WETLAND AND STREAM REPORT
WILLIAMS CROSSING PROJECT

Thurston County, Washington

Applicant:

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SHNW0000-0002

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EXECUTIVE SUMMARY

At the request of Sage Homes NW, LLC (applicant), David Evans and Associates, Inc. (DEA) conducted a wetland and stream delineation for the proposed Williams Crossing residential plat development (project) located at 5216, 5224, and 5228 NE 15th Avenue, Olympia, WA. The applicant proposes to construct a private residential development on three separate parcels:

- Parcel 11809310100, 5126 NE 15th Ave, Olympia, WA 98516
- Parcel 11809310600, 5224 NE 15th Ave, Olympia, WA 98516
- Parcel 11809310700, 5228 NE 15th Ave, Olympia, WA 98516

Each parcel will support 13 or 14 separate single family dwellings, for a total of 41 structures, plus access roads, utilities, stormwater treatment areas, and amenities.

DEA's delineation confirmed the presence of two wetland units (Wetland A and B) that had been previously delineated by Agua Tierra in 2019. The wetland units are connected just offsite to the north of the property. Portions of the boundaries of both wetlands were changed by DEA. Wetlands were rated using the Washington State Department of Ecology (Ecology) rating system for Western Washington. Based on this system, the wetland units were rated together as a Category III wetland. No streams were identified on the property. The wetland was rated with a habitat score of 7, which results in a standard wetland buffer of 260 feet under Thurston County (County) Code and a buffer width of 110 feet under Lacey Municipal Code. The proposed project avoids all direct impacts to the wetlands or their buffers.

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Acronyms and Abbreviations

CARP	Critical Area Review Permit
City	City of Lacey
County	Thurston County
DEA	David Evans and Associates, Inc.
DOI	U.S. Department of the Interior
Ecology	Washington State Department of Ecology
GIS	Geographic Information System
HGM	Hydrogeomorphic
LMC	Lacey Municipal Code
NHP	Natural Heritage Program
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
PFO	Palustrine Forested
PHS	Priority Habitats and Species
TCC	Thurston County Code
TPA	Tree protection area
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WRIA	Water Resource Inventory Area

1.0 INTRODUCTION

The applicant (Sage Homes Northwest) proposes to construct a private residential development on three separate lots in Thurston County, northeast of Olympia, Washington (**Figure 1**, Vicinity Map). Parcels involved with the development are as follows:

- Parcel 11809310100, 5126 NE 15th Ave, Olympia, WA 98516
- Parcel 11809310600, 5224 NE 15th Ave, Olympia, WA 98516
- Parcel 11809310700, 5228 NE 15th Ave, Olympia, WA 98516

Each parcel will support 13 or 14 separate single family dwellings, for a total of 41 structures, plus access roads, utilities, stormwater treatment areas, and amenities. As shown in **Figure 1**, Vicinity Map, the project is located in Section 09 of Township 18 North Range 1 West. The parcels are located within Thurston County and plan to connect with City of Lacey (City) utility.

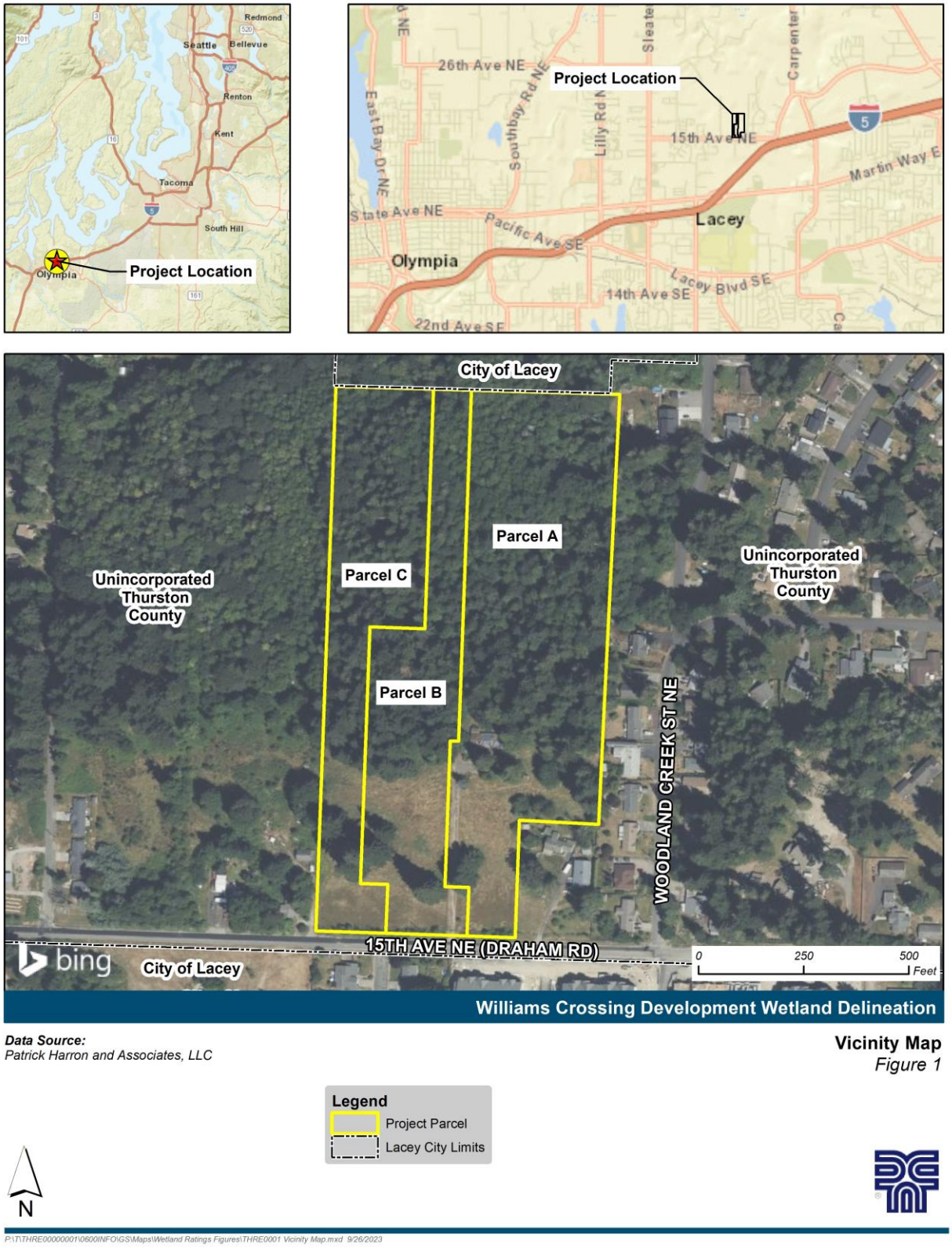
The project vicinity is generally characterized by second growth coniferous forest with a mix of low density rural and high density urban developments. Located north of Lacey between Olympia and the rapidly developing Hawks Prairie area, the project is bordered on the north by City of Lacey park property. The local topography slopes north/northeast toward the Woodland Creek drainage.

1.1 REPORT LIMITATIONS

This report is intended to update the previously submitted wetland report for the Williams Crossing project (Agua Tierra 2019) and allow the applicant to complete their Critical Area Review Permit (CARP) application process. This report and its author, Gray Rand, meet the submittal requirements for streams and wetlands as described in the existing critical area ordinance for the County. Mr. Rand is a Professional Wetland Scientist certified by the Society of Wetland Scientists and has more than 20 years of experience with wetlands and local critical areas in Puget Sound.

The wetland boundaries described herein are the professional opinion of David Evans and Associates, Inc. (DEA) staff based on the circumstances and site conditions at the time of this study. Local, state, and federal jurisdictions make final determinations of jurisdictional boundaries.

Figure 1. Project Vicinity Map



2.0 METHODOLOGY

2.1 PRELIMINARY RESEARCH

Published information about local critical areas was reviewed for evidence of wetlands and streams located in the project vicinity. Information reviewed included, but was not limited to, the following:

- National Wetland Inventory (NWI) data access through the U.S. Fish and Wildlife Service (USFWS) NWI data portal. U.S. Department of the Interior (DOI) April 2021.
- Natural Resource Conservation Service (NRCS) Web Soil Survey website, accessed April 2021 (NRCS 2019).
- Washington State Department of Fish and Wildlife (WDFW) – Priority Habitats and Species (PHS) Online Mapper, accessed April 2021. Olympia, Washington (WDFW 2019a). http://wdfw.wa.gov/mapping/phs/
- Washington State Department of Fish and Wildlife (WDFW) – Salmonscape Online Mapper. Accessed April 2021. Olympia, Washington (WDFW 2019b). http://apps.wdfw.wa.gov/salmonscape/map.html
- A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region. Washington Department of Fisheries (Williams et al. 1975).
- Washington State Department of Natural Resources (WDNR) Natural Heritage Program (NHP) data (accessed 2019): WA Wetlands of High Conservation Value Map Viewer. Available at: https://wadnr.maps.arcgis.com/apps/webappviewer/index.html?id=5cf9e5b22f584ad7a4e2aebc63c47bda
- Thurston County GeoData Center, Show Me Everything Map. Accessed April 2021. https://map.co.thurston.wa.us/Html5Viewer/Index.html?viewer=uMap.Main
- Wetland Delineation and Buffer Rating Report for Three's Company (Agua Tierra Land and Water Services, 2019)

2.2 FIELD INVESTIGATION

An on-site investigation of the project study area was conducted on April 14, 2021. The studied area includes sections of the following Thurston County parcels:

- 11809310600
- 11809310700
- 11809310100

In addition, offsite wetland and stream conditions were visually assessed on May 28, 2021 on a parcel to the north owned by the City of Lacey (Parcel #11809240400).

Wetlands and streams were delineated and mapped according to state and federal laws. Wetland resources were delineated using guidelines and methods described in the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (Environmental Laboratory 1987) as amended

with the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys and Coast Region (Regional Supplement) (USACE 2010).

In general, the wetland delineation consisted of three main tasks: (1) assessing vegetation, soil, and hydrologic characteristics to identify areas meeting wetland criteria; (2) evaluating constructed drainage features to determine whether they would be regulated as jurisdictional wetlands, streams, or ditches: and (3) marking wetland boundaries. Wetland boundaries were identified in the field by a DEA biologist and surveyed in the field by MTN2COAST, LLC Surveying.

Biologists used several tools to identify and classify plants and soils examined within the study area, and to conduct a rainfall analysis in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley, and Coast Region (USACE 2010). Plant indicator status and scientific plant names were identified using the National Wetland Plant List (Lichvar et al. 2016). Soil characteristics were recorded and classified using methods prescribed by the Natural Resources Conservation Service (NRCS) Field Book for Describing and Sampling Soils (NRCS 2012). Hydric soil conditions were assessed using Field Indicators of Hydric Soils in the United States, Version 8.1 (NRCS 2018). Vegetation, soil, and hydrology information was recorded in the field on wetland data forms and are provided in **Appendix A**. Weather during the delineation was drier than normal, as shown in the results of the Corps Antecedent Precipitation Tool, also included in **Appendix A**.

Wetlands delineated within the study area were classified according to the United States Fish and Wildlife (USFWS) Cowardin classification system (Cowardin et al. 1979), Ecology's Western Washington Wetland Rating System (Hruby 2014), and the hydrogeomorphic approach (HGM) (Brinson 1993).

No streams or ditches were delineated on the subject property. Wetland buffers were determined in the study area based on the habitat score of the wetlands according to the Washington State Wetland Rating System for Western Washington (Ecology 2014), Table 24.30-1 of the Thurston County Code (TCC), and Table 14T-19 of the Lacey Municipal Code (LMC).

2.3 WETLAND REGULATORY REQUIREMENTS

Due to the project's parcels being located within Thurston County, but planning to connect with City of Lacey utilities, both jurisdictions' codes were considered for the purposes for this critical areas report.

Thurston County Code (TCC 24.03.010) defines a wetland as:

> *"Wetland" or "wetlands" means areas that are inundated or saturated by surface water 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, and other areas meeting the definition of wetland under RCW 36.70A.030, as amended. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may*

include those artificial wetlands intentionally created from non-wetland areas in order to mitigate conversion of natural wetlands. Areas below the ordinary high water mark (OHWM) of a water body, including but not limited to marine waters, lakes, ponds, streams, and rivers, may also qualify as wetlands if they meet the criteria of the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual and the 2008 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region.

TCC 24.30.030 describes the how the County requires wetlands to be rated according to the Washington State Wetland Rating System for Western Washington (Hruby 2014), which classifies wetlands as Category I through IV, based on functional score and unique characteristics. Standard wetland buffer widths in Thurston County are outlined in TCC 24.30.045 and are based primarily on how well a wetland performs (scores) habitat and water quality functions. Specific buffer widths are described in Table 24.30-1 of the TCC, which is summarized in **Table 1** below.

Table 1. Thurston County Standard Wetland Buffer Widths*

The Larger of the Buffers for Habitat and Water Quality Applies											
BUFFER TO PROTECT HABITAT											
Rating for habitat from Hruby (2014)	L,L,L	L,L,L	M,L,L	M,M,L	H,L,L	M,M,M	H,M,L	H,M,M	H,H,L	H,H,M	H,H,H
Buffer width for habitat for all wetlands except estuarine wetlands and coastal lagoons	100’	120’	140’	160’	180’	200’	220’	240’	260’	280’	300’
Buffer width with mitigation under 24.30.050 TCC	100’	100’	105’	120’	135’	150’	165’	180’	195’	210’	225’
Buffer width for estuarine wetlands and lagoons	220 feet										
Buffer to Maintain Water Quality											
Wetlands of high conservation value, bogs, and wetlands containing sensitive plant species documented by the DNR Natural Heritage Program.	250 feet										
Wetlands that rate 3 for habitat, score 7 or less for water quality, are less than 10,000 square feet in size and are not a functional part of a mosaic wetland, do not support priority wildlife species, and do not drain to a stream or a Category I or II wetland.	50 feet										

*Table 24.30-1 of the TCC.

The County did raise the issue of tree protection within their March 11, 2020 letter. Pursuant to TCC 24.30.065, trees within wetland buffers with driplines that extend beyond the upland edge (furthest from the wetland) of buffers with a wildlife habitat rating of five points or more under the Wetland Rating System for Western Washington shall be protected as follows:

A. A tree protection area extending a minimum of five feet beyond the dripline of trees twelve inches or greater in diameter (at four and one-half feet above the ground) and stands of trees shall be established and protected from disturbance during site development.
B. Tree protection areas shall be identified on all applicable site development and construction drawings submitted to the County.
C. Temporary fencing at least thirty inches tall shall be erected along the perimeter of the tree protection areas prior to the initiation of any clearing or grading. The fencing shall be posted with signage clearly identifying the tree protection area as a no entry area. If the tree protection area spans more than 0.25 miles, the perimeter of the protection area may be staked and flagged rather than fenced. The fencing or stakes shall remain in place throughout site development.
D. Clearing, grading, filling or other development activities are prohibited within the tree protection area.
E. Vehicle travel, parking and storage of construction materials and fuel are prohibited in tree protection areas.
F. The County may authorize use of alternate tree protection techniques that provide an equal or greater level of protection.

The City of Lacey Municipal Code (LMC 14.28.030) defines a wetland as:

> *"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 adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands. For identifying and delineating a regulated wetland, local government shall use the approved federal wetland delineation manual and applicable regional supplements.*

LMC Chapter 14.28 describes the City of Lacey (City) measures of wetlands protection. The City also requires wetlands to be rated according to the Washington State Wetland Rating System for Western Washington (Hruby 2014). Standard wetland buffer widths in the City are outlined in LMC 14.28.280 and are determined primarily by habitat function scores. Specific buffer widths are described in Table 14T-19 and Table 14T-69 of the LMC, which are summarized in **Table 2** and **Table 3** below.

Table 2. City of Lacey Wetland Buffer Table*

Wetland Category and Type	Buffer Width (in feet) Based on Habitat Score		
	3-5 (Low)	6--7 (Medium)	8--9 (High)
I: Estuarine and Coastal Lagoons	150 (buffer width not based on habitat scores)		
I: Bogs and Wetlands of High Conservation Value	190		225
I: All Others	75	110	225
II: Estuarine and Coastal Lagoons	110 (buffer width not based on habitat scores)		
II: All	75	110	225
III: All	60	110	225
IV: All	40		

*Table 14T-19 of the LMC.

Table 14T-69. The following wetland buffer requirements if habitat corridor is not provided per subsection (C)(1) of this section or minimization measures per subsection (C)(2)(b) of this section are not implemented:

Table 3. City of Lacey Wetland Buffer Table*

Wetland Category and Type	Buffer Width (in feet) Based on Habitat Score		
	3-5 (Low)	6--7 (Medium)	8--9 (High)
I: Estuarine and Coastal Lagoons	200 (buffer width not based on habitat scores)		
I: Bogs and Wetlands of High Conservation Value	250		300
I: All Others	100	150	300
II: Estuarine and Coastal Lagoons	150 (buffer width not based on habitat scores)		
II: All	100	150	300
III: All	80	150	300
IV: All	50		

*Table 14T-69 of the LMC.

Additional portions of the TCC critical areas code and of the LMC wetlands protection code address criteria for reducing or increasing buffer width. The applicant is not proposing to reduce the standard buffer width, nor are there conditions present that would require increased wetland buffer width per TCC 24.30.055 or LMC 14.28.290 (e.g., steep slopes and/or inadequate vegetative cover).

3.0 RESULTS

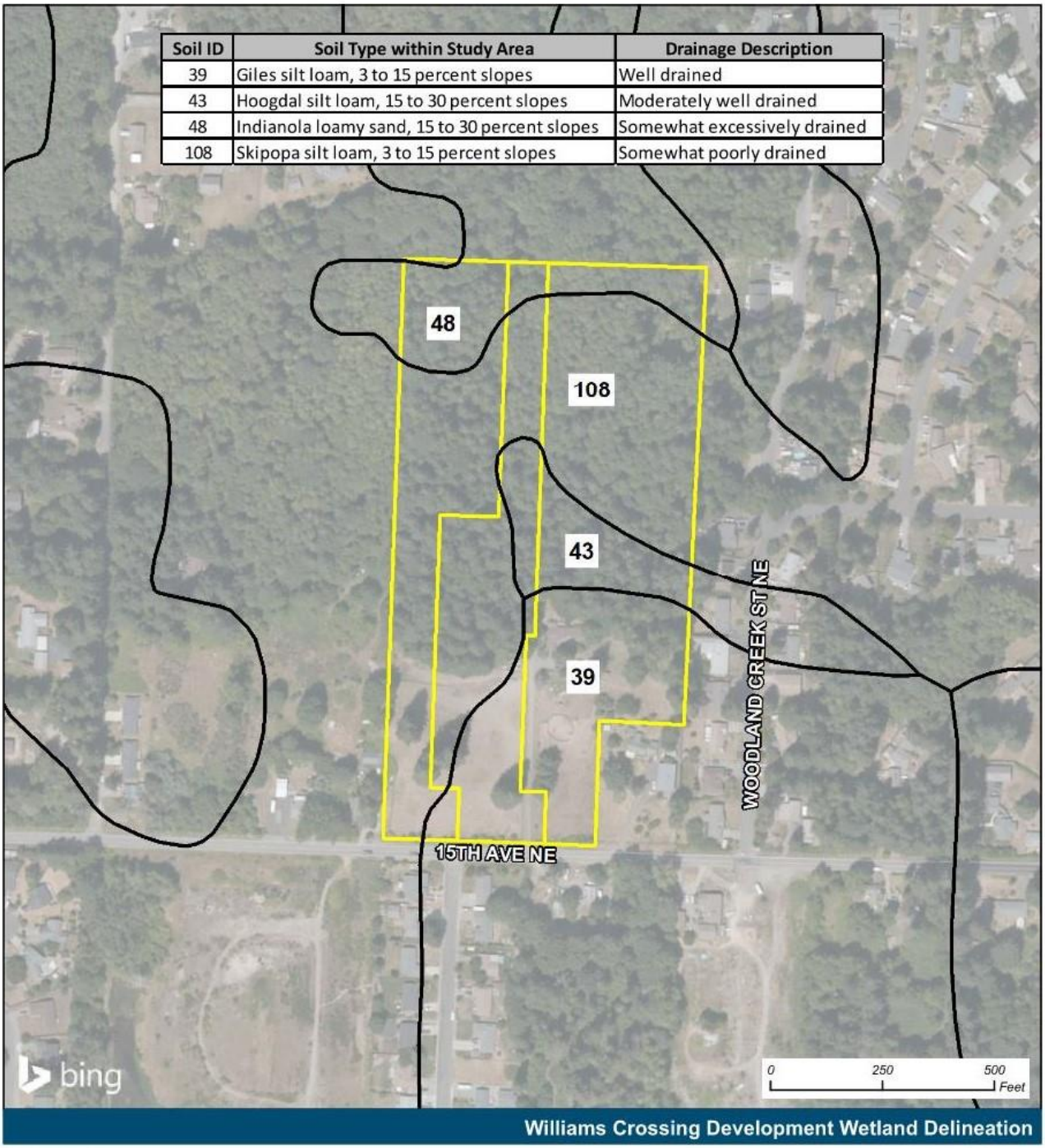
3.1 PROJECT SOILS

Soils in the study area are dominated by Giles silt loam, Skipopa silt loam, Hoogdal silt loam, and Indianola loamy sand as indicated on the Soils Map (**Figure 2**) (NRCS 2021). None of these soil series are considered hydric (NRCS 2021). Indianola series is a somewhat excessively drained material that was formed in sandy glacial outwash. Skipopa series soils are somewhat poorly drained soils formed in volcanic ash over glaciolacustrine deposits.

3.2 WDFW PRIORITY HABITAT AND SPECIES (PHS) DATA

The WDFW PHS program provides comprehensive information on important fish, wildlife, and habitat resources to local governments, state and federal agencies, private landowners, and consultants, and tribal biologists for land use planning purposes. A review of WDFW PHS online database identified no documented occurrences of PHS on the property in question. The entire township covering the property is identified as having one or more records for big brown bat, little brown bat, and Yuma myotis (WDFW 2021b). Woodland Creek, approximately ¼ mile northeast of the property, is identified in the database as supporting a variety of priority fish species, including steelhead trout (*Oncorhynchus mykiss*), coho salmon (*O. kisutch*), cutthroat trout (*O. clarki*), chum salmon (*O. keta*), and Chinook salmon (*O. tshawytscha*). (WDFW 2021b).

Figure 2. Soils in the Project Vicinity



3.3 WDNR NATIONAL HERITAGE PROGRAM (NHP) DATA

A review of the WDNR Wetlands of High Conservation Value Map Viewer did not reveal any wetlands in the study area (WDNR 2021a).

3.4 WETLANDS

National Wetland Inventory

A review of the NWI online interactive map revealed one feature on the property, which was a riverine wetland associated with a tributary to Woodland Creek (DOI 2021). The NWI map is shown in **Figure 3**.

Figure 3. National Wetland Inventory

Wetland Field Survey Results

DEA confirmed the two previously delineated wetland units within the study area. **Table 4. Wetland Survey Summary**

provides a summary of the wetlands and their characteristics. The location of the delineated wetlands are depicted in **Figure 4.** Wetland data sheets are contained within **Appendix A.** The wetland rating form(s) are provided in **Appendix B.** The two delineated wetland units are connected approximately 150 feet offsite to the north. Based on this information, the wetland units were rated together as one wetland, including the offsite portions. More specific information about each wetland unit is included in the summary sheets in **Figure 5**. **Appendix C** includes photographs of the wetlands and streams in the study area.

Table 4. Wetland Survey Summary

Wetland	HGM Class	Cowardin Class	Ecology Rating	Total Score	Water Quality	Hydrology	Habitat	TCC Standard Local Buffer (ft)	LMC Standard Local Buffer (ft)
A/B	Depressional	PFO	III	18	7	4	7	260	110

Figure 4. Delineated Wetlands and Streams within the Study Area

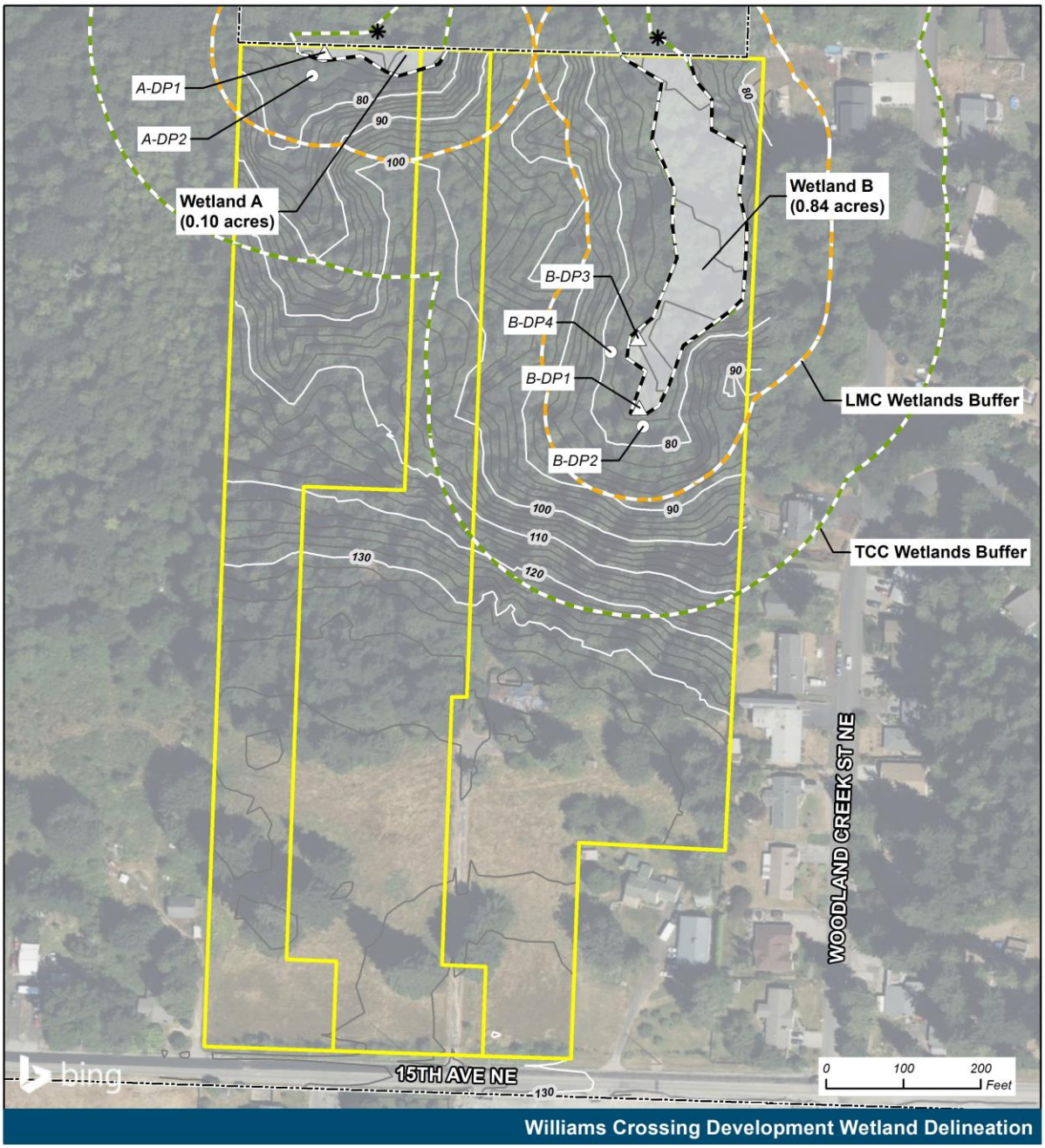


Figure 5. Wetland Information Summary

WETLAND A/B – INFORMATION SUMMARY

Location: Williams Crossing (Lat. 47.298291° N Long. -122.589703° W).

Wetland A looking north from north property boundary

Wetland B looking north from near center of wetland

WRIA / HUC	WRIA 15- Deschutes /HUC #171100190502 Woodland Creek-Frontal Henderson Watershed
Western WA Ecology Rating	III
Wetland Size (acre)	Onsite = (Wetland A unit) 0.1 acre;/ (Wetland B unit) 0.84 acre ; Offsite = estimated total 3.7 acres
Cowardin Classifications	PFO
HGM Classification	Depressional
Wetland Data Sheet(s)	A-DP-1; B-DP-1 and B-DP-3
Upland Data Sheet(s)	A-DP-2; B-DP-2 and B-DP-4
Dominant Vegetation	Red alder, western red cedar, salmonberry, lady fern
Soils	Soil Survey data: Indianola loamy sand and Skipopa silt loam Field data: Depleted Below Dark Surface (A11) and Sandy Redox (S5)
Hydrology	Assumed Source: Precipitation, groundwater, and adjacent area runoff. Field Data: Saturation (A3) and Geomorphic Position (D2)

Wetland Functions Summary

Function	**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	**TOTAL**
Score Based on Ratings	7	4	7	18

General Description and Comments

Wetland is a large depressional forested system with a robust shrub and herbaceous understory. The wetland units combine offsite and continue to the north. A small seasonal stream channel begins to appear in the wetland approximately 400 feet north of the property boundary. This stream channel appears intermittently between large areas of inundated wetland on the offsite property. While the wetland forested vegetation is dominated by younger deciduous forest, some mature forest is present in the buffer on the property.

3.5 STREAMS

No streams were identified on the property. While the NWI map does display a riparian feature that starts on the property, DEA did not locate any defined stream channel that demonstrated any evidence of scour, bed, or bank features on the property, within either wetland unit, or immediately offsite. Based on visual reconnaissance of the property to the north, a small seasonal stream channel begins to appear in the wetland approximately 400 feet north of the property boundary. This stream channel appears intermittently between large areas of inundated wetland on the offsite property. The observed sections of channel average two feet wide and have a barely defined bed and bank, with minimal signs of scour and flow.

4.0 IMPACTS

The project, as proposed, will not result in any direct impacts to streams or wetlands or their buffers. The site plan proposed as part of the ongoing land use application (**Appendix D**) has not changed and remains a minimum of 280 feet away from either Wetland A or B. This is outside of the LMC buffer of 110 feet based off of DEA's habitat rating, as well as outside of the TCC buffer of 260 feet based on the same rating. Due to the small 20-foot difference of the TCC buffer width to the proposed site plan, potential impacts of Wetland A and B are explored below with considerations of additional sections of the TCC.

According to TCC 24.30.065, a tree protection area (TPA) extending a minimum of five feet beyond the dripline of trees at least 12 inches in diameter that are within the wetland buffer must be identified on the site plans. The current TCC standard wetland buffer on the site, based on DEA's habitat rating, is 260 feet. Based on measurements in the field, DEA observed driplines of larger trees in the TCC wetland buffer averaging 10-25 feet in width, with the widest approximately 30 feet. At the locations closest to proposed development (Buildings 11, 36, and 37), observed driplines were a maximum of 10-20 feet wide (10 feet in proximity to Buildings 36 and 37 and 20 feet in proximity to Building 11). The current site plan in **Appendix D** identifies a TPA varying between 15 and 35 feet wide, based on the dripline widths observed in the field.

Stormwater from the proposed project will be treated by infiltration to groundwater, thus having no surface runoff affects to either wetland unit. The project proposes a combination of infiltration technologies, including collection and tightlining to galleries and porous surfaces collected in infiltration trenches. Therefore, no untreated water will impact wetlands and streams from the proposed project.

5.0 MITIGATION

Mitigation actions typically taken by an applicant or property owner are usually required by code to occur in the following sequence:

1. Avoiding the impact altogether by not taking a certain action or parts of actions;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation; by using appropriate technology; or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
3. Rectifying the impact to the critical area by repairing, rehabilitating, or restoring the affected environment to the conditions existing at the time of the initiation of the project;

4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or
5. Compensating for the impact by replacing or providing substitute resources or environments.

As currently designed, the proposed project has no permanent or temporary impacts to streams, wetlands or their buffers. Stormwater impacts are also avoided by maximizing use of infiltration for water quality treatment. Therefore, all impacts have been avoided.

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APPENDICES

Appendix A
Wetland Data Sheets

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

Project Site: Williams Crossing City/County: Lacey/Thurston Sampling Date: 04/14/2021
Applicant/Owner: Three's Company State: WA Sampling Point: A-DP-1
Investigator(s): R. Pratt O. G. Rand Section, Township, Range: S09T18NR1W
Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: 47.0612 Long: -122.8142 Datum: WGS84
Soil Map Unit Name: Indianola Loamy Sand NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *western red cedar (Thuja plicata)*	45	yes	FAC
2. *red alder (Alnus rubra)*	35	yes	FAC
3.			
4.			
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *salmonberry (Rubus spectabilis)*	10	yes	FAC
2.			
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size: _____)			
1. *Pacific waterleaf (Hydrophyllum tenuipes)*	40	yes	FAC
2. *common ladyfern (Athyrium cyclosorum)*	10	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 25, 20% = 10	50	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Williams Crossing

SOIL

Sampling Point: A-DP-1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					clay loam	
8-15	10YR4/2	90	10YR5/3	10			silty clay	redox

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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 Stresses 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? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	12

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

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

Remarks:

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

Project Site: Williams Crossing | City/County: Lacey/Thurston | Sampling Date: 04/14/2021

Applicant/Owner: Three's Company | State: WA | Sampling Point: A-DP-2

Investigator(s): R. Pratt O. G. Rand | Section, Township, Range: S09T18NR1W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): A | Lat: 47.0612 | Long: -122.8142 | Datum: WGS84

Soil Map Unit Name: Indianola Loamy Sand | NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *western red cedar (Thuja plicata)*	60	yes	FAC
2. *red alder (Alnus rubra)*	15	yes	FAC
3.			
4.			
50% = 37.5, 20% = 15	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *salmonberry (Rubus spectabilis)*	30	yes	FAC
2.			
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size: ____)			
1. *youth on age (Tolmiea menziesii)*	25	yes	FAC
2. *common bedstraw (Galium aparine)*	10	yes	FACU
3. *western swordfern (Polystichum munitum)*	5	no	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Project Site: Williams Crossing

SOIL

Sampling Point: A-DP-2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					loam	
6-13	7.5YR3/3						silt loam	
13-15	7.5YR4/3						silt loam	sand

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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 Stresses 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? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

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

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

Remarks: some indication of saturation at 20", shallow slope above wetland edge.

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

Project Site: Williams Crossing City/County: Lacey/Thurston Sampling Date: 04/14/2021
Applicant/Owner: Three's Company State: WA Sampling Point: B-DP-1
Investigator(s): R. Pratt O. G. Rand Section, Township, Range: S09T18NR1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): A Lat: 47.0608 Long: -122.8142 Datum: WGS84
Soil Map Unit Name: Skipopa Silt Loam NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *red alder (Alnus rubra)*	30	yes	FAC
2. *Douglas-fir (Pseudotsuga menziesii)*	10	yes	FACU
3. *western red cedar (Thuja plicata)*	10	yes	FAC
4. ____	____	____	____
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *Indian plum (Oemleria cerasiformis)*	5	no	FACU
2. *red elderberry (Sambucus racemosa)*	2	no	FACU
3. *salmonberry (Rubus spectabilis)*	30	yes	FAC
4. ____	____	____	____
5. ____	____	____	____
50% = 18.5, 20% = ____	37	= Total Cover	
Herb Stratum (Plot size: ____)			
1. *false lily-of-the-valley (Maianthemum dilatatum)*	5	yes	FAC
2. *spotted touch-me-not (Impatiens capensis)*	5	yes	FACW
3. *Pacific bleeding heart (Dicentra formosa)*	5	yes	FACU
4. *Pacific waterleaf (Hydrophyllum tenuipes)*	5	yes	FAC
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 10, 20% = 4	20	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across All Strata: 8 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Williams Crossing

SOIL Sampling Point: B-DP-1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					silt loam	
8-12	10YR2/2	60	10YR 4/4	30	c	m	loam	redox loam
12-15	2.5YR 4/3	100					loam	
15-20	10YR 5/2	80	7.5YR 4/6	20			loam	sandy loam

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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 Stresses 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? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	15

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

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

Remarks: Weather drier than normal prior to delineation. See results from Corps Antecedent Precipitation Tool attached to report.

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

Project Site: Williams Crossing City/County: Lacey/Thurston Sampling Date: 04/14/2021
Applicant/Owner: Three's Company State: WA Sampling Point: B-DP-2
Investigator(s): R. Pratt O. G. Rand Section, Township, Range: S09T18NR1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): A Lat: 47.0608 Long: -122.8142 Datum: WGS84
Soil Map Unit Name: Skipopa Silt Loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *red alder (Alnus rubra)*	40	yes	FAC
2. *5western red cedar (Thuja plicata)*	15	yes	FAC
3.			
4.			
50% = 27.5, 20% = 10	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *Indian plum (Oemleria cerasiformis)*	60	yes	FACU
2. *salmonberry (Rubus spectabilis)*	20	yes	FAC
3.			
4.			
5.			
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: _____)			
1. *stinging nettle (Urtica dioica)*	25	yes	FAC
2. *western swordfern (Polystichum munitum)*	5	no	FACU
3. *false lily-of-the-valley (Maianthemum dilatatum)*	25	yes	FAC
4. *youth on age (Tolmiea menziesii)*	10	no	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 32.5, 20% = 13	65	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	83	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Williams Crossing

SOIL

Sampling Point: B-DP-2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/2	100					loam	
13-15	10YR3/3	100					loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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 Stresses 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? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

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

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

Remarks: No hydrology indicators - up slope of wetland edge.

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

Project Site: Williams Crossing | City/County: Lacey/Thurston | Sampling Date: 04/14/2021

Applicant/Owner: Three's Company | State: WA | Sampling Point: B-DP-3

Investigator(s): R. Pratt O. G. Rand | Section, Township, Range: S09T18NR1W

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): A | Lat: 47.0608 | Long: -122.8142 | Datum: WGS84

Soil Map Unit Name: Skipopa Silt Loam | NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *red alder (Alnus rubra)*	40	yes	FAC
2. *western red cedar (Thuja plicata)*	20	yes	FAC
3.			
4.			
50% = 30, 20% = 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *Indian plum (Oemleria cerasiformis)*	15	yes	FACU
2.			
3.			
4.			
5.			
50% = 7.5, 20% = 3	15	= Total Cover	
Herb Stratum (Plot size: ____)			
1. *false lily-of-the-valley (Maianthemum dilatatum)*	40	yes	FAC
2. *Pacific bleeding heart (Dicentra formosa)*	20	yes	FACU
3. *spotted touch-me-not (Impatiens capensis)*	30	yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Williams Crossing

SOIL

Sampling Point: B-DP-3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					loam	
2-12	10YR4/1	90	10YR5/3	10			sandy loam	redox

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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 Stresses 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? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	18

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

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

Remarks: Weather drier than normal prior to delineation. See results from Corps Antecedent Precipitation Tool attached to report.

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

Project Site: Williams Crossing City/County: Lacey/Thurston Sampling Date: 04/14/2021
Applicant/Owner: Three's Company State: WA Sampling Point: B-DP-4
Investigator(s): R. Pratt O. G. Rand Section, Township, Range: S09T18NR1W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): A Lat: 47.0608 Long: -122.8142 Datum: WGS84
Soil Map Unit Name: Skipopa Silt Loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *red alder (Alnus rubra)*	40	yes	FAC
2. *western red cedar (Thuja plicata)*	10	yes	FAC
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: ____)			
1. *Swordfern (Polystichum munitum)*	60	yes	FACU
2. *Pacific bleeding heart (Dicentra formosa)*	30	yes	FACU
3. *spotted touch-me-not (Impatiens capensis)*	10	no	FACW
4. *false lily-of-the-valley (Maianthemum dilatatum)*	5	no	FAC
5. *stinging nettle (Urtica dioica)*	25	no	FAC
6.			
7.			
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	130	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	10	x2 =	20
FAC species	80	x3 =	240
FACU species	90	x4 =	360
UPL species	____	x5 =	____
Column Totals:	180 (A)		620 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: Williams Crossing

SOIL

Sampling Point: B-DP-4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	70	10YR3/3	30			loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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 Mineral (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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum 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 Stresses 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:

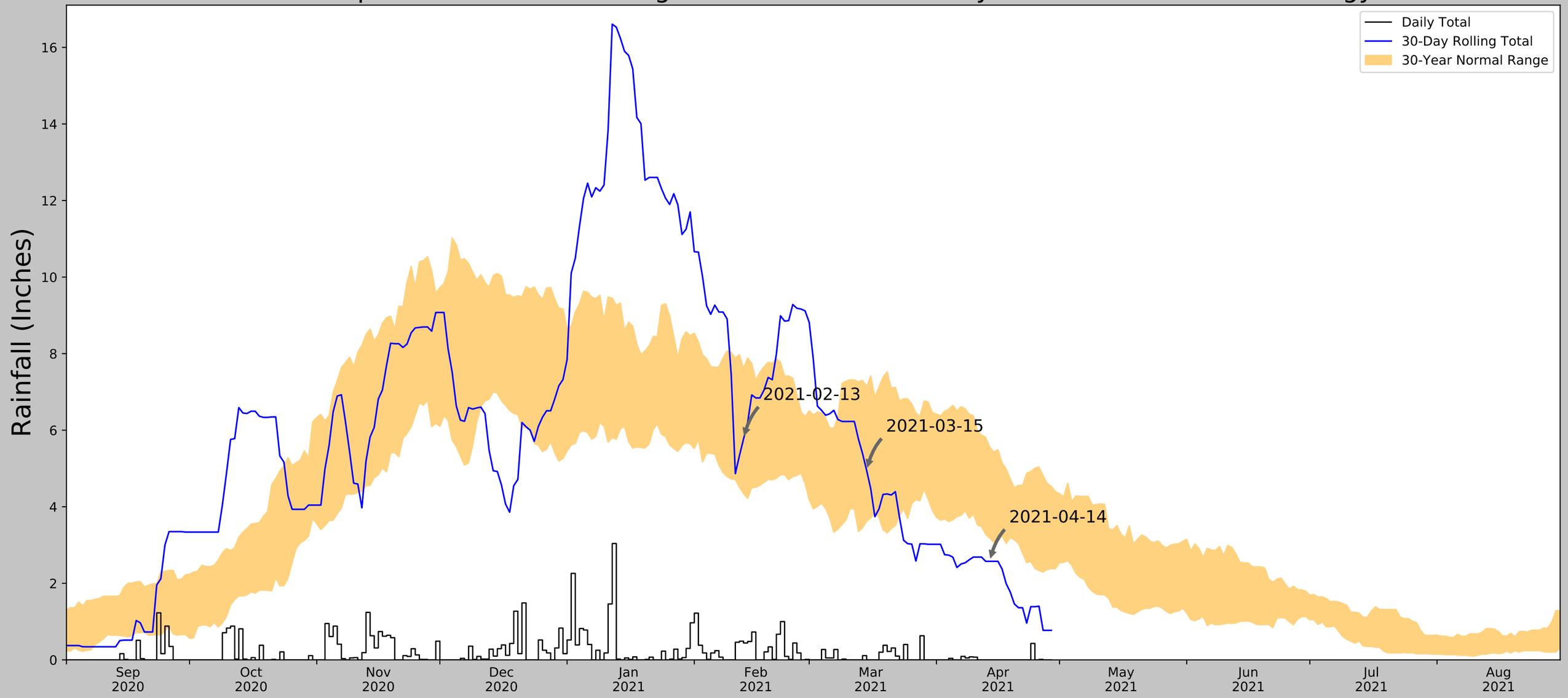
Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

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

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

Remarks:

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	47.060848, -122.812763
Observation Date	2021-04-14
Elevation (ft)	76.52
Drought Index (PDSI)	Incipient drought (2021-03)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-04-14	3.183071	5.556299	2.574803	Dry	1	3	3
2021-03-15	3.622047	7.141733	4.948819	Normal	2	2	4
2021-02-13	4.346063	7.610236	5.775591	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
OLYMPIA AP	46.9733, -122.9033	187.992	7.401	111.472	4.156	11350	90
SHELTON	47.2, -123.1	21.982	16.575	54.538	8.363	2	0
WAUNA 3 W	47.3725, -122.7028	17.06	22.143	59.46	11.281	1	0

Appendix B
Wetland Rating Form

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Wetland name or number A/B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Williams Crossing - Wetland A/B Date of site visit: 4/14/21

Rated by G. Rand Trained by Ecology? __ Yes X No Date of training 2005

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 Pro/Thurston County GIS

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	**TOTAL**
Score Based on Ratings	7	4	7	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	NA

Wetland name or number A/B

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	1
Hydroperiods	D 1.4, H 1.2	1
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	3
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

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 *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including 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 *(can be added to another figure)*	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 (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including 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	

Wetland name or number A/B

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/B

NO – go to 6 **YES** – The wetland class is **Riverine**

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

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

NO – go to 7 **YES** – The wetland class is **Depressional**

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

NO – go to 8 **YES** – The wetland class is **Depressional**

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

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

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

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

Small areas of sloped wetland along the edges of the units transition into the larger main depressional portion of the wetland.

Wetland name or number A/B

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: 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	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of 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 Add the points in the boxes above	7

Rating of Site Potential If score is: ___**12-16 = H** X **6-11 = M** ___**0-5 = L** *Record the rating on the first 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	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	0
D 2.3. Are there septic systems within 250 ft of the wetland? House NW of Wetland A and houses east of Wetland B on septic. Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	1

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	1
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	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	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/B

DEPRESSIONAL AND FLATS WETLANDS

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

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

D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	2
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2 (circled)	
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.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3 (circled)	
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.*		3
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3 (circled)	
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 (circled)	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 (circled)	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0 (circled)	0
Total for D 5	Add the points in the boxes above	0

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

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

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

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

____Aquatic bed	4 structures or more: points = 4
____Emergent	3 structures: points = 2
____Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
_X_Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

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

1

H 1.2. Hydroperiods

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

____Permanently flooded or inundated	4 or more types present: points = 3
_X_Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
_X_Saturated only	1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland	
____Seasonally flowing stream in, or adjacent to, the wetland	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

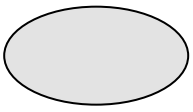
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

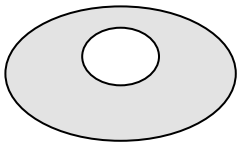
1

H 1.4. Interspersion of habitats

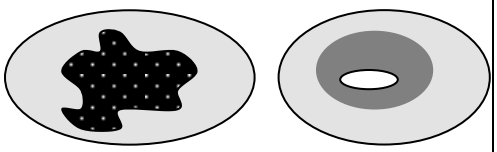
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points



Low = 1 point

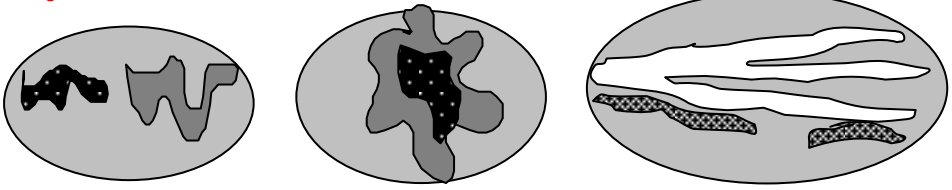


Moderate = 2 points

0

Continuous forest habitat throughout wetland.

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



Wetland name or number A/B

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ____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) ____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 *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	6

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 33 + [(% moderate and low intensity land uses)/2] 4 = 37 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0 358 ac - accessible undisturbed = 33% 92 ac - accessible low/moderate = 8% Area of 1km circle around wetlands = 1083 acres	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 47 + [(% moderate and low intensity land uses)/2] 5 = 52 % Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0 509 ac und./1083 = 47% 111 ac. low/mod/1083 = 10%	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	0
Total for H 2 Add the points in the boxes above	6

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	2

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

Wetland name or number A/B

WDFW Priority Habitats

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

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

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

X **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **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*).

X **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.

X **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.

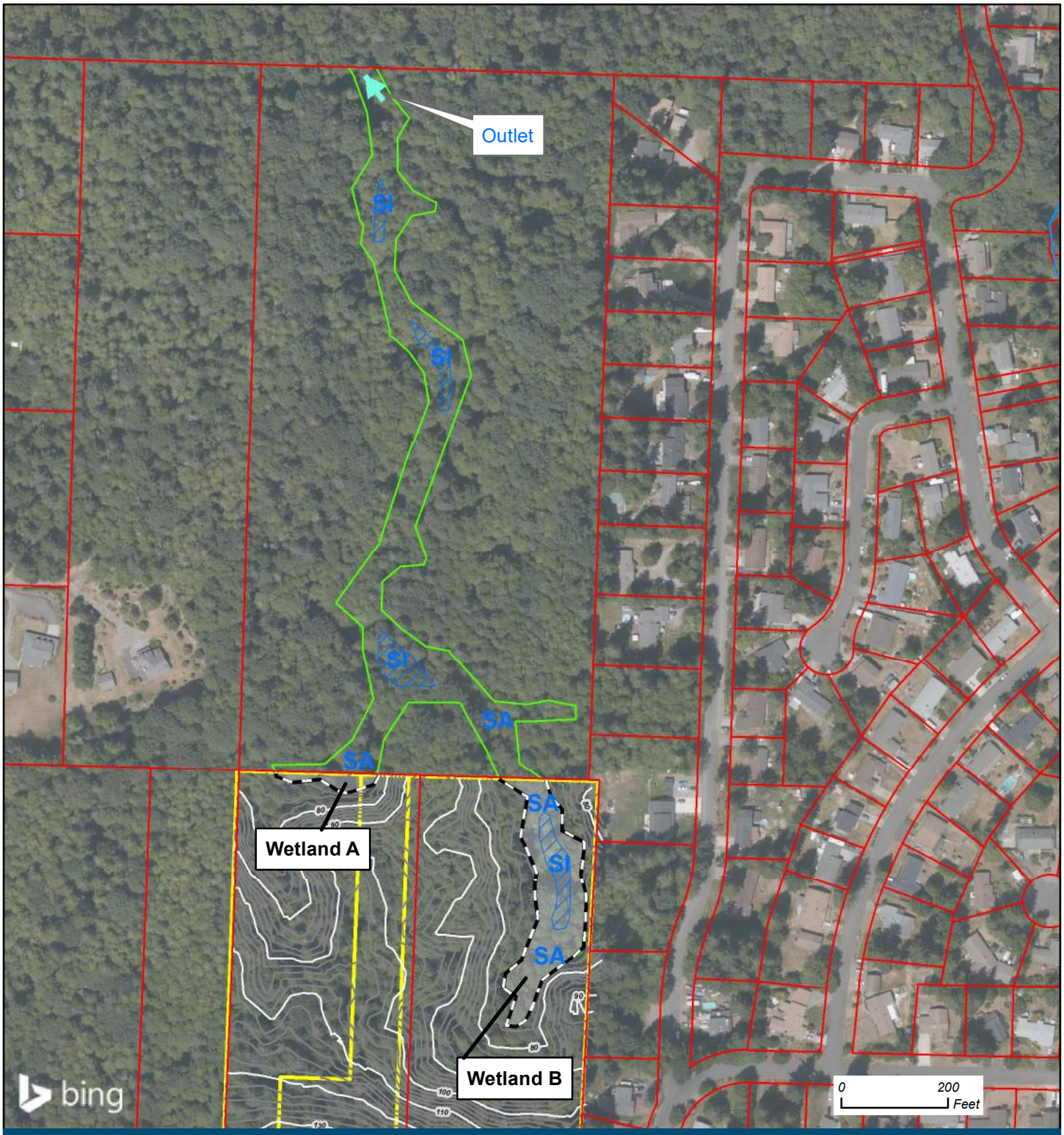
Wetland name or number A/B

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
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 *Spartina*, 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 un-mowed 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** 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**	**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? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 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? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. 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/B

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature 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). Mature trees are present in the buffer but not within the wetland. Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA



Williams Crossing Development Wetland Delineation

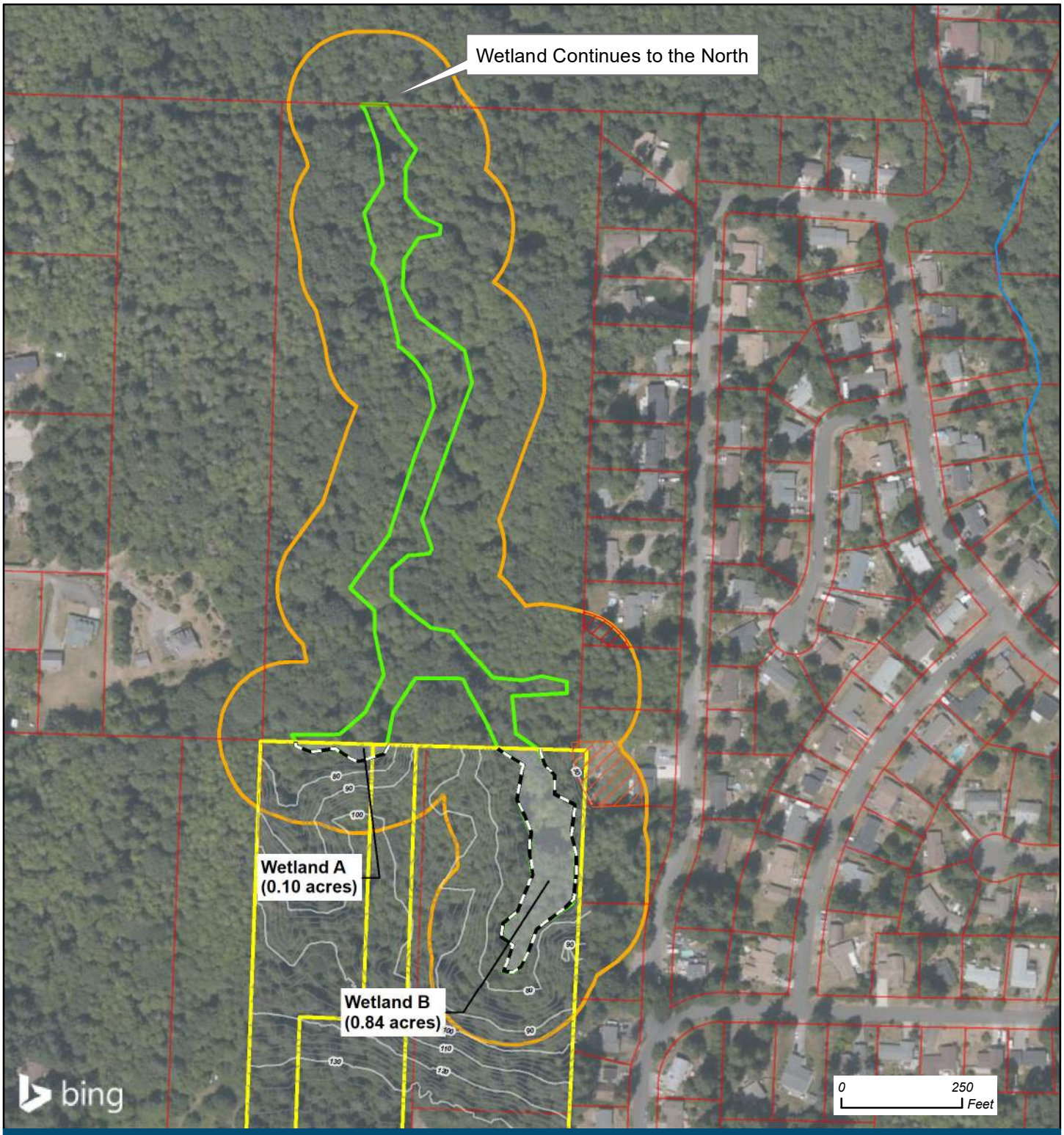
Data Sources:
Patrick Harron and Associates, LLC, NOAA
Thurston County GIS
PNW Lidar Consortium

Hydroperiods and Outlet
Rating Figure 1

Legend

- Delineated Wetland Boundary
- Updated Tax Lots (Proposed Development)
- Seasonally Inundated
- SA Saturated
- Parcels
- Major Contour (10 ft intervals)
- Minor Contour (2 ft intervals)
- Estimated Wetland Boundary

N



Williams Crossing Development Wetland Delineation

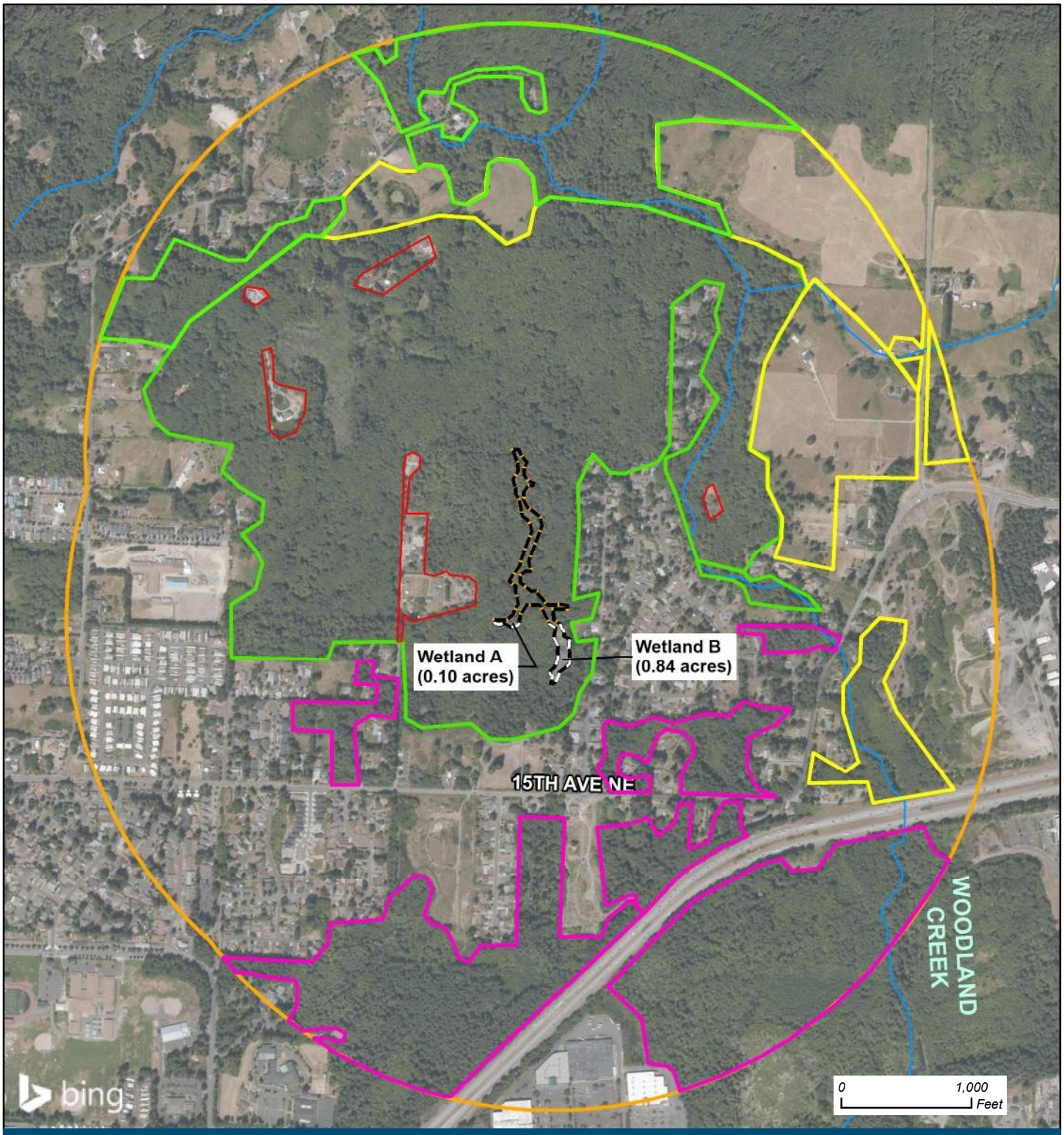
Data Sources:
Patrick Harron and Associates, LLC, NOAA
Thurston County GIS

150-foot Buffer and Pollutant-Contributing Areas
Rating Figure 2

Legend

- Delineated Wetland Boundary
- Major Contour (10 ft intervals)
- Minor Contour (2 ft intervals)
- Overall Wetland Boundary
- 150-Foot Buffer
- Parcels
- Updated Tax Lots (Proposed Development)
- Pollutant-Contributing Area

N



Williams Crossing Development Wetland Delineation

Data Sources:
Patrick Harron and Associates, LLC, NOAA
Thurston County GIS

Legend

- Delineated Wetland Boundary
- Estimated Wetland Boundary
- 1 Km Buffer
- Accessible Undisturbed Habitat
- Low/Moderate Habitat (eastern polygons non-accessible)
- Developed
- Non-accessible Undisturbed Habitat

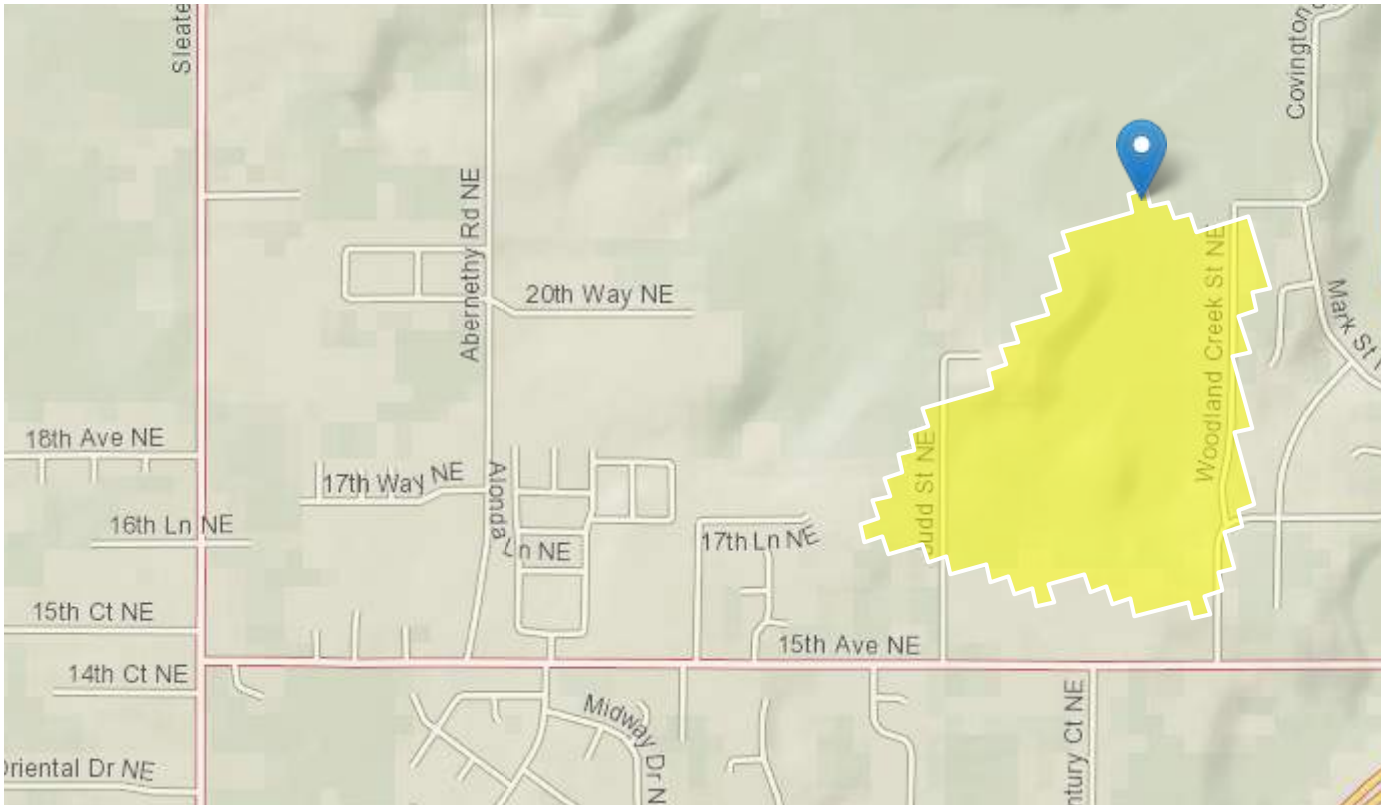
Habitat Polygons
*Rating Figure **3***

N

Figure 4 - Contributing Basin to Wetland Units A/B and Offsite Wetland

StreamStats Report - Williams Crossing Wetlands A/B

Region ID: WA
Workspace ID: WA20210603182811563000
Clicked Point (Latitude, Longitude): 47.06458, -122.81354
Time: 2021-06-03 11:28:29 -0700



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CANOPY_PCT	Percentage of drainage area covered by canopy as described in OK SIR 2009_5267	75.7	percent
DRNAREA	Area that drains to a point on a stream	0.11	square miles
PRECIP	Mean Annual Precipitation	50	inches
PRECPRIS10	Basin average mean annual precipitation for 1981 to 2010 from PRISM	47.1	inches
RELIEF	Maximum - minimum elevation	56.3	feet

Application Version: 4.5.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

DEPARTMENT OF ECOLOGY
State of Washington

Water Quality Atlas Map

Rating Figure 5

Legend | Filter | Zoom | Tools | Home | Add/Remove Map Data | My Maps | Print | Share | About

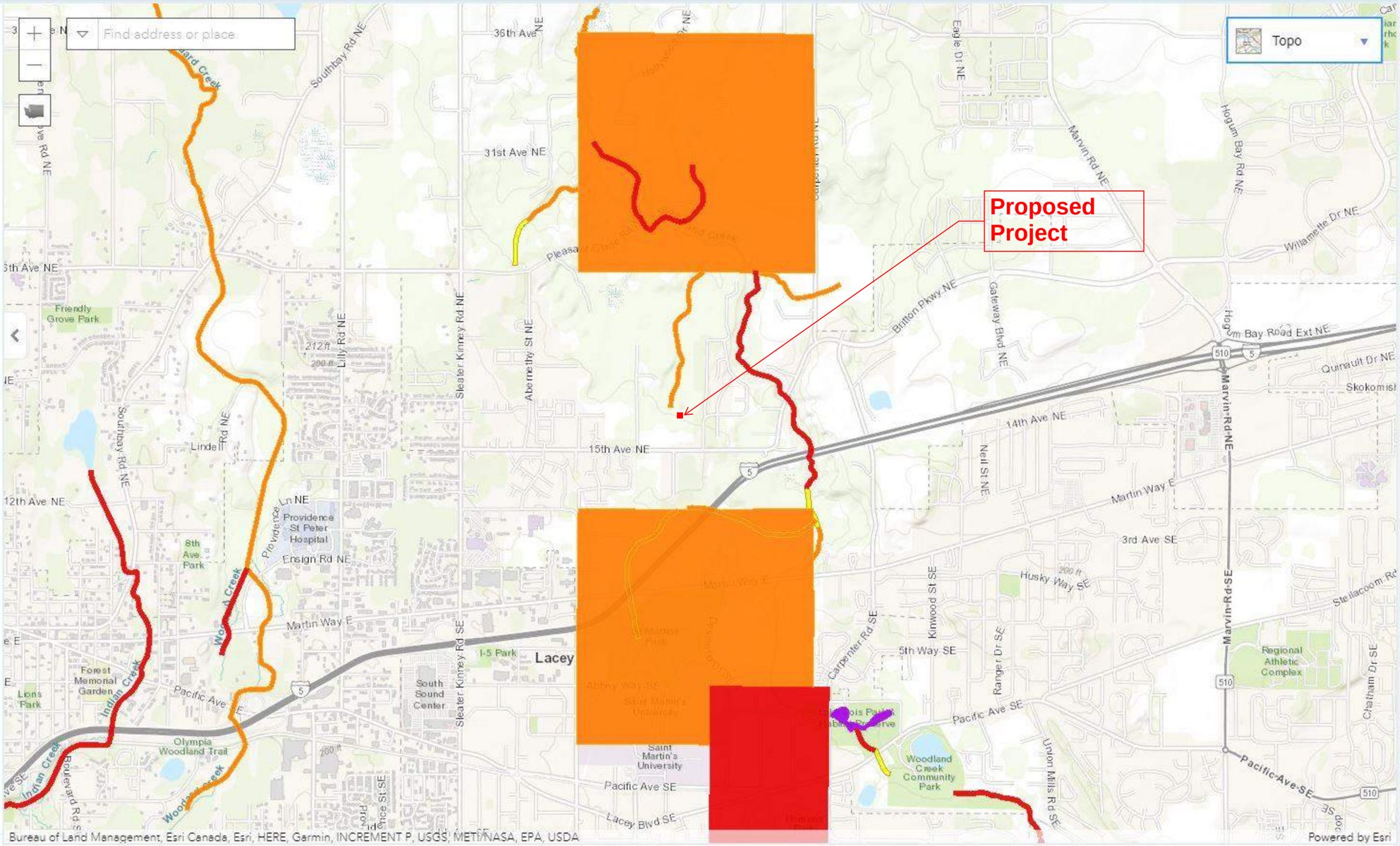
Assessed Water/Sediment — Filter

Water

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1



DEPARTMENT OF ECOLOGY
State of Washington

Water Quality Atlas Map

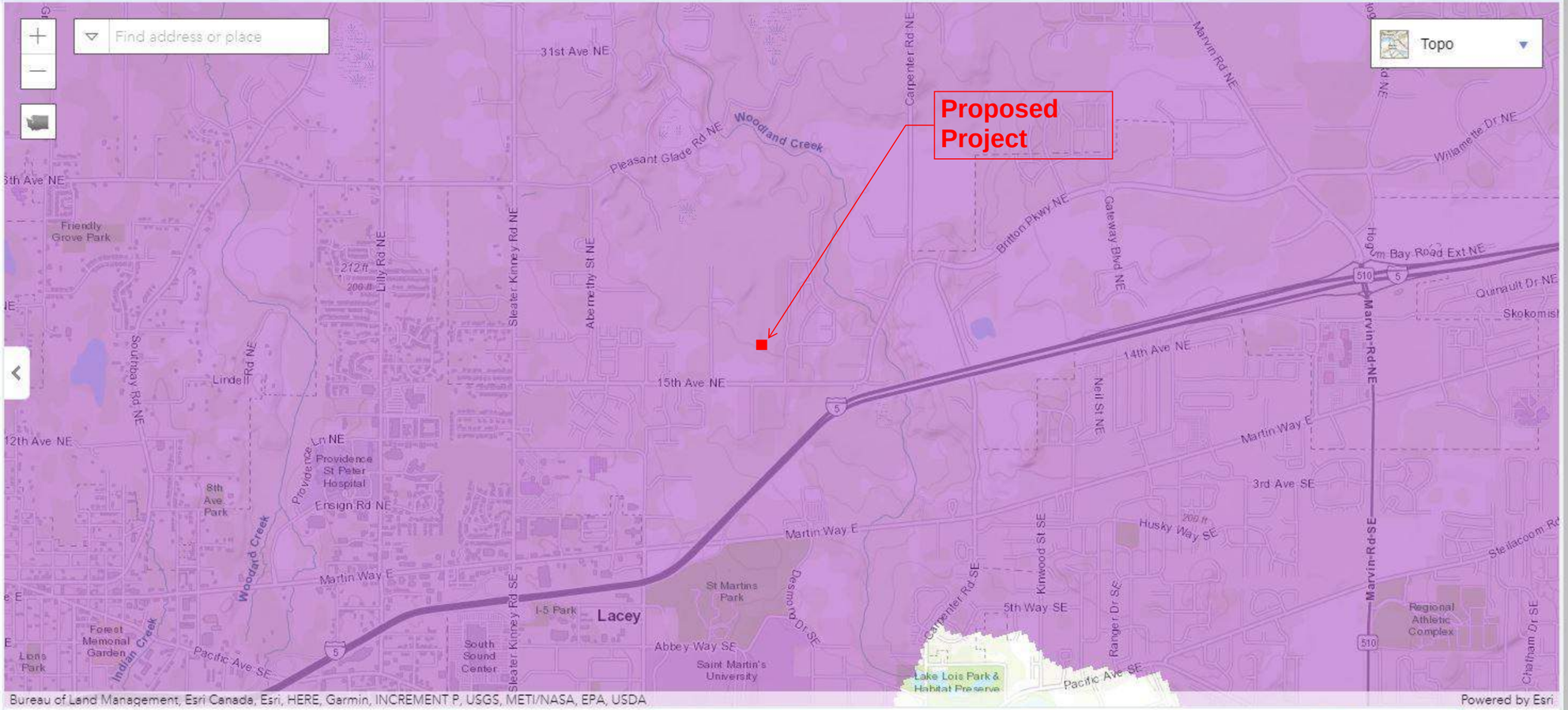
Rating Figure 6

Legend | Filter | Zoom | Tools

Home | Add/Remove Map Data | My Maps | Print | Share | About

WQ Improvement Projects — Filter

- Approved
- In Development



Water Quality Improvement Projects — Zoom to selection | Table to CSV

Find	Project Name	Project Type	Project Status	Parameters	Webpage	Report
	Alkali Flat Creek STI	STI Project	In Development	Temperature, Bacteria, Dissolved Oxygen, pH	*n/a*	*n/a*
	Almota and Little Almota Creek STI	STI Project	In Development	Temperature, Bacteria	*n/a*	*n/a*
	Alpowa Creek Watershed STI	STI Project	In Development	Bacteria	*n/a*	*n/a*

Data transparency 60%

Show 5 entries — Showing 1 to 5 of 167 entries — First | Previous | Next | Last

Appendix C
Photographs

Photograph 1. View looking at south end of Wetland B.

Photograph 2. View looking north at south end of Wetland B.

Photograph 3. View looking north at Wetland B.

Photograph 4. View looking at herb understory in Wetland B

Photograph 5. View looking at small pond (likely excavated historically) within Wetland B. Pond is approximately 400 square feet in size.

Photograph 6. View looking at north end of Wetland B.

Photograph 7. View looking northwest at Wetland A.

Photograph 8. View looking north at Wetland A offsite.

Photograph 9. View looking at understory in Wetland A.

Photograph 10. View looking north at location where Wetland A and Wetland B merge offsite.

Photograph 11. View looking at buffer between Wetland A and B.

Photograph 12. View looking at first occurrence of stream channel on offsite City of Lacey property.

Photograph 13. View looking across wetland on offsite City of Lacey property.

Photograph 14. View looking at buffer habitat on offsite wetland.

Appendix D
Project Site Plan

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WILLIAMS CROSSING

SEC 9, T 13 N, R 1 W, W. M.

PROJECT INFORMATION:

DEVELOPER/OWNER:
THREE'S COMPANY, LLC
BRIAN D. REAS, PE
17403 162ND AVE SE
RENTON, WA 98058
PH: 425.226.3999
EMAIL: reascrew@comcast.net

CIVIL ENGINEER/PRIMARY CONTACT:
PATRICK HARRON & ASSOCIATES, LLC
CONTACT: CHRIS CRAMER P.E.
8270 28TH COURT NE
LACEY, WA 98516
PH:.360.459.1102
EMAIL: chris@patrickharron.com

GEOTECHNICAL ENGINEER
GEORESOURCES
CONTACT: DANA C. BIGGERSTAFF, PE
5007 PACIFIC HWY E, STE 16
FIFE, WA 98424
PH: 253.896.1011
EMAIL: danab@georesources.us

SURVEYOR
MTN2COAST, LLC
CONTACT: BLAIR PRIGGE, PLS
2320 MOTTMAN RD SW #106
TUMWATER, WA 98512
PH: 360.239.1497
EMAIL: blair@mtn2coast.com

DATUM

HORIZONTAL:
WASHINGTON STATE PLANE COORDINATES, SOUTH ZONE, NAD 83/2011 BASED ON GPS TIES THROUGH THE WASHINGTON STATE REFERENCE NETWORK.
VERTICAL:
NGVD 29 BASED ON GPS TIES THROUGH THE WASHINGTON STATE REFERENCE NETWORK. CONVERSION FROM NGVD 29 TO NAVD 88 ADD 3.41 FEET.

0 60 120
HORIZONTAL SCALE

LEGEND

- PROPOSED PROPERTY LINE
- PROPERTY LINE
- RIGHT OF WAY
- PROPOSED CURB, GUTTER, AND SIDEWALK
- PROPOSED STANDARD IMPERVIOUS ASPHALT PAVEMENT
- PROPOSED PERVIOUS ASPHALT PAVEMENT

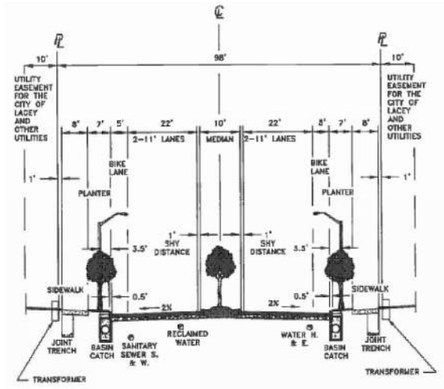
DEVELOPMENT DATA:

PROPERTY AREA TOTAL: 814,600 SF (18.7 ACRES)

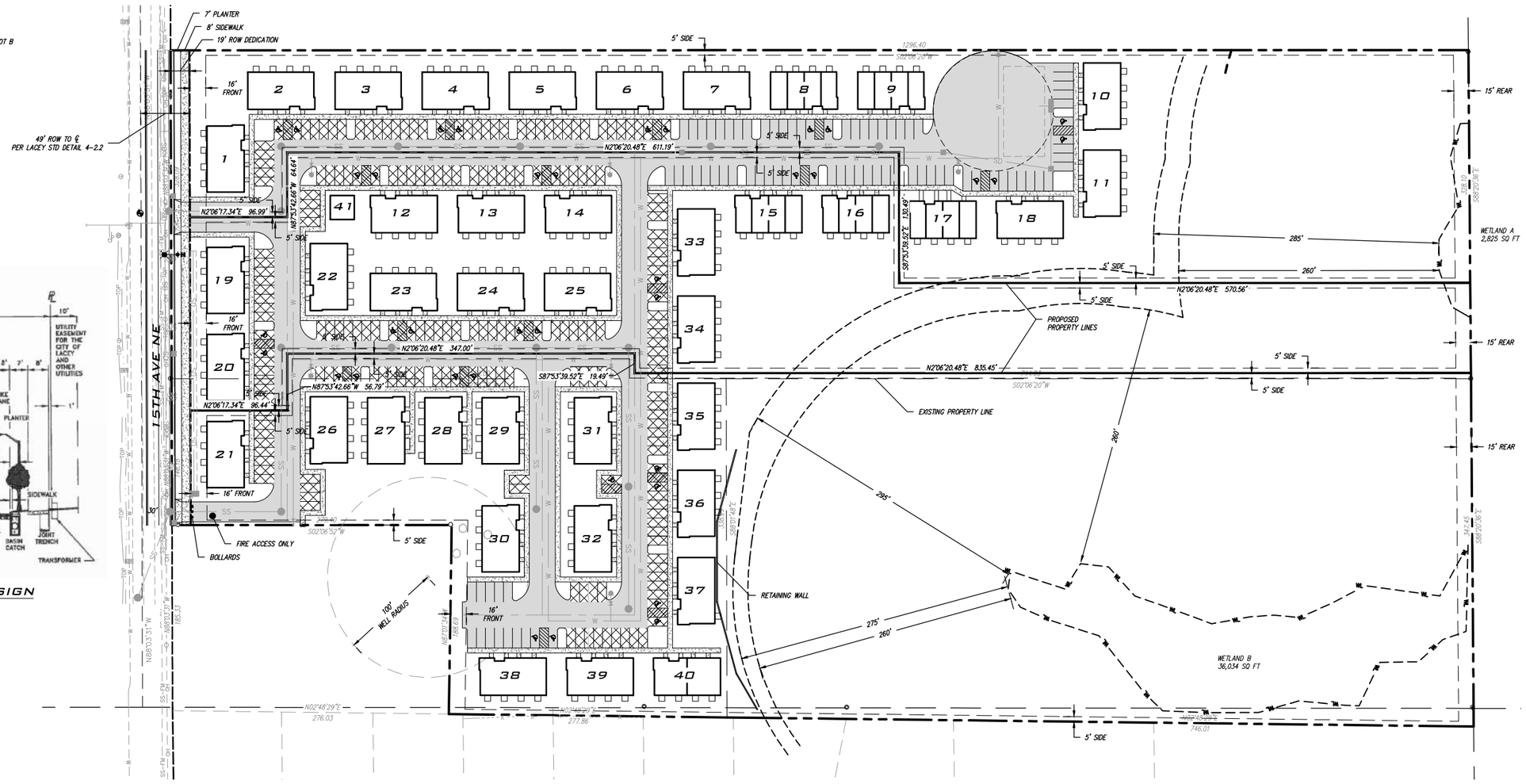
PARCEL NUMBER: 11809310100
PARCEL AREA: 425,602 SF (9.77 AC)
SITE ADDRESS: 5216 NE 15TH AVE, OLYMPIA, 98516
ZONING: MD, MODERATE-DENSITY RESIDENTIAL HD
ABBREV. LEGAL: 9-18-1W W2 E2 NE SW EXCEPT S30F FOR DRAHAM RD

PARCEL NUMBER: 11809310600
PARCEL AREA: 133,574 SF (3.07 AC)
SITE ADDRESS: 5224 NE 15TH AVE, OLYMPIA, 98516
ZONING: HD, HIGH DENSITY RESIDENTIAL
ABBREV. LEGAL: 9-18-1W PT NE4 SW4 PTN LOT 2 SS-1563 AKA LOT B BLA-0568 6/230

PARCEL NUMBER: 11809310700
PARCEL AREA: 255,424 SF (5.86 AC)
SITE ADDRESS: 5228 NE 15TH AVE, OLYMPIA, 98516
ZONING: LD 0-4, LOW-DENSITY RESIDENTIAL
ABBREV. LEGAL: 9-18-1W NE SW L1 OF SS1563



4-2.2 ARTERIAL STREET DESIGN



CALL 48 HOURS BEFORE YOU DIG 811

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-800-424-5555 OR 811 (CELL) A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

R#	DATE	DESCRIPTION	BY

CHRIS M. CRAMER — ENGINEER — 6/10/21

CITY OF LACEY - SITE PLAN REVIEW

SITE PLAN

PATRICK HARRON & ASSOCIATES, LLC
Civil Engineering & Planning
8270 28th Court NE, Suite 201, Lacey, WA 98516
Phone: 360.459.1102 Fax: 360.459.1013
Web: patrickharron.com

PROJ. NO.	DSN. BY:
19527	CMC
DWN. BY:	CHK. BY:
DAW	CMC

WILLIAMS CROSSING

THREE'S COMPANY, LLC
5224 NE 15TH AVE NE
LACEY, WA 98516

DATE: 6/10/21
SCALE: AS SHOWN
DRAWING NO. C1.0
1 OF 3

Jun 10, 2021 3:40:22PM – User: Chris Cramer
P:\2019\19527 Williams Crossing\Drawing Working\SPR\19527 C1.0.dwg