Critical Areas Report

SR 9 and 204th Street NE Tracts A, B and D Project

Arlington, WA

Prepared for:
Reserve at Arlington Partners LLP

March 29, 2019
PBS Project No. 41391.004

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1 INTRODUCTION

The Reserve at Arlington Partners LLP (Client) is evaluating the potential for a commercial development of three vacant lots located in the City of Arlington, Washington (City). PBS Engineering and Environmental Inc. (PBS) was contracted by the Client to determine the presence or absence of regulated critical areas within the project area and provide guidance on suitable buffer widths in accordance with the City's Municipal Code. This report presents the details of the background investigations and field visits that resulted in the identification of regulated Fish and Wildlife Habitat and a Type F stream within the project area.

1.1 Staff Credentials

The field studies and memorandum preparation were conducted by PBS staff scientist Brian Bieger and Patrick Togher. Their credentials are presented below:

Brian Bieger is a Senior Scientist and Project manager with PBS with over 18 years of experience working as a Wetland Scientist in Washington, Oregon and Idaho. His Education includes:

- Bachelor of Science in Wildlife Science (Oregon State University)
- Washington Department of Ecology's Wetland Rating System Training
- River Restoration Physical processes class (Portland State)
- ODOT and WSDOT biological assessment training

Patrick J. Togher is a professional Wetland Scientist (PWS 1659) with over 18 years of experience working as a Wetland Scientist in Washington. Patrick's education includes:

- Certificate in Wetland Science and Management, University of Washington (1998)
- M.A., Environmental Studies, Northeastern Illinois University (1996)
- B.S., Geography (Geography/Information Science), Northeastern Illinois University (1989)
- Patrick has completed numerous professional trainings, including Ecology's trainings for Ordinary High Water Mark Determination and the Washington State Wetland Rating System for Western Washington: 2014 Update.

1.2 Statement of Accuracy

This Critical Areas Report and the supporting field investigations were conducted by qualified professionals using the standards of care typically employed by natural resource scientists in Washington State. The contents of this report are based on current regulatory guidance and best professional judgement. Resource boundaries, ratings, and buffers should be considered preliminary until approved by regulatory agencies, such as: the City of Arlington, the Washington State Department of Ecology (Ecology), the Washington State Department of Fish and Wildlife (WDFW), and the U.S. Army Corps of Engineers (USACE).

1.3 Methods

1.3.1 Wetland Identification

The presence of wetlands was evaluated in accordance with section 20.93.810 of the City of Arlington Municipal Code (CAMC) using the routine approach of the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) (Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Supplement (Version 2.0)* (Supplement) (U.S. Army Corps of Engineers, 2010). Except for special circumstances as defined in the Manual and Supplement, positive indicators of wetland soils, hydrology, and plant community must be identified for jurisdictional wetlands to be present.

1.3.2 Stream Demarcation

Streams and other water bodies were assessed based on the presence of surface water channels and bed and banks. The ordinary high water mark of surface waters was identified using commonly observable field indicators as described in Ecology's *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson, 2016). Stream typing was determined consistent with Washington Administrative Code (WAC) 222-16-031 (WAC, 2019) that codifies the Washington State Department of Natural Resources Water Typing System as referenced by the City's Municipal Code.

2 BACKGROUND INFORMATION

2.1 Location

The approximately 4.9-acre project site is located directly north and west of the intersection of State Route 9 and 204th Street NE in Arlington, Washington (Figure1). The project area is comprised of three tax lots: 31051100400700, 31051100304000, and 31051100305400 located in the SW ¼ of Section 11, T31N, R5E (Figure 2). The coordinates of the center of the study area are latitude 48.181877° and longitude-122.130062°.

2.2 Landscape Setting/Topography

The project area is located within Water Resource Inventory Area (WRIA) 5 within the Stillaguamish watershed. The Hydrologic Unit Code for the project site basin is 171100080303. The project site is in the lower portion of the watershed at an elevation of approximately 120 feet. The site has been subject to historic grading and likely importation of fill material and currently has very little topographic relief (Figure 2). The most notable topographic features are a small berm approximately 3-4 feet high located in the northern portion of the site which demarcates the separation of the graded portions of the site and the vegetated portions of the riparian area.

Surrounding land use is dominated by retail, commercial and residential developments, with some vacant parcels in the immediate vicinity. Within a quarter mile radius of the site approximately 85 percent of the land is in a developed state and the remaining portions existing as small swaths of urban open space and vegetated corridors along streams. While the Stillaguamish watershed still has a high degree of natural land cover compared to more urban landscapes, it has suffered as a result of past forestry and agricultural based land uses. Salmonid limiting factors for the watershed include: conversion of tidal marsh wetlands to agriculture, loss of beaver pond habitat, loss of palustrine wetlands, and degradation of riparian forestlands (WA State Conservation Commission, 1999)

2.3 Soils

Natural Resource Conservation Service soil maps for the property(USDA NRCS 2019a) indicate that the only soil mapped on the site is Norma Loam, which is a hydric soil (Figure 3). The NRCS description of Norma Loam is detailed below.

> *Norma Loam (39)*- The Norma, undrained component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions, drainageways, and till plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is not flooded, but is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, November, and December. Organic matter content in the surface horizon is about 10 percent.

2.4 Climate

The region has a predominantly temperate marine climate with warm, dry summers and mild, wet winters, typical of much of the Puget Sound area. The property is in the Puget Sound lowlands climatic region. Precipitation levels are considered normal when the probability of that rainfall amount for a given month is greater than or equal to 30% either side of the mean, as displayed in the table below (Table 1). The wetland delineation occurred on February 19, 2019, with a follow up visit in March 2019. The rainfall for the 3 month period preceding the delineation was considered slightly below normal (see Table 1). However, precipitation was normal for two of the three months before the field visit (November and December), and water was present in Portage Creek during both field visits, indicating that sufficient water is present to assess the presence of wetland hydrology.

Table 1. Monthly precipitation in inches and "normal" ranges and means for the Arlington, WA

Month	Arlington, WA[1] 2018	Arlington, WA 1998 - 2018[1]			Condition	Value	Multiplier	Result
		30% chance will have		Mean				
		Less than	More than					
Nov	6.43	5.67	8.31	7.21	Normal	2	1	2
Dec	5.76	4.63	6.97	6.01	Normal	2	2	4
Jan	3.21	5.06	7.27	6.34	Below	1	3	3
Overall								**9[2]**

[1]Agricultural Applied Climate System WETS Station in Arlington, WA.
[2]Results of 6-9 are below normal, results of 10-14 are normal, results of 15-16 are above normal.

2.5 Mapped Wetlands

The U.S. Fish and Wildlife National Wetland Inventory (NWI) Maps identify a Palustrine, Shrub-Scrub, Seasonally flooded wetland (PSSC) in the northern portion of the study area (Figure 4). This wetland is likely the channel of Portage Creek that flows west through the property in this general location. It should be noted that NWI wetlands are created through aerial photograph interpretation and are not meant to represent the extent of jurisdictional wetlands on a site. The Snohomish County Wetland Inventory (Snohomish County, 2019) does not show wetlands on or immediately adjoining the site.

3 EXISTING CONDITIONS

3.1 On-site Assessment

A site visit was completed by Senior Scientist Brian Bieger on February 19, 2019 in order to assess the existing conditions of the property and determine the extent of critical areas on the site. A follow-up visit was conducted on March 29, 2019 by Pat Togher to confirm the results. The entire project area was traversed on foot and data collected on topography, soils, and vegetation conditions. Photographs of the site were collected in areas that represent the distinctive characteristics of the property. Site photographs are presented in Appendix A.

3.2 Soils

The soils within tracks B, D and the southern portion of A have been subject to historic disturbance in the form of importation of fill material and grading/leveling. The existing soils do not match the Norma loam soils that are mapped for the site. Most of the site is covered with a gravelly loam material that has been graded flat. Photos 1, 2 and 3 in appendix A represent the gravelly material in these areas, and the data forms for the site are presented in Appendix B.

3.3 Topography

The topography of the site is best described as nearly level to gently sloping. The site has been previously graded and is for the most part flat with small, isolated depressions. The northern most portion of the graded areas is demarcated by a gravel berm that runs the entire east-west width of the property. This berm is approximately 3 feet high and separates the riparian corridor and areas with natural vegetation with the rest of the property. No other noteworthy topographic features were recorded.

3.4 Vegetation

Vegetation within the study area can be divided into disturbed herbaceous vegetation within the graded areas of the site and the forested and shrub/scrub vegetation within the riparian corridor. The graded areas of the property are sparsely vegetated with opportunistic weedy species. Dominant vegetation in these areas includes: Scotch broom (*Cytisus scoparius*), colonial bentgrass *(Agrostis capillaris),* English plantain *(Plantago lanceoleta),* tansy ragwort (*Jacobaea vulgaris*), Canada thistle *(Cirsium arvense),* mullein *(Verbascum thapsus),* black cottonwood *(Populus trichocarpa)* saplings*,* Himalayan blackberry *(Rubus armeniacus),* and hairy cat's ear (*Hypochaeris radicata).*

North of the gravel berm has not been subject to historic disturbance and has canopy, understory, and emergent vegetation layers. Canopy tree species include Douglas-fir (*Pseudotsuga menziesii*), red alder (*Alnus rubra),* and black cottonwood (*Populus trichocarpa*). Overall canopy closure is approximately 70%. Shrub understory scrub vegetation is a combination of native and non-native invasive species. Native shrubs include red-osier dogwood (*Cornus alba*), willow *(Salix sp.),* nootka rose *(Rosa nutkana),* pacific ninebark *(Physocarpos capitatus),* and isolated snowberry *(Symphoricarpos albus).* Non-native species include Himalayan blackberry and bittersweet (or climbing) nightshade (*Solanum dulcamara).* It is noteworthy that there are several locations in the eastern portion of the riparian corridor that have become overgrown with nightshade to the extent that it is likely interfering with normal channel flow and survival of native vegetation (Photos 6 and 7).

3.5 Wetlands

No wetlands were identified on the site. South of the gravel berms the soils consist of gravelly loams that do not have hydric soil indicators (Appendix B, A1). Vegetation within these areas is dominated by non-native upland vegetation that does not meet hydric vegetation criteria. None of these areas met wetland hydrology indicators due to the rapidly draining gravel layer. There was no instance when two categories of wetland indicators (soil, hydrology, vegetation) occurred at the same location.

North of the berm and adjacent to Portage Creek there are low lying areas on the north side of the creek where hydric vegetation communities were identified. However, soil samples in these areas lacked primary indicators (Appendix B, A2), or sufficient secondary indicators to satisfy the hydric soil criterion. No jurisdictional wetlands were identified within or directly adjacent to the project site.

3.6 Streams

Portage Creek flows west through the northern portion of the project area (Figure 5). The ordinary high water mark (OHWM) of the creek was delineated and recorded with orange survey pin flags and orange survey flagging. The OHWM was readily identifiable through rapid changes in vegetation and topography (Photo 5). Portage Creek is approximately 6-feet wide as it flows through the project area and at the time of the field work had a depth between 12 and 20 inches.

The channel as it flows through the project area has very little sinuosity and at the flow rates observed during the site visit exist as one long glide. Substrate is dominated by sand, silt, and small amounts of cobble. Sections of the creek are being choked by bittersweet nightshade (Photo 7). Flow restrictions in some of these

areas is causing small-scale localized bed scour due to constriction of the channel and resulting increases in water velocity. Large woody debris (LWD) in the creek are minimal although it should be noted that Portage Creek is a small perennial stream and does not typically have the hydraulic energy necessary for transport of LWD.

Portage Creek is a tributary to the Stillaguamish River. The creek flows west through the semi-urban lands of the City of Arlington before winding through agricultural lands and emptying into the Stillaguamish River several miles west of Interstate-5. The Stillaguamish is habitat for Endangered Species Act (ESA) listed fish that include Chinook Salmon (*Oncorhynchus tsawytscha*), steelhead *(Oncorhynchus mykiss),* and bull trout (*Salvelinus malma*). These ESA listed fish species are not mapped in the reaches of Portage Creek within the project area. Portage Creek is listed in the WDFW's PHS web mapping system as habitat for resident coastal cutthroat trout and breeding habitat for coho salmon *(Oncorhynchus kisutch)* (WDFW, 2019). The StreamNet mapper also shows the presence of these two fish (Streamnet 2019). These fish are listed as WDFW priority species but are not protected under the ESA.

3.1 Riparian Habitat Function

Riparian habitat is defined in RCW 79A.15.010 (11) as *"land adjacent to water bodies, as well as submerged land such as streambeds, which can provide functional habitat for salmonids and other fish and wildlife species. Riparian habitat includes, but is not limited to, shorelines and near-shore marine habitat, estuaries, lakes, wetlands, streams, and rivers."* The on-site riparian areas are therefore located adjacent to the north and south sides of Portage Creek.

The width of a riparian area and its potential functions are directly proportional to the size of the stream which they are adjacent to. Whereas a large, high energy stream would exert a greater amount of influence on its adjacent lands a have a larger riparian area, a smaller stream would exert less influence on the surrounding environment and would therefore be narrower. Riparian areas are listed as priority habitats by the WDFW as they provide several key ecological functions. These functions include: temperature regulation of surface waters, sequestration of pollution, erosion prevention, large woody debris recruitment, support of native plant diversity, wildlife habitat, and allochthonous inputs of nutrients. The existing riparian area provides a large amount of these functions through the presence of an established tree canopy, native shrub/scrub layer and moderate coverage of emergent plant species. The northern riparian buffer, which extend off the project site is in better condition than the southern buffer as the band of native vegetation is wider, there is a higher degree of coverage of native plants, and there are fewer invasive plant species. The on-site southern riparian area exists as a narrow band of vegetation that is generally around 20-feet wide. Outside of this area Himalayan blackberry and invasive herbaceous and viney vegetation has become established. Any riparian enhancements should address invasive species within the riparian buffer. Enhancements in this area would likely result in improvements to temperature regulation, support of native vegetation, sequestration of pollutants, and a slight increase to wildlife habitat.

4 CRITICAL AREA REGULATIONS

4.1 Federal

Streams and waters that drain to navigable waters are subject to regulation by the US Army Corps of Engineers (USACE) under section 404 of the Clean Water Act. The USACE does not regulate areas adjacent to jurisdictional waters therefore a permit from the USACE would not be required unless the proposed project included in-water work.

4.2 State

The Washington Department of Ecology (Ecology) and the WDFW regulate streams and waterways on the state level. Similar to the USACE, Ecology and WDFW do not require notification unless the proposed project includes in water work or work above or below the stream channel. While not directly related to wetlands and streams, a National Pollutant Discharge Elimination System (NPDES) certification is required from Ecology for projects where more than one acre of land will be disturbed.

4.3 Local

Portage Creek is regulated at the local level by the City of Arlington Municipal Code (CAMC). Under the CAMC Portage Creek is regulated both as Fish and Wildlife Conservation Area under section 20.93.400 and as a type F stream under section 20.93.400 of the CAMC.

Type F streams have a 100-foot stream buffer as per Table 20.93-3 of the CAMC. This buffer is required to be retained in a natural vegetated condition. This buffer may be reduced in certain conditions through an approved buffer averaging plan provided that the width of the buffer is not reduced more than 25% of the base buffer width. This 100-foot base buffer is illustrated in Figure 5.

During the Pre-application meeting for the project, the City of Arlington requested that Parcel A be set aside as a Native Growth Protection Area (NGPA) (Personal Communication, Marc Hayes [City of Arlington] to Carmel Gregory [CG Engineering], March 13, 2019). The City had indicated in pervious conversation with the real estate broker that this was consistent with the boundary line adjustment application for the property from 2014, which set aside a 75-foot buffer for Portage Creek in this location. This 75-foot NGPA is illustrated in Figure 5.

Under the Fish and Wildlife Conservation section of the CAMC there is no buffer requirement for non-ESA listed habitat (Section 20.93.440 (a)(2)). In these cases, the city recommends that a habitat protection plan be prepared and submitted by a qualified biologist. A formal habitat management plan is outside of the scope of this document. However, based on the size, landscape position, and habitat potential for Portage Creek, it is our professional opinion that a restored and enhanced 75-foot buffer would result in greatly improved buffer function compared to the current, highly disturbed condition. This statement is conditional on the enhancement of the buffer through the removal of invasive vegetation and establishment of a native plant community with a canopy, shrub-scrub, and emergent vegetation layers. Successful establishment of a native plant community will result in increases to a wide variety of riparian functions including: temperature regulation, support of native vegetation, habitat complexity, sequestration of nutrients, bank stabilization, and allochthonous inputs to Portage Creek.

5 SUMMARY

PBS was hired to determine the presence or absence of jurisdictional wetlands and water features on 4.9-acre project site located within the City of Arlington, Washington. Based on the results of the background and on-site investigation a small Type F stream was identified and mapped in the northern portion of the site (Portage Creek, Figure 5). No wetlands were identified on the site.

Portage Creek and its attendant riparian areas are regulated by the City of Arlington under the CAMC. As per the CAMC, all native vegetation within the riparian areas shall be preserved. The City previously agreed that the creek and riparian areas be placed in a NGPA that extends 75-feet from the OHWM of the Creek. Based on the degraded condition of the existing riparian corridor, the City may require enhancement of portions of the corridor to prevent indirect impacts to Portage Creek that may result from adjacent development. The city should be consulted prior to engaging in land development activities on the site that would potentially impact Portage Creek or riparian areas.

6 DISCLAIMER

This report is based on observations of vegetation, soils, and hydrology at the time of the study. Changing environmental conditions or human activities may alter those parameters, which may change the conclusions presented in this report. The conclusions in this report represent the investigator's interpretation of the specified technical manuals and best available science and may not correspond with observations or conclusions of others, including government agencies.

This report was prepared to meet current local, state, and federal regulations. PBS is not responsible for changes made to regulations and reporting requirements after the report has been completed. Final authority regarding jurisdiction and permitting requirements rests with the appropriate agencies.

This report is for the exclusive use of the Client and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced, in total or in part, without the express written consent of the Client and PBS.

7 REFERENCES

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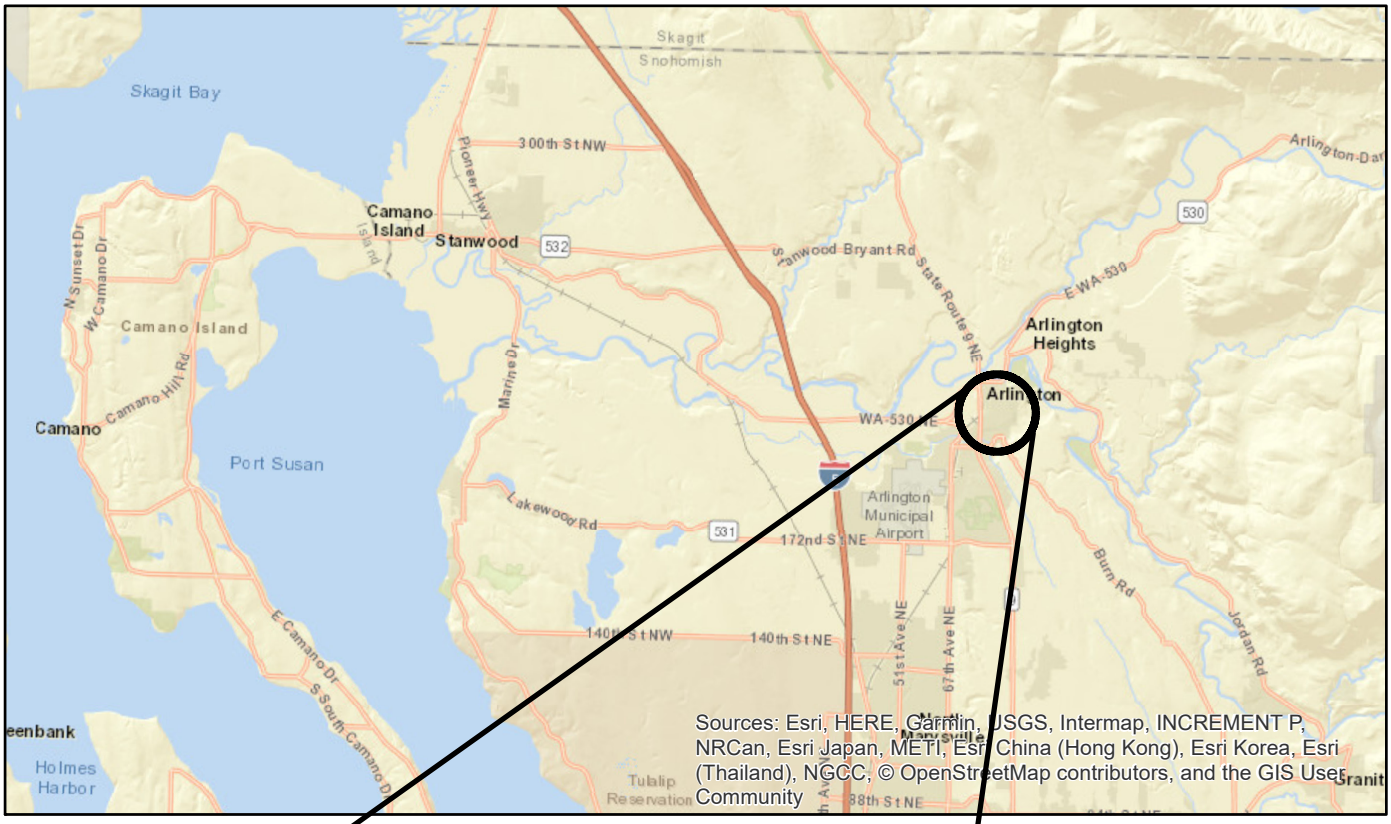
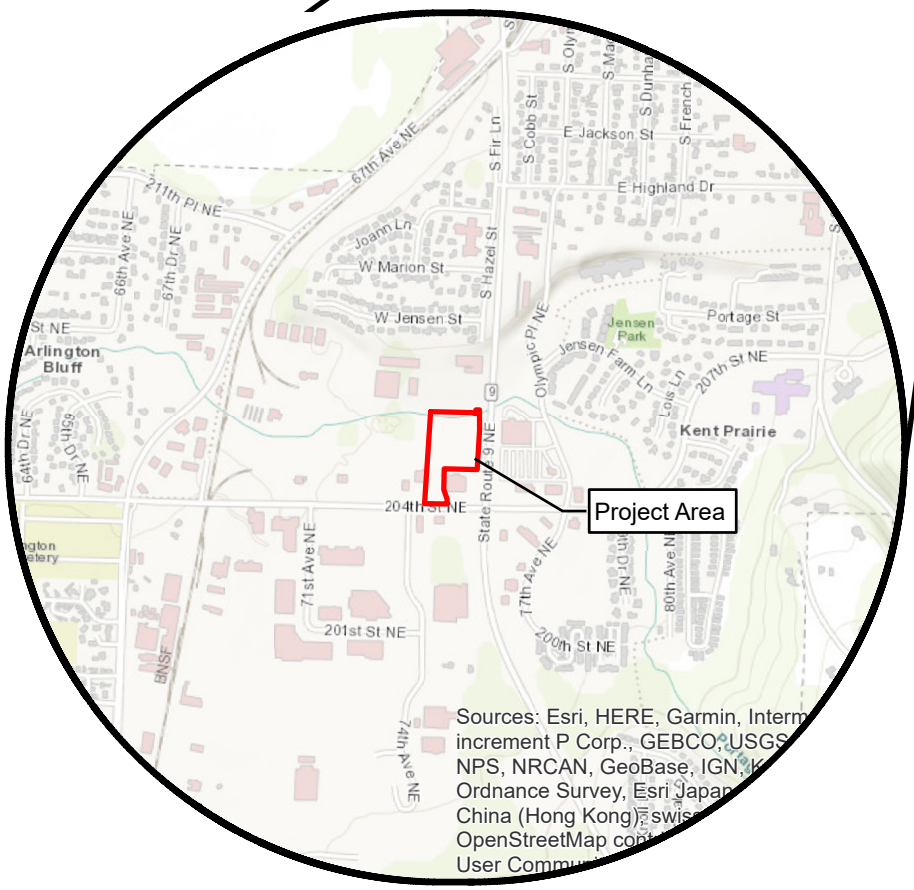
FIGURES





SCALE: 1" = 1,500'

0' 750' 1,500' 2,250'

PREPARED FOR: Reserve at Arlington Partners LLLP.

VICINITY MAP

204TH STREET NE TRACT A, B AND D PROJECT
ARLINGTON, WASHINGTON

MAR 2019
41391.000

FIGURE
1

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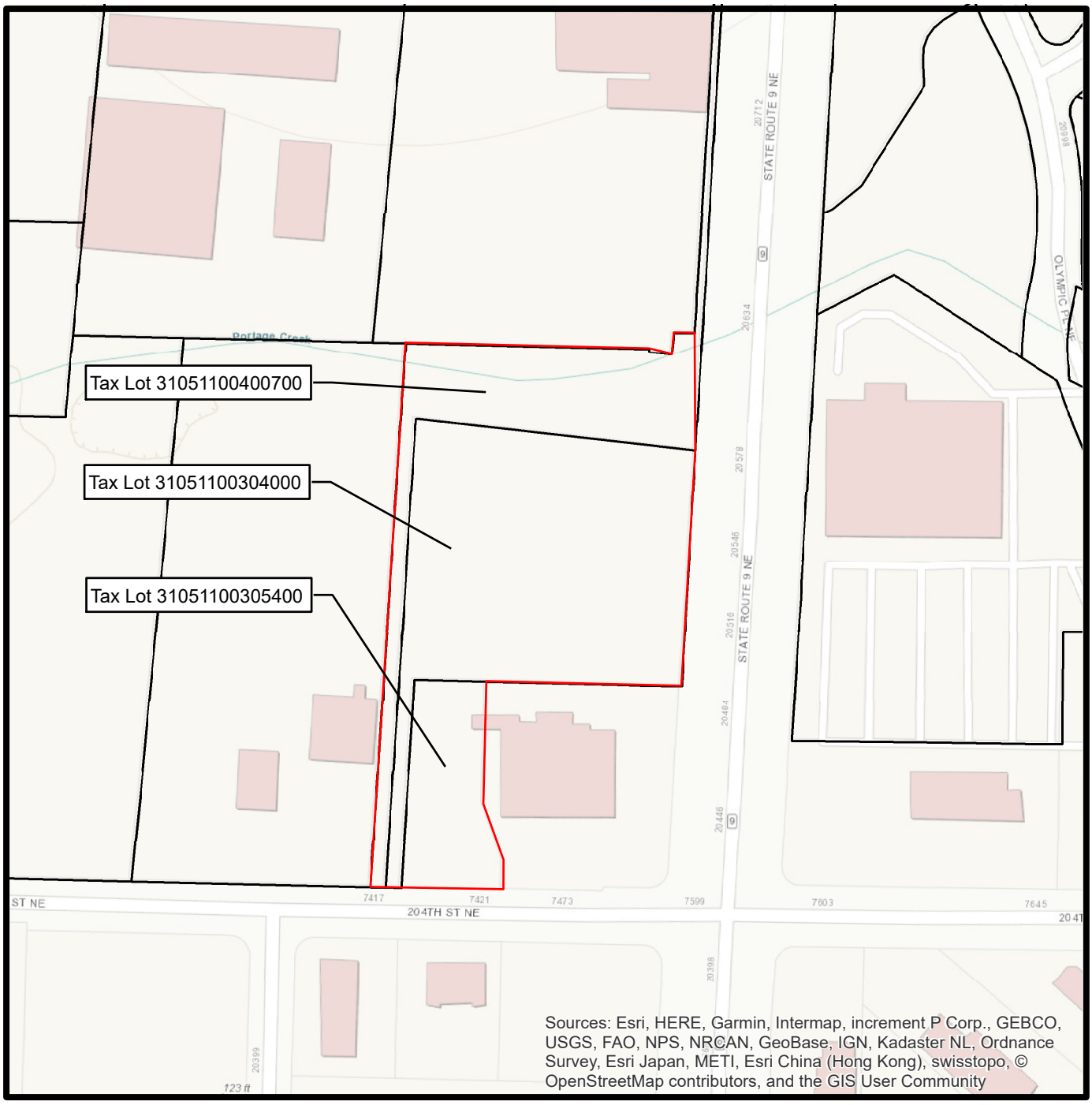

TAXLOTS DOWNLOADED FROM SNOHOMISH COUNTY GIS, FEBRUARY 2019.

Legend

- Project Area
- Tax Lots

SCALE: 1" = 200'

0' 100' 200' 400'

PREPARED FOR: Reserve at Arlington Partners LLP.

TOPOGRAPHIC MAP

SR 9 and 204TH STREET NE TRACTS A, B and D PROJECT
ARLINGTON, WASHINGTON

MAR 2019
41391.004

FIGURE
2

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SOIL POLYGONS DOWNLOADED FROM NRCS, FEBRUARY 2019.

39 - Norma Loam

SCALE: 1" = 300'

0' 150' 300' 600'

PREPARED FOR: Reserve at Arlington Partners LLP.

NRCS SOIL MAP

SR 9 and 204TH STREET NE TRACTS A, B and D PROJECT
ARLINGTON, WASHINGTON

MAR 2019
41391.004

FIGURE
3

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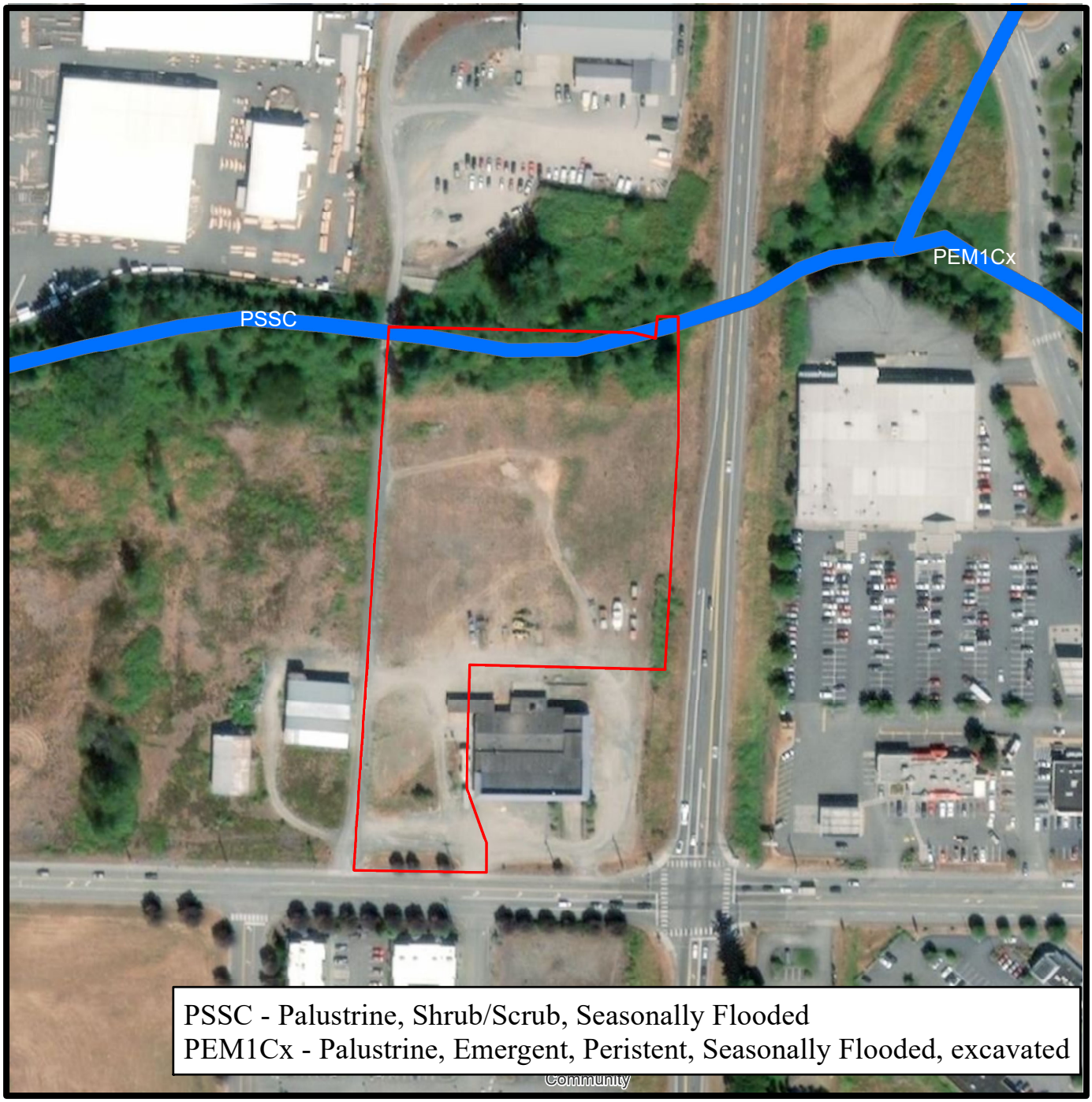

WETLAND POLYGONS FROM US FISH AND WILDLIFE SERVICE DOWNLOADED FEBRUARY, 2019.

Legend

- Project Area
- NWI Wetlands

SCALE: 1" = 200'

0' 100' 200' 400'

PREPARED FOR: Reserve at Arlington Partners LLP.

NATIONAL WETLANDS INVENTORY MAP

SR 9 and 204TH STREET NE TRACTS A, B and D PROJECT
ARLINGTON, WASHINGTON

MAR 2019
41391.004

FIGURE
4

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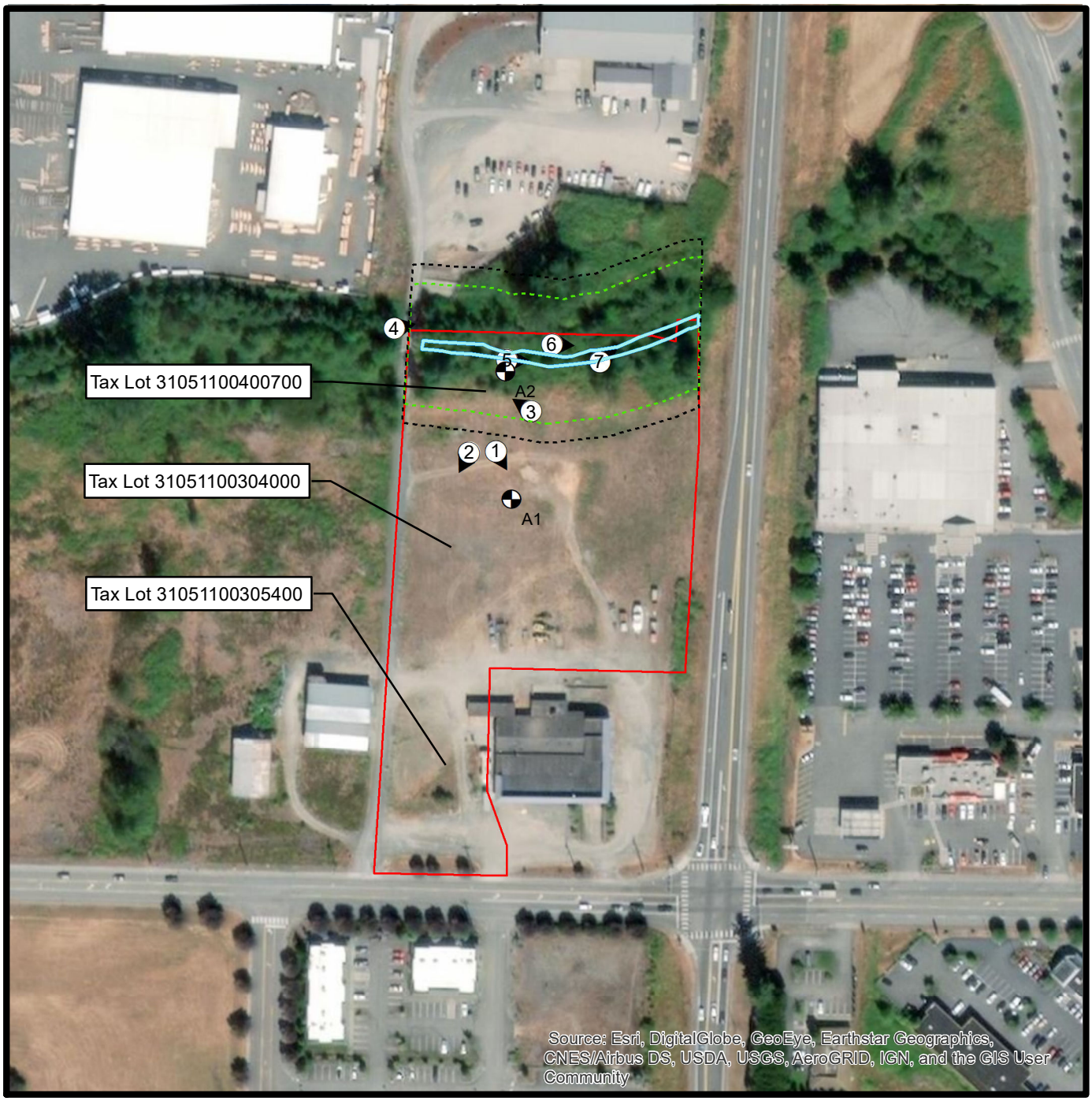

Legend

- Project Area
- Ordinary High Water Mark
- 100' Buffer
- 75' NGPA Boundary
- Photo Points
- Sample PLot

AERIAL PHOTOGRAPH PROVIDED BY ESRI ACCESSED FEBRUARY 2019.

SCALE: 1" = 200'

0' 100' 200' 400'

PREPARED FOR: Reserve at Arlington Partners LLP.

CRITICAL AREAS MAP

SR 9 and 204TH STREET NE TRACTS A, B and D PROJECT
ARLINGTON, WASHINGTON

MAR 2019
41391.004

FIGURE
5

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APPENDIX A

Project Area Photographs

Photo 1. SE portions of site, facing south

Photo 2. SW Portions of Site, facing south

Photo 3. Berm Adjacent to Riparian Corridor

Photo 4. Portage Creek typical channel form

Photo 5. Obvious OHW mark

Photo 6. Bittersweet Nightshade Infestation

Photo 7. Nightshade Clogging Stream Channel

APPENDIX B

Data Forms

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

Project/Site: Reserves at Arlington, Parcels A, B, and D City/County: Arlington/Snohomish Sampling Date: 3/28/2019

Applicant/Owner: Reserves at Arlington, LLP. State: Wa Sampling Point: A1

Investigator(s): Pat Togher Section, Township, Range: SE 11 T31N R 5E

Landform (hillslope, terrace etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR): A Lat: 48.182283 Long: -122.130145 Datum: WGS84

Soil Map Unit Name: Norma Loam NWI Classification: Upland

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

Are Vegetation ____ ,Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No

Are Vegetation ____ ,Soil ____ , or Hydrology ____ naturally problematic?

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

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a wetland? Yes ____ No X

Remarks: Plot is located near center of site.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Cytisus scoparius*	2	No	UPL
2. *Rubus armeniacus*	10	Yes	FAC
3. *Populus balsamifera*	2	No	FAC
4.			
5.			
Total Cover:	14		
Herb Stratum (Plot size: 5' r)			
1. *Tanacetum vulgare*	40	Yes	FACU
2. *Agrostis capillaris*	20	Yes	FAC
3. *Hypochaeris radicata*	20	Yes	FACU
4. *Moss sp.*	20	Yes	UPL
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum (Plot Size: 30' r)			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0 x 1 =	
FACW species	0 x 2 =	
FAC species	32 x 3 =	96
FACU species	60 x 4 =	240
UPL species	22 x 5 =	110
Column Totals:	114 (A)	446 (B)

Prevalence Index = B/A = 3.91

Hydrophytic Vegetation Indicators:

- 1- Rapid Test for Hydrophytic Vegetation
- 2- Dominance Test is >50%
- 3- Prevalence Index is ≤3.0[1]
- 4- Morphological Adaptations1 (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 X

Remarks:

Vegetation is dominated by upland species.

SOIL

Sampling Point: A1

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

Depth (in.)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR3/3	100					VGSaL	
9-16	10YR 3/2	100					VGSaL	
16+							VGSaL	Shovel refused

[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 Soil Present? Yes ___ No X

Remarks: Disturbed soil, likely fill. Angular gravels to cobbles (0.25 to 6") present, including angular fragments. No hydric soil indicators were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (in):	
Water Table Present?	Yes ___	No X	Depth (in):	>16
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (in):	>16

Wetland Hydrology Present? Yes ___ No X

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

Remarks: No indicator of wetland hydrology were present.

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

Project/Site: Reserves at Arlington, Parcels A, B, and D | City/County: Arlington/Snohomish | Sampling Date: 3/28/2019

Applicant/Owner: Reserves at Arlington, LLP. | State: Wa | Sampling Point: A2

Investigator(s): Pat Togher | Section, Township, Range: SE 11 T31N R 5E

Landform (hillslope, terrace etc.): Terrace | Local relief (concave, convex, none): Flat | Slope (%): 0

Subregion (LRR): A | Lat: 48.182715 | Long: -122.130370 | Datum: WGS84

Soil Map Unit Name: Norma Loam | NWI Classification: Upland

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

Are Vegetation ___ ,Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___

Are Vegetation ___ ,Soil ___ , or Hydrology ___ naturally problematic?

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

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a wetland? Yes ___ No X

Remarks: Plot A2 is located along Portage Creek, near flag 7. Wetland vegetation is present, but wetland soil indicators and wetland hydrology are absent. The sample is not within a wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' r)			
1. *Pseudotsuga menziesii*	20	Yes	FACU
2. *Picea sitchensis*	15	Yes	FAC
3.			
4.			
Total Cover:	35		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Rubus armeniacus*	40	Yes	FAC
2. *Physocarpus capitatus*	1	No	FACW
3. *Salix scouleriana*	1	No	FAC
4.			
5.			
Total Cover:	42		
Herb Stratum (Plot size: 5' r)			
1. *Phalaris arundinacea*	75	Yes	FACW
2. *Cirsium arvense*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum (Plot Size: 30' r)			
1.			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 0 %

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	0 x 1 =	
FACW species	76 x 2 =	152
FAC species	81 x 3 =	243
FACU species	20 x 4 =	80
UPL species	0 x 5 =	
Column Totals:	177 (A)	475 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

- ___ 1- Rapid Test for Hydrophytic Vegetation
- X 2- Dominance Test is >50%
- ___ 3- Prevalence Index is ≤3.0[1]
- ___ 4- Morphological Adaptations1 (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 X No ___

Remarks:

Pacific ninebark and willow srub are on a berm along the banks of Portage Creek. This berm may be material excavated from the stream channel. . Vegetation is dominated by wetland species.

SOIL

Sampling Point: A2

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

Depth (in.)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100					L	
9-17+	10YR 2/2	100					GSaL	gravels and cobbles.
16+								Shovel refused

[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 Soil Present?

Yes ___ **No** **X**

Remarks:

Very gravelly/cobbly below 9", does not mtch typical Norma Loam profile. No hydric soil indicators were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D4)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (in):	
Water Table Present?	Yes ___	No X	Depth (in):	>17
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (in):	>17

Wetland Hydrology Present?

Yes ___ **No** **X**

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

Remarks: No indicator of wetland hydrology were present.