands Inventory*. <http://wetlandsfws.er.usgs.gov/wtlnds/launch.html>. Accessed May 2018.
- Washington Department of Fish and Wildlife (WDFW). 2018. PHS on the Web. <http://apps.wdfw.wa.gov/phsontheweb/>. Accessed August, 2018.

FIGURES & PHOTOPLATES

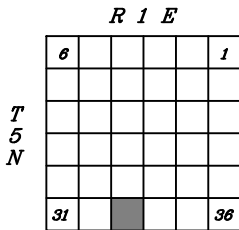
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WASHINGTON



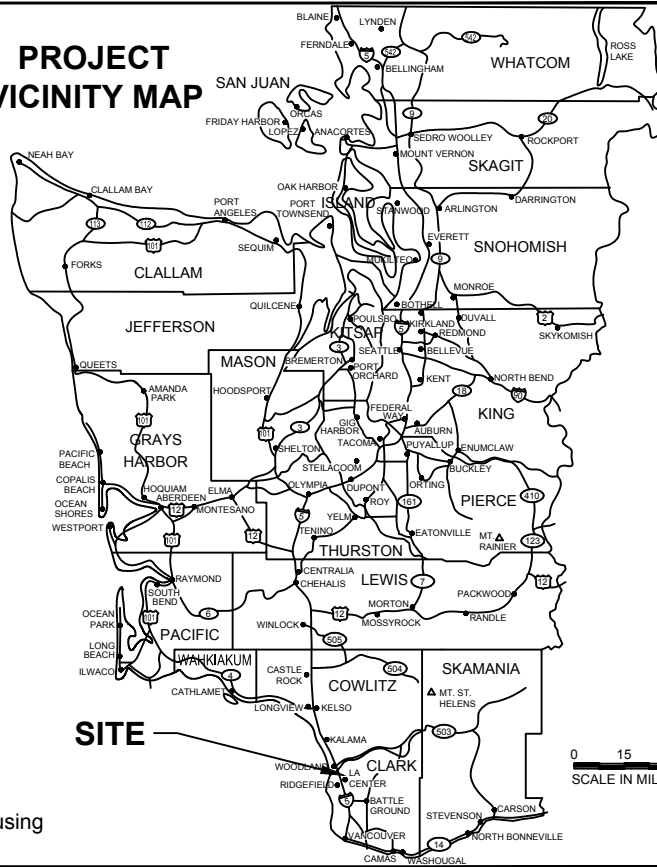
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LOCATION MAP



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

PROJECT VICINITY MAP



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SCALE IN MILES

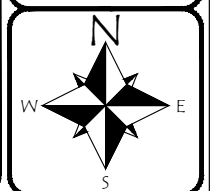
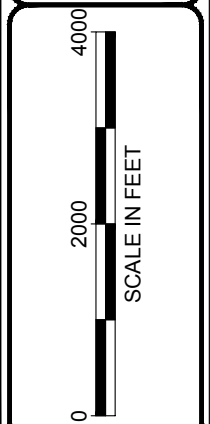
Figure 1

VICINITY MAP
Riverside Estates
ECM Riverside LLC

City of La Center, Clark County, Washington
Section 33, Township 5N, Range 1E, W.M.

DATE: 9/19/18
DWN: CDP
REQ. BY: KT
PRJ. MGR: FN
CHK: FN
PROJECT NO:
2776.01

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





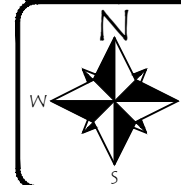
Wetland A
Category III
Depressional,
Slope, Emergent, Scrub/Shrub
(2.18 acres onsite)

LEGEND:

- Study Area Boundary
- Parcel Boundary
- Wetland Boundary
- Approx. Offsite Wetland Boundary
- Wetland Buffer
- Farm Ditch with Flow Direction
- OAK Dripline
- TP-1 Test Plot Location
- ① Photo Point Location
- Culvert
- ▨ Existing Mitigation Area

NOTE(S):

1. Aerial from Google Earth™.
2. Wetlands, test plots, and ditch were mapped by an ELS Biologist using a hand-held GPS unit with submeter accuracy.



0 100 200
SCALE IN FEET



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REQ. BY: KT
PRJ. MGR: FN
CHK: FN
PROJECT NO:
2776.01

Figure 2
SITE MAP
Riverside Estates
ECM Riverside LLC
City of La Center, Clark County, Washington
Section 33, Township 5N, Range 1E, W.M.

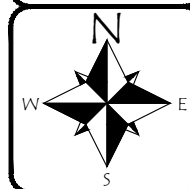


LEGEND:

- OdB** Odne silt loam, 0 to 5 percent slopes. **Hydric.**
GeD Gee silt loam, 8 to 20 percent slopes. Not hydric.

NOTE(S):

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



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 2776.01

Figure 3
NRCS SOIL SURVEY MAP

Riverside Estates
 ECM Riverside LLC
 City of La Center, Clark County, Washington
 Section 33, Township 5N, Range 1E, W.M.



Mapped wetlands indicated onsite by US Fish & Wildlife Service.

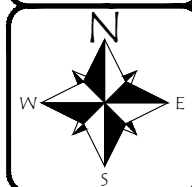
LEGEND:

 Freshwater Pond

PUBHh Palustrine, unconsolidated bottom, permanently flooded, diked/impounded.

NOTE(S):

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



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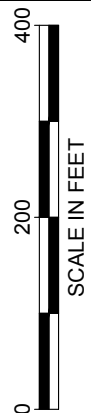
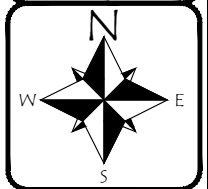
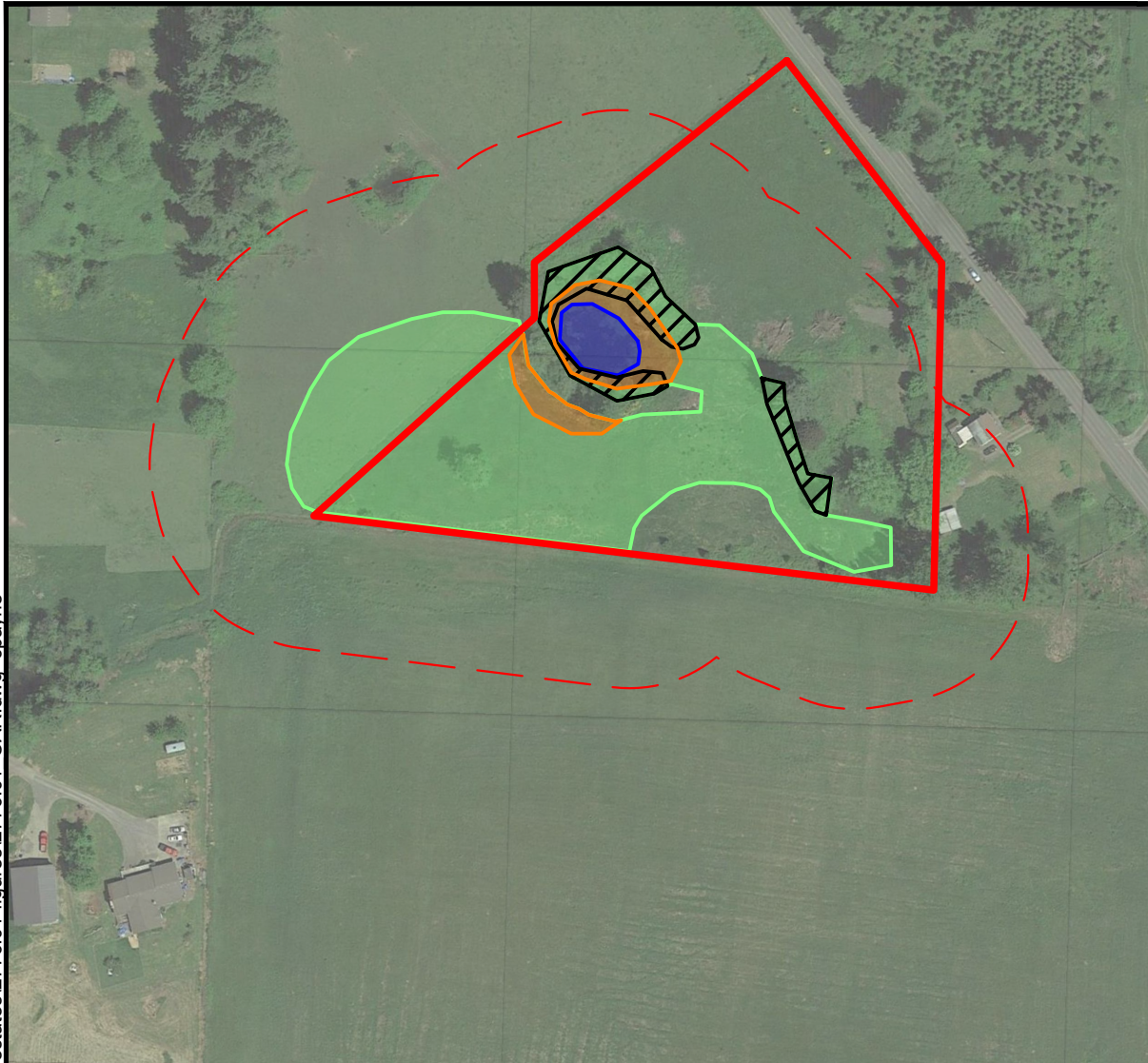
DATE: 9/19/18
DWN: CDP
REQ. BY: KT
PRJ. MGR: FN
CHK: FN
PROJECT NO:
2776.01

Figure 4
NATIONAL WETLANDS INVENTORY MAP
Riverside Estates
ECM Riverside LLC
City of La Center, Clark County, Washington
Section 33, Township 5N, Range 1E, W.M.

- LEGEND:**
- Study Area Boundary
 - Wetland Unit Boundary
 - - - 150' Wetland Offset
 - Permanently Flooded
 - Seasonally Flooded
 - Saturated Only/ Emergent
 - Scrub-Shrub

NOTE(S):

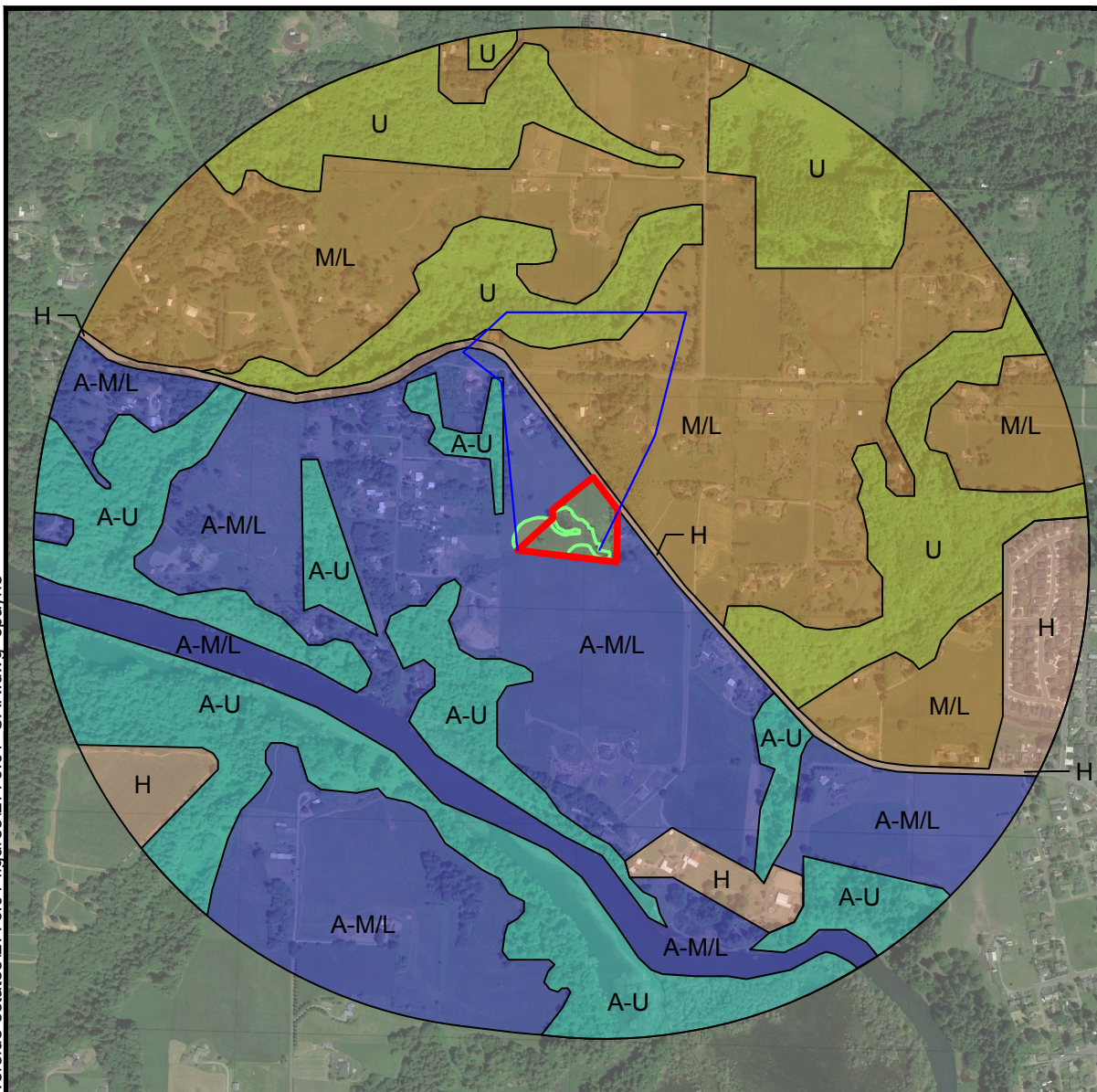
1. Aerial photo from Google Earth™.



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2776.01

Figure 5
150' OFFSET WETLAND RATING FIGURE
Riverside Estates
ECM Riverside LLC
City of La Center, Clark County, Washington
Section 33, Township 5N, Range 1E, W.M.



LEGEND:

- WL Wetland Unit Boundary
- Contributing Basin (10x area of wetland)

H2.1 Accessible Habitat

A-U A-U (17%)

A-M/L A-M/L (32%)

H2.2 Undisturbed Habitat

U U (16%)

M/L M/L (30%)

H2.3 Land Use Intensity

H H (5%)

H 2.1 - Accessible habitat is 20-33% of 1 km Polygon (33%).

H 2.2 - Undisturbed habitat 10-50% and > 3 patches (64%).

H 2.3 - ≤ 50% of polygon is high land use intensity.

NOTE(S):

1. Aerial photo from Google Earth™.

Figure 6
1KM OFFSET WETLAND RATING FIGURE
 Riverside Estates
 ECM Riverside LLC
 City of La Center, Clark County, Washington
 Section 33, Township 5N, Range 1E, W.M.

DATE: 9/19/18
 DWN: CDP
 REQ. BY: KT
 PRJ. MGR: FN
 CHK: FN
 PROJECT NO: 2776.01

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 Longview, WA 98632
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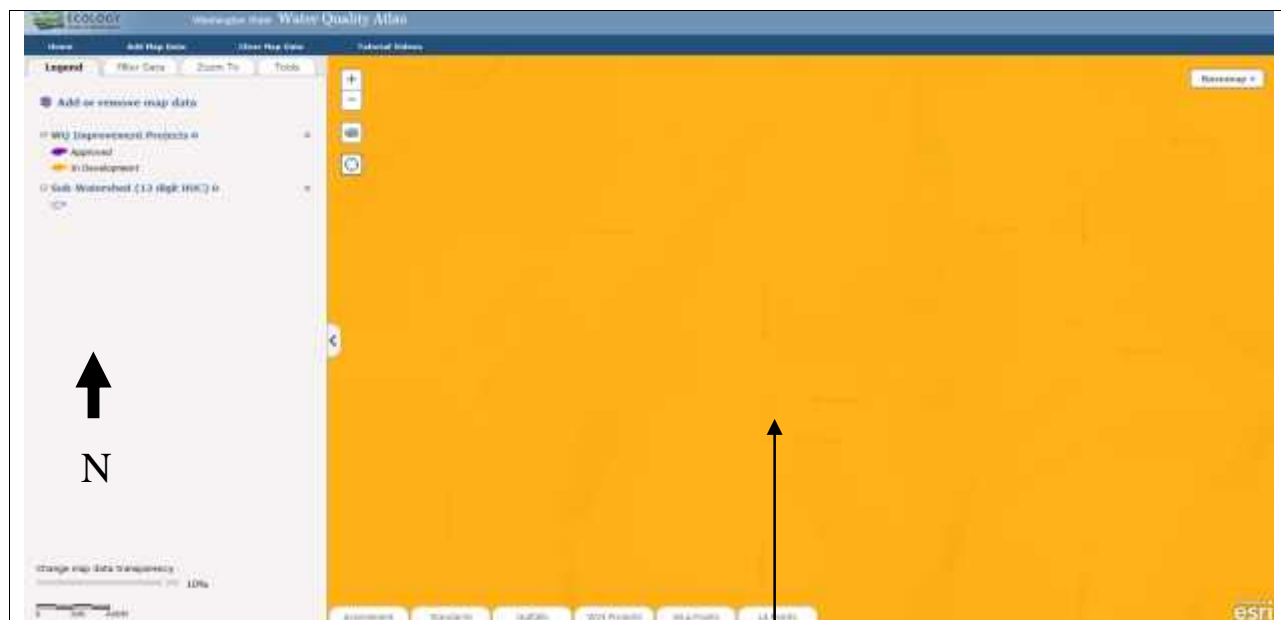
Study Area



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Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305

DATE: 08/14/18
DWN: KT
PRJ. MGR: KT
PROJ.#: 2776.01

Figure 7
303(d) Listed Waters



Study Area



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Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305

DATE: 8/14/18
DWN: KT
PRJ. MGR: KT
PROJ.#: 2776.01

Figure 8
TMDLs



Photo 1: This photo was taken from the top of the berm on the southeastern corner facing northwest across the farm pond.



Photo 2: This photo was taken from south of the farm pond facing west. The orange construction fencing surrounds the farm pond.



Photo 3: This photo was taken from the eastern site boundary facing southwest along the fence line.



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DATE: 9/6/18
DWN: KT
PRJ. MGR: FN
PROJ.#:
2667.01

**Photoplate 1
Site Photos**
Riverside Estates
ECM Riverside LLC.
La Center, Washington



Photo 4: This photo was taken from the farm drive crossing facing east along the ditch. The oak tree can be seen in the background in the right of the frame.



Photo 5: This photo was taken from just south of the farm drive crossing facing north. The orange construction fencing in the background surrounds the farm pond.



Photo 6: This photo was taken from east of the existing mitigation plantings facing northwest towards the farm pond.



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Longview, WA 98632
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Fax: (360) 414-9305

DATE: 9/6/18
DWN: KT
PRJ. MGR: FN
PROJ.#:
2776.01

**Photoplate 2
Site Photos**
Riverside Estates
ECM Riverside LLC.
La Center, Washington

APPENDIX A: WETLAND DETERMINATION DATA FORMS

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

Project/Site: Riverside Estates City/County: La Center/Clark Sampling Date: 8/19/18
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP1
 Investigator(s): Naglich, Francis and Rendleman, Annie Jean Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): Drainageways, terraces Local relief: (concave, convex, none): Concave Slope (%): <5%
 Subregion (LRR): A Lat: 45.87008 Long: -122.6885 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: This test plot was located in Parcel # 986028825, within the southeast portion. The vegetation in this test plot consisted mostly of grasses, with trace amounts of shrubs and trees. This test plot met all three wetland indicators with 100% hydrophytic vegetation, soils with redox dark surface, and the presence of the following hydrology indicators; Oxidized Rhizospheres along Living Roots (C3), Saturation Visible on Aerial Imagery (C9), and a positive FAC Neutral Test (D5)).	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u>Crataegus douglasii</u>	5%	yes	FAC	Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
2. <u>Cornus sericea</u>	5%	yes	FACW	
3. <u>Salix spp</u>	5%	yes	FACW	
4. _____	%			
5. _____	%			
50% = <u>7</u> 20% = <u>1</u>	15%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Phalaris arundinacea</u>	70%	yes	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Festuca arundinacea</u>	20%	yes	FAC	
3. <u>Lotus corniculatus</u>	10%	no	FAC	
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>50</u> 20% = <u>20</u>	100%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. _____	%			Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	%			
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u> Remarks: The hydrophytic vegetation criterion is met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.				

SOIL

Sampling Point: TP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR3/2	85%	5YR4/6	15%	C	M	Silty Clay	
12-16	10YR4/2	95%	10YR4/6	5%	C	M	Silty Clay	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

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

Indicators for Problematic Hydric Soils

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Minerals (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☒ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

☐ 2 cm Muck (A10)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes☒ No☐

Remarks: The hydric soil indicator Redox Dark Surface (F6) was met due to a matrix value of 3 and a chroma of 2 with more than 5 percent redox concentrations found as soft masses.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☒ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☒ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☒ FAC Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes☐ No☒ Depth (Inches):

Water Table Present? Yes☐ No☒ Depth (Inches):

Saturation Present? Yes☐ No☒ Depth (Inches):

(Includes Capillary fringe)

Wetland Hydrology Present? Yes☒ No☐

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

Remarks:The following hydrology indicators were found within the test plot: Oxidized Rhizospheres along Living Roots (C3), Saturation Visible on Aerial Imagery (C9), and a positive FAC Neutral Test (D5).

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

Project/Site: Riverside Estates City/County: La Center/Clark Sampling Date: 8/19/18
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP2
 Investigator(s): Naglich, Francis and Rendleman, Annie Jean Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): Drainageways, terraces Local relief: (concave, convex, none): Convex Slope (%): <5%
 Subregion (LRR): A Lat: 45.8702 Long: -122.6882 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: This test plot was located in Parcel # 986030202. This test plot exhibited hydrophytic vegetation, but did not meet the criterion for hydric soils or wetland hydrology, and is therefore not considered a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u>Betula occidentalis</u>	30%	yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
2. <u>Acer macrophyllum</u>	10%	yes	FACU	
3. _____	%			
4. _____	%			
50% = <u>20</u> 20% = <u>8</u>	40%	=Total Cover		Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = _____ 20% = _____	%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Festuca rubra</u>	65%	yes	FAC	
2. <u>Polygonum cuspidatum</u>	5%	no	FACU	
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>35</u> 20% = <u>14</u>	70%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. <u>Rubus armeniacus</u>	40%	yes	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = <u>20</u> 20% = <u>8</u>	40%	=Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
% Bare Ground in Herb Stratum <u>0%</u>				

Remarks: The hydrophytic vegetation criterion is met due to 75% of the dominant species had either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR3/3	100%		%			Silt Loam	
12-16	10YR4/3	100%		%			Silt Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

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

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

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: There was no evidence of hydric soils within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

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

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:There was no evidence of hydrology within this test plot.

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

Project/Site: Riverside Estates City/County: La Center/Clark Sampling Date: 8/8/18
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP3
 Investigator(s): Naglich, Francis and Wills, KT Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): Drainageways, terraces Local relief: (concave, convex, none): Convex Slope (%): <5%
 Subregion (LRR): A Lat: 45.8703 Long: -122.6893 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: This test plot was located in parcel # 986030202. This test plot exhibited hydrophytic vegetation, but did not meet the criterion for hydric soils or wetland hydrology, and is therefore not considered a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <u>Salix sepulcralis</u>	30%	yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = <u>15</u> 20% = <u>6</u>	30%	=Total Cover		Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u>Cytisus scoparius</u>	5%	yes	FACU	
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>2</u> 20% = <u>1</u>	5%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Phalaris arundinacea</u>	20%	yes	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Cirsium arvense</u>	15%	yes	FAC	
3. <u>Lotus corniculatus</u>	10%	no	FAC	
4. <u>Holcus lanatus</u>	10%	no	FAC	
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>27</u> 20% = <u>11</u>	55%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. <u>Rubus armeniacus</u>	30%	yes	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = <u>15</u> 20% = <u>6</u>	30%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The hydrophytic vegetation criterion is met due to 80% of the dominant species had either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR4/3	93%	10YR4/6	7%	C	M	Silt Loam	
14-16	10YR4/2	93%	10YR4/6	7%	C	M	Silt Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Minerals (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Loamy Mucky Mineral (F1) (except MLRA 1)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

☐ 2 cm Muck (A10)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil appears to be castoff from the creation of the farm pond. There was no evidence of hydric soils within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

☐ Surface Water (A1)

☐ High Water Table (A2)

☐ Saturation (A3)

☐ Water Marks (B1)

☐ Sediment Deposits (B2)

☐ Drift Deposits (B3)

☐ Algal Mat or crust (B4)

☐ Iron Deposits (B5)

☐ Surface Soil Cracks (B6)

☐ Inundation Visible on Aerial Imagery (B7)

☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)

☐ Salt Crust (B11)

☐ Aquatic Invertebrates (B13)

☐ Hydrogen Sulfide Odor (C1)

☐ Oxidized Rhizospheres along Living Roots (C3)

☐ Presence of Reduced Iron (C4)

☐ Recent Iron Reduction in Tilled Soils (C6)

☐ Stunted or Stressed Plants (D1) (LRR A)

☐ Other (Explain in Remarks)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)

☐ Drainage Patterns (B10)

☐ Dry-Season Water Table (C2)

☐ Saturation Visible on Aerial Imagery (C9)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3)

☐ FAC Neutral Test (D5)

☐ Raised Ant Mounds (D6) (LRR A)

☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (Inches): _____

Water Table Present? Yes ☐ No ☒ Depth (Inches): _____

Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:There was no evidence of hydrology within this test plot.

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

Project/Site: Riverside Estates City/County: La Center/Clark Sampling Date: 8/8/18
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP4
 Investigator(s): Naglich, Francis and Wills, KT Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): Drainageways, terraces Local relief: (concave, convex, none): Convex Slope (%): <5%
 Subregion (LRR): A Lat: 45.8704 Long: -122.6890 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: This test plot was located in Parcel # 986030202. This test plot exhibited hydrophytic vegetation, but did not meet the criterion for hydric soils or wetland hydrology, and is therefore not considered a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%			Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = ____ 20% = ____	%	=Total Cover		Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. <u>Cytisus scoparius</u>	10%	yes	FACU	
2. <u>Salix lasida</u>	10%	yes	FACW	
3. _____	%			
4. _____	%			Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	%			
50% = <u>10</u> 20% = <u>4</u>	20%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <u>Holcus lanatus</u>	30%	yes	FAC	
2. <u>*Agrostis spp.</u>	30%	yes	FAC	
3. <u>Lotus corniculatus</u>	5%	no	FAC	
4. <u>Rumex obtusifolius</u>	5%	no	FAC	
5. <u>Parentucellia viscosa</u>	5%	no	FAC	
6. <u>Phalaris arundinacea</u>	5%	no	FACW	
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>40</u> 20% = <u>16</u>	80%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. <u>Rubus armeniacus</u>	35%	yes	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = <u>17</u> 20% = <u>7</u>	35%	=Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: * Assumed FAC indicator status. The hydrophytic vegetation criterion is met due to 80% of the dominant species had either OBL, FACW, or FAC indicator statuses.				

SOIL

Sampling Point: TP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR4/3	85%	7.5YR5/6	15%	C	M	Silt Loam	
10-16	10YR4/2	85%	7.5YR5/6	15%	C	M	Silt Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

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

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

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

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

Restrictive Layer (if present):

Type:
Depth (inches):

Hydric Soil Present? Yes No

Remarks: There was no evidence of hydric soils within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

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

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:There was no evidence of hydrology within this test plot.

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

Project/Site: Riverside Estates City/County: La Center/Clark Sampling Date: 8/8/18
 Applicant/Owner: ECM Riverside LLC State: WA Sampling Point: TP5
 Investigator(s): Naglich, Francis and Wills, KT Section, Township, Range: 33, 5N, 1E
 Landform (hillslope, terrace, etc.): Drainageways, terraces Local relief: (concave, convex, none): Convex Slope (%): <5%
 Subregion (LRR): A Lat: 45.8706 Long: -122.6889 Datum: NAD83
 Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: This test plot was located in Parcel # 986030202. This test plot exhibited hydrophytic vegetation, but did not meet the criterion for hydric soils or wetland hydrology, and is therefore not considered a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
50% = ____ 20% = ____	%	=Total Cover		Prevalence Index worksheet Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)				
1. _____	%	_____	_____	
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 – Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	%	_____	_____	
50% = ____ 20% = ____	%	=Total Cover		
Herb Stratum (Plot size: <u>5</u> ft radius)				
1. <i>Holcus lanatus</i>	55%	yes	FAC	
2. <i>*Agrostis spp.</i>	20%	yes	FAC	
3. <i>Phalaris arundinacea</i>	10%	no	FACW	
4. <i>Cirsium arvense</i>	5%	no	FAC	
5. _____	%	_____	_____	
6. _____	%	_____	_____	
7. _____	%	_____	_____	
8. _____	%	_____	_____	
9. _____	%	_____	_____	
10. _____	%	_____	_____	
11. _____	%	_____	_____	
50% = <u>45</u> 20% = <u>18</u>	90%	=Total Cover		
Woody Vine Stratum (Plot size: <u>15</u> ft radius)				
1. <i>Rubus armeniacus</i>	15%	yes	FAC	
2. _____	%	_____	_____	
50% = <u>7</u> 20% = <u>3</u>	15%	=Total Cover		
% Bare Ground in Herb Stratum <u>0%</u>				

Remarks: * Assumed FAC indicator status. The hydrophytic vegetation criterion is met due to 100% of the dominant species had either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR4/2	100%		%			Silt Loam	
14-16	10YR5/7	100%		%			Silt Loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

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

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

Indicators for Problematic Hydric Soils

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

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

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: There was no evidence of hydric soils within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

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

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:There was no evidence of hydrology within this test plot.

APPENDIX B: WETLAND RATING FORM

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 8/8/2018

Rated by KT Wills Trained by Ecology? Yes X No Date of training 9/2016

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 Google Earth

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

1. Category of wetland based on FUNCTIONS

 Category I – Total score = 23 – 27

 Category II – Total score = 20 – 22

X Category III – Total score = 16 – 19

 Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
Circle the appropriate ratings										
Site Potential	H	M	(L)	H	(M)	L	H	(M)	L	
Landscape Potential	H	(M)	L	H	(M)	L	(H)	M	L	
Value	(H)	M	L	H	M	(L)	H	(M)	L	
Score Based on Ratings	6			5			7			TOTAL 18

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

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	(N/A)

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	5
Hydroperiods	D 1.4, H 1.2	5
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	5
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	5
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 polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	6
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	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2

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

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

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

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

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

NO – go to 3

YES – The wetland class is **Flats**

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

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

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

NO – go to 4

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

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

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

NO – go to 5

YES – The wetland class is **Slope**

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

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

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

Wetland name or number A

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number A

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

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

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

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

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0
Total for D 3	4

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

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- | | | |
|---|------------|----------|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | 2 |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | |

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

- | | | |
|--|------------|----------|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 3 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | |
| The wetland is a "headwater" wetland | points = 3 | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | |

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

- | | | |
|---|------------|----------|
| The area of the basin is less than 10 times the area of the unit | points = 5 | 3 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | |
| Entire wetland is in the Flats class | points = 5 | |

Total for D 4 Add the points in the boxes above

8

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0

0

D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0

1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0

1

Total for D 5 Add the points in the boxes above

2

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):

- | | | |
|---|------------|----------|
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | 0 |
| • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | |
| Flooding from groundwater is an issue in the sub-basin. | points = 1 | |

The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____ points = 0

There are no problems with flooding downstream of the wetland. points = 0

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

0

Yes = 2 No = 0

Total for D 6 Add the points in the boxes above

0

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

Record the rating on the first page

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

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*).

- | | | |
|--|-------------------------------------|----------|
| <input checked="" type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 2 |
| <input checked="" type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | |
| <input checked="" type="checkbox"/> Saturated only | 1 type present: points = 0 | |
| | | |
| <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Lake Fringe wetland | 2 points | |
| <input type="checkbox"/> Freshwater tidal wetland | 2 points | |

H 1.3. Richness of plant species

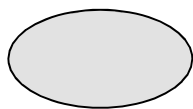
Count the number of plant species in the wetland that cover at least 10 ft².

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

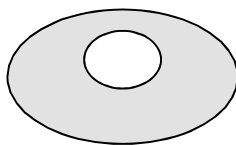
- | | | |
|------------------------------|------------|----------|
| If you counted: > 19 species | points = 2 | 1 |
| 5 - 19 species | points = 1 | |
| < 5 species | points = 0 | |

H 1.4. Interspersion of habitats

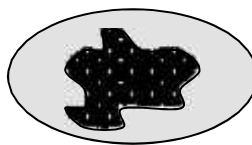
Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



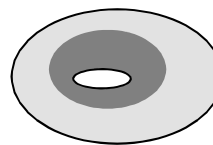
None = 0 points



Low = 1 point

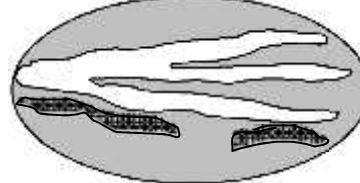
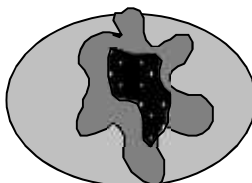
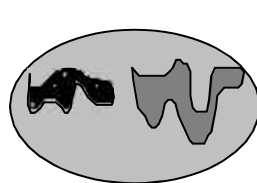


Moderate = 2 points



1

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



Wetland name or number A

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		2
Total for H 1	Add the points in the boxes above	7

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?

<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u>17</u>+ [(% moderate and low intensity land uses)/2]<u>16</u> = <u>33</u>% If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>		2
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u>33</u>+ [(% moderate and low intensity land uses)/2]<u>31</u> = <u>64</u>%</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>		0
Total for H 2	Add the points in the boxes above	5

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

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

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: points = 2

- ☐ It has 3 or more priority habitats within 100 m (see next page)
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- ☐ It is mapped as a location for an individual WDFW priority species
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

~~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

1

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

Record the rating on the first page

Wetland name or number A

WDFW Priority Habitats

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

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

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

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

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category	
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>		
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?	Yes = Category I No - Go to SC 1.2 Cat. 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 than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	Yes = Category I No = Category II Cat. I Cat. II	
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 Conservation Value?	Yes – 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?	Yes = Category I No = Not a WHCV	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	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? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i>		
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 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?	Yes – Go to SC 3.3 No = Is not a bog	
SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? 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.	Yes = Is a Category I bog No – Go to SC 3.4	
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 Cat. I	

Wetland name or number A

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

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