Exhibit 12

EXISTING CONDITIONS REPORT

THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

Prepared For:

VINTAGE HOUSING DEVELOPMENT, LLC
Newport Beach, California

Prepared By:

TALASAEA CONSULTANTS, INC.
Woodinville, Washington

December 21, 2018

Existing Conditions Report

The Farm at Mill Creek
Mill Creek, Washington

Prepared For:

Vintage Housing Development, LLC
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December 21, 2018

EXECUTIVE SUMMARY

PROJECT NAME: The Farm at Mill Creek

CLIENT: Vintage Housing Development, LLC, Mr. Ryan Patterson

PROJECT LOCATION: The Farm at Mill Creek is an approximately 17.4-acre assemblage of two parcels located in Mill Creek. It is bound by the north by 132nd Street Southeast (WA-96), to the west and east by undeveloped properties, and to the south by a single-family residential development. The Snohomish County Tax Parcel numbers for the Project Site are 28053300200200 and 28053300200300. The Public Land Survey System location for this assemblage is the NW ¼ of Section 33, Township 28 North, Range 5 East, Willamette Meridian (W.M.).

The Mitigation Site is an assemblage of three parcels totaling approximately 61 acres located between the Project Site and Thomas Lake. The Snohomish County Tax Parcel numbers for the Mitigation Site are included in **Figure 2**. The Public Land Survey System location for this assemblage is the NW ¼ of Section 33, Township 28 North, Range 5 East, Willamette Meridian (W.M.).

PROJECT STAFF: Bill Shiels, Principal; Jennifer Marriott, PWS, Senior Ecologist; and David R. Teesdale, PWS, Senior Wetland Ecologist.

FIELD SURVEY: The Project Site has been investigated and reviewed by Talasaea several times since 2002. The most recent work was started in 2014 and has continued through the beginning of 2018. The Mitigation Site has been evaluated over several days in 2018.

DETERMINATION: The Project Site contains one wetland (Wetland A) that extends off-site to the west. Penny Creek flows from north to south through the off-site wetland complex. Wetland A is rated as a Category II wetland per Mill Creek Municipal Code (MCMC) §18.06.910. Per MCMC, Category II wetlands with a high impact land use require a standard 200-foot buffer.

The Mitigation Site encompasses an approximately 61-acre area west and south of the Project Site. A series of wetlands extends from the Project Site south to Thomas Lake through which Penny Creek flows. No formal delineations have been completed on the Mitigation Site, but the wetlands collectively rate as a Category II wetland complex with a Category I component (bog) around Thomas Lake offsite to the south.

HYDROLOGY: Hydrology for Wetland A and off-site wetlands is supported by precipitation, groundwater flow, and surface water. Surface water levels are generally higher than expected due to the ongoing beaver activity.

SOILS: The NRCS maps two soil types on the Project Site. Most of the Project Site is mapped as Alderwood gravelly sandy loam, 0 to 8 percent slopes. The remainder of the Project Site is mapped as Mukilteo muck. The majority of the Mitigation Site is mapped as Mukilteo muck with pockets of open water and other minor soil map units indicated.

VEGETATION: Upland vegetation on the Site consists primarily of pasture grasses with patches of Himalayan blackberry and Scot's broom. The on-site portion of the wetland is dominated by reed canarygrass and Himalayan blackberry, with minimal woody shrub species present. Large portions of the Mitigation Site are permanently ponded due to intensive beaver activity in this area, though areas of native vegetation occur in both wetlands and uplands. Uplands are generally dominated by native tree species, with a blended understory of native and invasive species. Other invasive species present in wetlands or uplands include purple loosestrife, reed canarygrass, and Japanese knotweed.

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CHAPTER 1. INTRODUCTION

1.1 Purpose of Report

This report is the result of a critical areas study for The Farm at Mill Creek property (referred to hereinafter as the Project Site) located in Mill Creek, Washington (**Figure 1**). The Project Site is the location of a proposed multi-residential and commercial development. The Mitigation Site is the location of the off-site components of the Project's Mitigation Plan, and are addressed within the Site Development and Conceptual Mitigation Plan, prepared by Talasaea Consultants, dated 21 December 2018.

The purpose of this report is to identify and describe critical areas (wetlands, streams, fish and wildlife habitat areas, etc.) on or adjacent to the Project and Mitigation Sites. The report has been prepared to comply with the requirements of Mill Creek Municipal Code (MCMC) Chapter 18.06 which governs *Environmentally Critical Areas*.

This report will provide and describe the following information:

- General Property Description;
- Methodology for Critical Areas Investigation;
- Results of Critical Areas Background Review and Field Investigation; and
- Regulatory Review.

1.2 Statement of Accuracy

Stream and wetland characterizations and ratings were conducted by trained professionals at Talasaea Consultants, Inc., and adhered to the protocols, guidelines, and generally accepted industry standards available at the time the work was performed. The conclusions in this report are based on the results of analyses performed by Talasaea Consultants and represent our best professional judgment. To that extent and within the limitation of project scope and budget, we believe the information provided herein is accurate and true to the best of our knowledge. Talasaea Consultants does not warrant any assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

1.3 Qualifications

Field investigations and evaluations were conducted by Talasaea staff, including Bill Shiels, Principal; Jennifer Marriott, PWS, Senior Ecologist; and David R. Teesdale, PWS, Senior Wetland Ecologist. Bill Shiels has a Bachelor's Degree in Biology from Central Washington University and a Master's Degree in Biological Oceanography from the University of Alaska. He has over 40 years of experience in wetland delineation and mitigations. Jennifer Marriott has a Bachelor's Degree and a Master's Degree in Biology from the University of Central Florida, and a second Master's Degree in Soil and Environmental Science from the University of Florida. She has over 15 years of experience in wetland delineations and environmental permitting. David Teesdale has a Bachelor's Degree in Biology from Grinnell College, Iowa, and a Master's Degree in Ecology from Illinois State University. He has 22 years of experience in wetland delineations and biological evaluations.

CHAPTER 2. GENERAL PROPERTY DESCRIPTION AND LAND USE

2.1 Project Location

The Farm at Mill Creek site is an approximately 17.4-acre assemblage of two parcels (Parcels A and B) located in Mill Creek (**Figure 2**). It is bound by the north by 132nd Street Southeast (WA-96), to the west and east by undeveloped properties, and to the south by single-family residential development. The Snohomish County Tax Parcel numbers for the site are Parcel A (28053300200200) and Parcel B (28053300200300). The Public Land Survey System location for this assemblage is the NW ¼ of Section 33, Township 28 North, Range 5 East, Willamette Meridian (W.M.).

The Mitigation Site is comprised of three parcels totaling approximately 61 acres (**Figure 2**). The Snohomish County Tax Parcel numbers are identified in **Figure 2**[1]. The Public Land Survey System location for this assemblage is the NW ¼ of Section 33, Township 28 North, Range 5 East, Willamette Meridian (W.M.).

2.2 General Property Description

The Project Site contains a barn, sheds, and fenced enclosures. The remainder of the property is old pasture. Himalayan blackberry (*Rubus armeniacus*) is present in the eastern portion of the property and around the barn area, as well as encroaching within the wetland and adjacent buffer. The topography of the Site is sloped from the east to the west.

Surrounding land uses include: mixed-use commercial and multifamily residential to the east, single-family residential to the south, a Snohomish County flood storage mitigation site to the west (southeast of the intersection of 132nd Street SE and 35th Avenue SE), and commercial and institutional developments to the north.

The Mitigation Site is generally undeveloped or minimally developed and encompasses many of the areas historically used for peat mining. These areas are mostly comprised of wetlands that have been heavily impacted by beaver activity and are mostly open water. What upland areas exist are comprised of constructed paths and filled areas that are often used for recreational vehicles without landowner's permission. Beaver activity in these areas has caused extensive flooding, resulting in progressively greater areas of open water year after year.

2.3 Zoning

The Site is currently zoned East Gateway Urban Village (EGUV) and will be developed under the requirements of MCMC §17.19 EGUV – East Gateway Urban Village. The purpose of the East Gateway Urban Village zoning code is to provide a method for developing a planned urban village development providing pedestrian-oriented mixed-use commercial, office, residential, and public uses (*e.g.,* open spaces and recreational opportunities) as described in the Mill Creek Comprehensive Plan. The primary goals for the East Gateway Urban Village are:

[1] Letter designation "I" was not used for naming the Parcels to avoid confusion with the number "1" when using sans serif fonts.

- Encourage density and a diverse mix of uses in the center;
- Create a strongly pedestrian-oriented and transit-friendly development;
- Create a strong identity for the East Gateway Urban Village;
- Encourage the development of a sustainable neighborhood supported by a diversity of businesses and types of residential development;
- Create a safe and efficient transportation network through the entire site to move goods and services as well as customers, employees, and residents with controlled access points onto SR-96 and Seattle Hill Road in accordance with access management policies in the Transportation Element;
- Create places that provide for the needs of a diverse population of different ages;
- Provide for adequate buffers and trails around the perimeter of the East Gateway Urban Village to enhance pedestrian connectivity between uses while minimizing impacts to surrounding uses;
- Protect the existing adjacent property uses by developing design guidelines that incorporate design techniques such as limiting light from spilling onto adjacent properties and limiting building heights ("City of Mill Creek Comprehensive Plan" 2015).

2.4 Previous Land Use

Prior to 1994, the Property was utilized and managed as a buffalo ranch. Approximately 30 head of buffalo would be seen grazing the fields at any one time, and the ranch was an iconic part of the City of Mill Creek (formerly Snohomish County). The ranch, which was owned and operated by Lloyd Wibbelman, sold fresh buffalo meat to local establishments.

The Wibbelman Buffalo Farm has been a locus of public interest for many decades. The farm was a working ranch that provided local stores with buffalo meat. For many locals, their exposure to the farm occurred as they drove past it seeing a herd of buffalo.

Photo 1. Legacy photo of Penny Creek before beaver activity.
Photo is viewing to the north.

Since the Wibbelman farm ceased operation, it has lain mostly fallow. The western half of the farm (identified in this report as Parcel C) was used both for a stormwater bioswale and as flood storage mitigation for road work performed on 35th Avenue SE. The flood storage work also attempted to create additional wetland area out of existing pastureland within the Penny Creek corridor.

Over time, woody and other emergent vegetation have begun to reestablish itself within the old pasture. Unfortunately, much of that reestablishment has included non-native, invasive species (Himalayan and evergreen blackberry, reed canarygrass, etc.).

CHAPTER 3. METHODOLOGY

The critical areas analysis of the Project and Mitigation Sites involved a two-part effort. The first part consisted of a preliminary assessment of both the Project and Mitigation Site and the immediate surrounding area using published environmental information. This information includes:

1) Wetland and soils information from resource agencies;
2) Critical areas information from the City of Mill Creek;
3) Anadromous fish presence information from:
    a. StreamNet database
    b. SalmonScape database

4) Orthophotography and LIDAR imagery; and,
5) Relevant studies completed or ongoing in the vicinity of the Sites.

The second part consisted of site investigations where direct observations and measurements of existing environmental conditions were made. Observations included plant communities, soils, hydrology, and stream conditions. This information was used to help characterize the site and define the limits of critical areas on-site and off-site for regulatory purposes (see **Section 3.2 – Field Investigation** below). The Mitigation Site was evaluated to document vegetative cover types, species composition of the wetlands and uplands, general hydrology, and other physical parameters that would help document the existing conditions on-site. However, no field delineations of any wetlands or streams were completed on the Mitigation Site.

3.1 Background Data Reviewed

Background information from the following sources was reviewed prior to field investigations:

- US Fish and Wildlife Service (USFWS), Wetlands Online Mapper (National Wetlands Inventory, NWI) (USFWS Service 2018) (www.wetlandsfws.er.usgs.gov/wtlnds/launch.html);
- Natural Resources Conservation Service (NRCS), Web Soil Survey (NRCS 2018)(www.websoilsurvey.nrcs.usda.gov/app/);
- NRCS, National Hydric Soils List by State (NRCS 2018) (https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316620.html);
- Snohomish County GIS Database (Snohomish County 2018);
- StreamNet database, 2018 (www.streamnet.org);
- SalmonScape database, 2018 (www.wdfw.wa.gov/mapping/salmonscape/databases);
- NOAA's National Marine Fisheries Service (NMFS), current Pacific coast salmon species listed as protected under the Federal Endangered Species Act (http://www.nwr.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listings/salmon_and_steelhead_listings.html);
- USFWS Environmental Conservation Online System, Species by County Report for Snohomish County, Washington, 2018 (https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=53061);
- WDOE Washington State's Water Quality Assessment and 303(d) List (http://www.ecy.wa.gov/programs/wq/303d/currentassessmt.html);
- Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Database on the Web (WDFW 2018) (http://wdfw.wa.gov/mapping/phs/);
- Washington Department of Natural Resources (WDNR) Natural Heritage Database; and
- Orthophotography from USDA's National Agricultural Imagery Program (NAIP 2018) and Google Earth.

3.2 Field Investigation

The Project Site has been evaluated by Talasaea Consultants several times since 2002. The most recent evaluation by Talasaea Consultants began in 2014 and has continued into early 2018. The Mitigation Site has been casually reviewed in years past, but more in-depth evaluations of on-site conditions were conducted over several days in July 2018.

The wetland delineation utilized the routine approach described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (U.S. Army Corps of Engineers 2010).

Plant species were identified according to the taxonomy of Hitchcock, Cronquist, Owensby, and Thompson (Hitchcock et al. 1969). Taxonomic names were updated and plant wetland status was assigned according to *The National Wetland Plant List*, *Version 3.3* (Lichvar *et al*. 2016). Wetland classes were determined with the U.S. Fish and Wildlife Service's system of wetland classification (Cowardin *et al*. 1979). Vegetation was considered hydrophytic if greater than 50% of the dominant plant species had a wetland indicator status of facultative or wetter (i.e., facultative, facultative wetland, or obligate wetland).

Wetland hydrology was determined based on the presence of hydrologic indicators listed in the Corps' Regional Supplement. These indicators are separated into Primary Indicators and Secondary Indicators. To confirm the presence of wetland hydrology, one Primary Indicator or two Secondary Indicators must be demonstrated. Indicators of wetland hydrology may include, but are not necessarily limited to: drainage patterns, drift lines, sediment deposition, watermarks, stream gauge data and flood predictions, historical records, visual observation of saturated soils, and visual observation of inundation.

Soils on the site were considered hydric if one or more of the hydric soil indicators listed in the Corps' Regional Supplement were present. Indicators include the presence of organic soils, reduced, depleted, or gleyed soils, or redoximorphic features in association with reduced soils.

An evaluation of patterns of vegetation, soil, and hydrology was made along the interface of wetland and upland. Wetland boundary points were then determined from this information and marked with wire flags or surveyors tape. **Appendix A** contains data forms prepared by Talasaea for representative locations in both upland and wetland locations. These data forms document the vegetation, soils, and hydrology information that aided in the wetland boundary delineation.

CHAPTER 4. RESULTS

This section describes the results of our in-house research and field investigations. For the purpose of this report, the term "vicinity" describes an area approximately ¼ mile around the Sites.

4.1 Analysis of Existing Information

The following resource agency sources provided information on potential Site conditions:

4.1.1 USFWS Wetlands Online Mapper (National Wetlands Inventory)

The National Wetland Inventory (NWI) maps one palustrine emergent persistent, seasonally flooded, partially drained/ditched wetland (PEM1Cd) along the west side of the Site and extending off-site to the south (**Figure 3**). A large wetland complex associated with Thomas Lake extends from the Project Site west and southward and includes several wetland types, such as:

- PEM1Cx, palustrine emergent persistent wetland that is seasonally flooded and excavated;
- PEM1F, palustrine emergent persistent wetland that is semi-permanently flooded;
- PEM1Fd, palustrine emergent persistent wetland that is semi-permanently flooded and partially ditched or drained;
- PFOA, palustrine forested wetland that is temporarily flooded;
- PSSC, palustrine scrub-shrub wetland that is seasonally flooded;
- PSSCd, palustrine scrub-shrub wetland that is seasonally flooded and partially ditched or drained;
- PUBH, palustrine unconsolidated bottom wetland that is permanently flooded; and
- PUBHx, palustrine unconsolidated bottom wetland that is permanently flooded and excavated.

Additional wetland areas are mapped offsite in the vicinity of the Sites. A complete list of wetland types occurring off-site in conjunction with the Thomas Lake wetland complex is provided in **Figure 3**.

4.1.2 Natural Resources Conservation Service Soil Survey

The NRCS maps two soil types on the Project Site (**Figure 4**). Approximately ¾ of the Project Site is mapped as Alderwood gravelly sandy loam, 0 to 8 percent slopes. The western approximately ¼ of the side of the property is mapped as Mukilteo muck. The majority of the Mitigation Site is mapped as Mukilteo muck, with pockets of open water and other soil map units indicated to a lesser degree. A complete list of soil map units surveyed across the Mitigation Site is provided in **Figure 4**.

The Alderwood series is made up of moderately well-drained soils that have a weakly consolidated to strongly consolidated substratum at a depth of 24 to 40 inches. These soils typically form under conifers in glacial deposits. Soil colors of the A-horizon range from very dark brown to dark brown. The B-horizon is typically dark brown, grayish brown, and dark yellowish brown.

Mukilteo Muck is a very deep, very poorly drained soil in depressional areas. It formed from organic material derived predominantly from sedges under hydric conditions. Typically, the upper layer is a dark reddish brown muck about four inches thick. The

next layer is dark reddish brown and black organic material to about 31 inches, with black organic material below.

The National Technical Committee on Hydric Soils includes Mukilteo muck on its list of hydric soils. The map unit of Alderwood gravelly sandy soil is identified as being partially hydric. A partially hydric soil is one where the soil type is typically not hydric, but the map unit includes an associated soil (inclusion) that is hydric and comprises a significant fraction of the total map unit.

4.1.3 Snohomish County GIS Database

The Snohomish County GIS database does not directly identify wetlands on the Project Site. However, an approximate wetland boundary has been identified on-site that has been based on a "Remote Sensing-based Wetland Model." Several wetlands are mapped within the Mitigation Site, consistent with the wetland complex occurring around Penny Creek and Thomas Lake. Additionally, Penny Creek is mapped on the parcel to the west of the Project Site, flowing south through the Mitigation Site, and then continuing southwest under 35th Avenue SE (**Figure 5**).

4.1.4 StreamNet and SalmonScape Databases

The StreamNet and WFDW SalmonScape databases were reviewed for the presence of fish in the vicinity of the Project and Mitigation Sites. **Table 1** below contains a list of the anadromous fish species present in Penny Creek.

Table 1. List of Anadromous Fish Species in Penny Creek

Common Name	Scientific Name	StreamNet Results	SalmonScape Results
Fall Chinook	*Oncorhynchus tshawytscha*	Not Present	Modeled Presence
Coho	*O. kisutch*	Migration	Documented Presence
Sockeye	*O. nerka*	Not Present	Modeled Presence
Winter steelhead	*O. mykiss*	Not Present	Modeled Presence

4.1.5 WDFW Priority Habitats and Species and WDNR Natural Heritage Databases

The WDFW PHS database identifies both priority habitats and priority species on and within the vicinity of the Project and Mitigation Sites. A freshwater emergent wetland is mapped across the Mitigation Site, consistent with other databases. The species indicated include coho and little brown bat (*Myotis lucifugus*). Coho are listed as a Federal Candidate species for listing. Little brown bats are not Federally- or State-listed as a threatened or endangered species, nor are they listed as a Candidate species or Species of Concern.

The WDNR Natural Heritage data were reviewed for the presence or absence of priority species, rare plants, and high-quality native ecosystems. No species or features were identified on or in the vicinity of the Project or Mitigation Site.

4.1.6 Washington State's Water Quality Assessment 303(d)

Washington State's Water Quality Assessment lists the status of water quality within surface waters based on Categories 1-5. Category 1 waters meet the tested standards for clean waters; Category 2 are waters of concern; Category 3 waters have insufficient data; Category 4 waters are polluted, but either already have or do not require a "total maximum daily load" (TMDL) limit and implementation plan approved by the U.S. Environmental Protection Agency (EPA); and Category 5 represents waters placed on the EPA 303(d) list for which the preparation of a TMDL is required.

Penny Creek, located off-site to the west of the Property, is not listed on the Washington State Department of Ecology 303(d) list (WA Department of Ecology 2017). However, North Creek, located approximately three (3) miles downstream of the Project Site, is listed as a Category 5 for pH, bioassessment, and dissolved oxygen. This indicates that Penny Creek could influence these parameters in North Creek.

Ruggs Lake, through which Penny Creek flows north of the Project Site, is listed as a Category 5 water for total phosphorus. Penny Creek could be influenced by impaired water coming from Ruggs Lake.

4.2 Analysis of Existing Field Conditions

One wetland was identified on the Project Site (**Appendix D, Sheet W1.0**), while numerous wetlands were identified, but not delineated, on the Mitigation Site (**Appendix D, Sheet W1.1**). Penny Creek is located west of the Project Site and continues south through the Mitigation Site. The wetland was classified according to the rating system and criteria contained in the *Washington State Wetland Rating System for Western Washington* (Hruby 2014). The wetland rating form is included in **Appendix B**.

4.2.1 Wetland A

Wetland A is part of a large wetland complex that begins at 132nd Street SE and continues south to Thomas Lake, with Penny Creek connecting all the wetlands together. Many of the wetland cells that make up this large wetland complex are connected via Penny Creek, as well as culverts through a road/dike system that is located throughout the Mitigation Site. This wetland complex has been subdivided into two different wetland rating units (Wetland Rating Unit 1 and 2) for the purposes of an accurate rating using the *Washington State Wetland Rating System for Western Washington, 2014* ("Wetland Rating System"). Wetland Rating Unit 1 is separated from Wetland Rating Unit 2 at an old vehicle crossing where beavers have constructed a dam (Beaver Dam #1). The high water mark on either side of Beaver Dam #1 is greater than six (6) inches, which qualifies as a break between wetland rating units according to the Wetland Rating System. The boundary of Wetland Rating Unit 1 extends from the delineated edge of Wetland A on Parcel B westward along 132nd Street SE to 35th Avenue SE (Parcel C), then southward from 132nd Street SE to Beaver Dam #1. Wetland Rating Unit 1 also includes Parcel D and the northernmost extent of Parcel J. The on-site area of Wetland A totals approximately 4.1 acres (176,443 sf) of the approximately 17-acre Wetland Rating Unit 1 (**Figure 6**).

The on-site portion of Wetland A is dominated by reed canarygrass (*Phalaris arundinacea*) and Himalayan blackberry (**Photo 2**), while off-site portions include areas

of open water and various native shrubs as well as non-native, invasive vegetation. Additional site photos are provided in **Appendix C**.

Wetland Rating Unit 1 has three hydroperiods as defined by the Wetland Rating System. These are "permanently flooded or inundated", "seasonally flooded or inundated," and "permanently flowing stream." The hydroperiod for the on-site portion of Wetland Rating Unit 1 (Wetland A) is "seasonally flooded or inundated." Areas of saturated conditions occur on-site, but not over enough area to meet the Wetland Rating System threshold given the large size of this wetland[2]. Off-site hydroperiods present include permanently flooded and the presence of a seasonally flowing stream in, or adjacent to, the wetland. Hydrology for Wetland A is supported by precipitation, groundwater levels, and ponding and inundation caused by ongoing beaver activity.

Soils in this wetland area were generally organic soils (saprist to fibrist). Upland soils were generally very dark brown to dark yellowish brown gravelly sandy loam.

Photo 2. Wetland A (typical) view from south property line looking north.

The standard buffer for Wetland A was determined from the rating of Wetland Rating Unit 1 (shown as light green on **Figure 6**). The downstream extent of the Wetland Rating Unit, including Wetland A, for rating purposes, was determined to end at the first beaver dam (Beaver Dam #1) located south of the Project Site (**Figure 6**). The rationale for this determination was outlined in a series of communications with Environmental Science Associates (ESA), the 3rd party reviewer for the City of Mill Creek (**Appendix C**) and personal communications with Amy Yahnke, WDOE (2018). Wetland A scored 7 points for Water Quality Functions, 6 points for Hydrologic Functions, and 7 points for Habitat Functions. The Total Score for Functions was 21. This satisfies the criteria for classification of Wetland A as a Category II wetland per

[2] A hydroperiod type must comprise at least ¼ acre or 10% of the total unit in order to qualify for rating purposes.

MCMC §18.06.930(B). Category II wetlands with High Impact Land Use requires a standard buffer of 200 feet.

4.2.2 Off-Site Critical Areas

4.2.2.1 Penny Creek

Penny Creek is located off-site approximately 400 feet to the west. The stream flows from the north, crossing under 132nd Street SE approximately 300 feet east of the intersection of 132nd Street SE and 35 Avenue SE, and continues south through Thomas Lake (**Figure 6 and Appendix D, Sheet W1.0 and W1.1**). At Thomas Lake, Penny Creek flows in a westerly direction under 35th Avenue SE. It then flows in a southwesterly direction through the Mill Creek Country Club and the Mill Creek Nature Reserve. It flows under Mill Creek Road approximately 530 feet east of the intersection of SR-527 and Mill Creek Road. Penny Creek then flows under SR-527 approximately 300 feet south of the intersection of SR-527 with Mill Creek Road. The stream then flows in a westerly direction for approximately 1,660 feet before connecting to North Creek, approximately three (3) miles downstream of the Project Site.

The segment of Penny Creek immediately west of the Project Site is often significantly flooded because of beaver activity (**Photo 3** below). Additional photos are provided in **Appendix C**.

Penny Creek is identified as a Type F water (fish-bearing). Streams other than North Creek and Tambark Creek in the City of Mill Creek have a 75-foot standard buffer width.

Photo 3. View of Penny Creek southwest of Project Site facing the direction of 1st beaver dam showing the extent of flooding resulting from beaver dams.

4.2.2.2 Off-site Wetlands

Penny Creek flows over a beaver dam near the southwestern corner of Wetland Rating Unit 1 rating unit (Beaver Dam #1 on **Figure 6**). This northern-most beaver dam is the point of separation between wetland rating units for the purpose of an accurate wetland rating within the Mitigation Site as it relates to the Site. The wetlands north of this beaver dam (including the on-site portions of Wetland A) are a single unit, while the remainder of the wetlands south to Thomas Lake are another separate unit for rating purposes. The measured drop in surface water elevation over the beaver dam is greater than six inches, which is sufficient to separate Wetland A (and associated

wetlands) from the remaining off-site wetlands based on the Washington State Wetland Rating System for Western Washington (Hruby 2014).

The off-site wetland is heavily modified from historical conditions due to peat mining, which started in the 1940s and continued through the 1990s. As a result, much of the off-site wetland is an assortment of excavated pits (except for Thomas Lake). The composition of vegetation within the excavated portions of the off-site wetland is in flux at this time due to the actions of beavers on Penny Creek[3].

Historical peat mining operations within the off-site wetland area suggest that the off-site wetland was likely a fen or bog in the past. Indicators of fen or bog (deep organic soils and a predominance of vegetation characteristic of bogs and fens) have long since been removed. The exception is Thomas Lake, itself, which retains sufficient organic soil and vegetation to be classified as a bog[4].

We rated the off-site wetland using the Washington Department of Ecology's Wetland Rating System for Western Washington (Hruby 2014). It scored 8 points for Water Quality Functions, 7 points for Hydrology Functions, and 6 points for Habitat Functions. The Total Score for Functions is 21, which satisfies the criteria for classification as a Category II wetland. However, the presence of bog/fen conditions associated with Thomas Lake would require the off-site wetland to be classified as a Category I wetland based on Special Characteristics. It is possible that Wetland Rating Unit 2 could be separated into smaller wetland rating units for rating purposes using changes in surface water elevation as controlled by beaver dams. Talasaea staff have made only a cursory review of the Wetland Rating Unit 2 area and have not collected sufficient data at this time to provide additional separations of wetland rating units.

The Thomas Lake portion of Wetland Rating Unit 2 is localized to the southern extent of the wetland rating unit. Page 24 through 25 of the Wetland Rating System Manual discuss the possibility for freshwater wetlands containing a bog to be given a dual rating. If the wetland's total score for functions is between 20 and 22 points, the wetland can have a dual rating where the bog portion is classified as Category I and the remainder of the wetland is classified as Category II. We believe that Wetland Rating Unit 2 may very well satisfy these conditions. Category II wetlands in areas of high impact land use have a 200-foot standard buffer. Category I wetlands in areas of high impact land use have a 300-foot standard buffer. It is our contention that the general Thomas Lake area would have the 300-foot Category I standard buffer, while the remainder of the off-site wetland would be protected by the 200-foot Category II standard buffer. Although the off-site wetlands require 200- and 300-foot standard buffers, this entire wetland complex is surrounded by existing developments and

[3] Beavers have built a series of dams on Penny Creek that have filled the excavated areas with water. The previously existing shrub vegetation has mostly been killed by the flooding.

[4] Using a strict definition of bogs and fens, the Thomas Lake wetland more closely resembles a fen. A bog has little to no water leaving it and a majority of its hydrology comes from precipitation. Thomas Lake receives water from Penny Creek and has an identifiable outlet for water. However, the Washington State Wetland Rating System for Western Washington specifically lumps bogs and fens together for rating purposes and uses the term "bog" generically to describe either wetland type.

infrastructure; therefore, the standard buffers required by the rating system cannot be attained.

4.3 Current Buffer Conditions for Wetland A

The existing Wetland A buffer is heavily degraded and provides little ecological function or value. The buffer is dominated by reed canarygrass and Himalayan blackberry, and there are few native species present. Additionally, the site has historically been managed as a farm, indicating disturbed soils and little opportunity for local fauna.

4.4 Wildlife Habitat

The potential for wildlife habitat on the Site is limited due to its relative lack of diversity in vegetation. The Site has been managed for several decades as a livestock ranch (buffaloes) and, as such, is predominantly vegetated with typical pasture grasses. There is a general lack of native woody vegetation over a majority of the site. Currently, portions of the northern, eastern, and northwestern portions of the Site have relatively heavy infestations of non-native blackberry. Native shrubs and non-native blackberry are currently found in the central western portion of the Site. The native shrubs consist predominantly of red elderberry (*Sambucus racemosa*). However, current levels of flooding caused by beaver activity in Penny Creek appear to be killing the red elderberry and blackberry. New, more wetland-tolerant woody vegetation has not yet begun to colonize the beaver-flooded areas.

The pasture area provides habitat for small mammals, such as field mice and voles. Blackberry thickets and abandoned buildings likely provide habitat for larger rodents. In turn, the resident population of rodents will provide foraging opportunities for coyote, bobcat, and birds of prey. The seasonally flooded wetland area on-site may provide some foraging habitat for various amphibians, but not likely any breeding habitat on-site. The off-site portion of the wetland is anticipated to provide breeding habitat for amphibians where more persistent ponding occurs.

CHAPTER 5. REGULATORY REVIEW

5.1 City of Mill Creek Environmentally Critical Areas

The Project is subject to all applicable critical area regulations set forth in MCMC Chapter 18.06 which governs *Environmentally Critical Areas*.

Chapter 18.06.150.A states:

"Any action taken pursuant to this chapter shall result in equivalent or greater functions and values of the critical areas associated with the proposed action, as determined by the best available science. All actions and developments shall be designed and constructed to avoid and/or minimize all adverse impacts. Applicants must first demonstrate the inability to avoid or minimize impacts before restoration and compensation of impacts will be allowed. No activity or use shall be allowed that results in a net loss of the functions or values of critical areas within the city and its UGA." Additionally, Chapter 18.06.530.B.6 requires that a critical areas report provide "[a]n analysis of site development alternatives and measures taken to avoid and minimize critical area impacts."

Wetland buffers are determined based upon the results of a rating that uses the Washington State Wetland Rating System for Western Washington (2014). Buffers may be increased for wetlands depending on Habitat Score (i.e., wetlands with higher habitat scores will have larger protective buffers). Specific buffer width requirements are provided by MCMC §18.06.930.

A summary of critical areas on and within 300 feet of the Project Site is provided in **Table 2** below. The ratings for wetlands and streams potentially affecting the development of the Site were determined using guidance from MCMC § 18.06.930 and §18.06.1050, respectively. The buffer widths provided in **Table 2** below reflect a high impact land use (HILU).

Table 2. Critical Areas Summary

Critical Area	Cowardin Class	Category	Standard Buffer
Wetland A (4.1-ac on-site)	Palustrine Emergent	Category II	200 feet[1]
Wetland A/Wetland Rating Unit 1 (8-ac off-site)	Palustrine Scrub-Shrub	Category II	200 feet[1]
Wetland Rating Unit 2 (off-site)	Palustrine Forested/ Scrub-Shrub/ Unconsolidated Bottom	Category I/II	300/200 feet[2]
Penny Creek	N/A	Type F	75 feet[3]

[1] High impact land use buffer.
[2] The off-site wetland also contains a bog/fen HGM class. A split rating is possible on this wetland. The buffer widths reflected are for a HILU and a Low Intensity Land Use, respectively.
[3] Stream buffer requirements per MCMC §18.06.1050.

5.2 State and Federal Regulations

Wetlands are subject to applicable State and Federal regulations. Wetland impacts are regulated at the Federal level by Sections 404 and 401 of the Clean Water Act (United States 1974, 33 U.S.C. 1251 *et seq*.:26). The U.S. Army Corps of Engineers (Corps) is responsible for administering compliance with Section 404 via the issuance of Nationwide or Individual Permits for any fill or dredging activities within wetlands under Corps jurisdiction. A project that is subject to Section 404 permitting is also required to comply with Section 401 Water Quality Certification, which is administered by the Washington Department of Ecology (WDOE). No dredging or filling of wetlands is proposed for the current site development plan. Therefore, the project will not need to apply for any Section 404 Nationwide or Individual Permits, or Section 401 Water Quality Certification.

CHAPTER 6. SUMMARY

The Farm at Mill Creek Project Site is approximately 17.4 acres in size and is dominated by invasive grasses and shrubs. The site contains one wetland (Wetland A) that extends off-site to the west. Wetland A rated as a Category II wetland, which requires a standard 200-foot buffer for High Impact Land Uses per MCMC §18.06.930. The Mitigation Site encompasses the off-site areas to the west and south that are included within the Mitigation Plan. A series of wetlands extends from the Site south to Thomas Lake through which Penny Creek flows. Buffers for these features do not extend onto the Site.

CHAPTER 7. REFERENCES

"City of Mill Creek Comprehensive Plan." 2015. City of Mill Creek.

Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. LaRoe. 1979. "Classification of Wetlands and Deepwater Habitats of the United States." In *Department of the Interior, Fish and Wildlife Service*. Washington, DC.

Hitchcock, C. Leo, Arthur Cronquist, Marion Owensby, and J. W. Thompson. 1969. *Vascular Plants of the Pacific Northwest*. Seattle: University of Washington Press.

Hruby, T. 2014. "Washington State Wetland Rating System for Western Washington. 2014 Update." Publication No. 14-06-029. Washington: Shorelines and Environmental Assistance Program. Washington Department of Ecology.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N. C. Melvin. 2016. "The National Wetland Plant List: 2016 Wetland Ratings." *Phytoneuron* 2016: 1–17.

United States. 1974. *Chapter 26 - Water Pollution Prevention and Control*. Vol. 33 U.S.C. 1251 et seq.

U.S. Army Corps of Engineers. 2010. "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Regions." ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

FIGURES

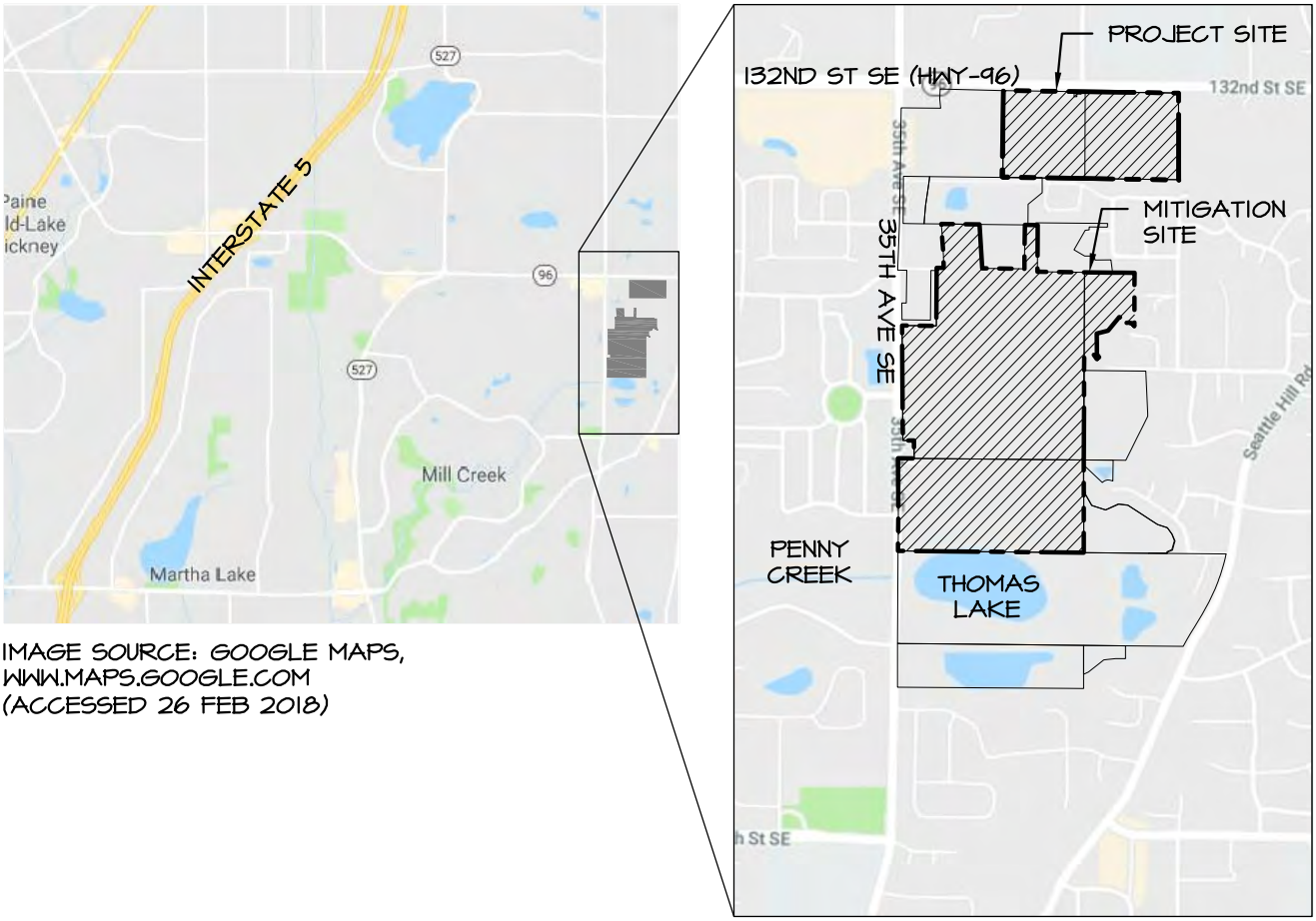

IMAGE SOURCE: GOOGLE MAPS,
WWW.MAPS.GOOGLE.COM
(ACCESSED 26 FEB 2018)

DRIVING DIRECTIONS:

1. FROM SEATTLE, BEGIN ROUTE TRAVELING NORTH ON INTERSTATE 5 (I-5)
2. TAKE EXIT 186 FOR WA-96E/128TH ST SW.
3. USE THE RIGHT TWO LANES TO TURN RIGHT ON TO 128TH STREET SE.
4. ROAD CONTINUES ONTO 132ND STREET SE
5. ARRIVE AT DESTINATION (ON THE RIGHT)

APPROXIMATE DESTINATION ADDRESS:
3900 132ND STREET SE
MILL CREEK, WA 98012

47.876955, -122.179470

NORTH

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
15020 Bear Creek Road Northeast
Woodinville, Washington 98077
Bus (425)861-7550 – Fax (425)861-7549

FIGURE #1

VICINTY MAP & DRIVING DIRECTIONS
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW/FH	726C
SCALE	NTS	
DATE	12-21-2018	
REVISED		

1

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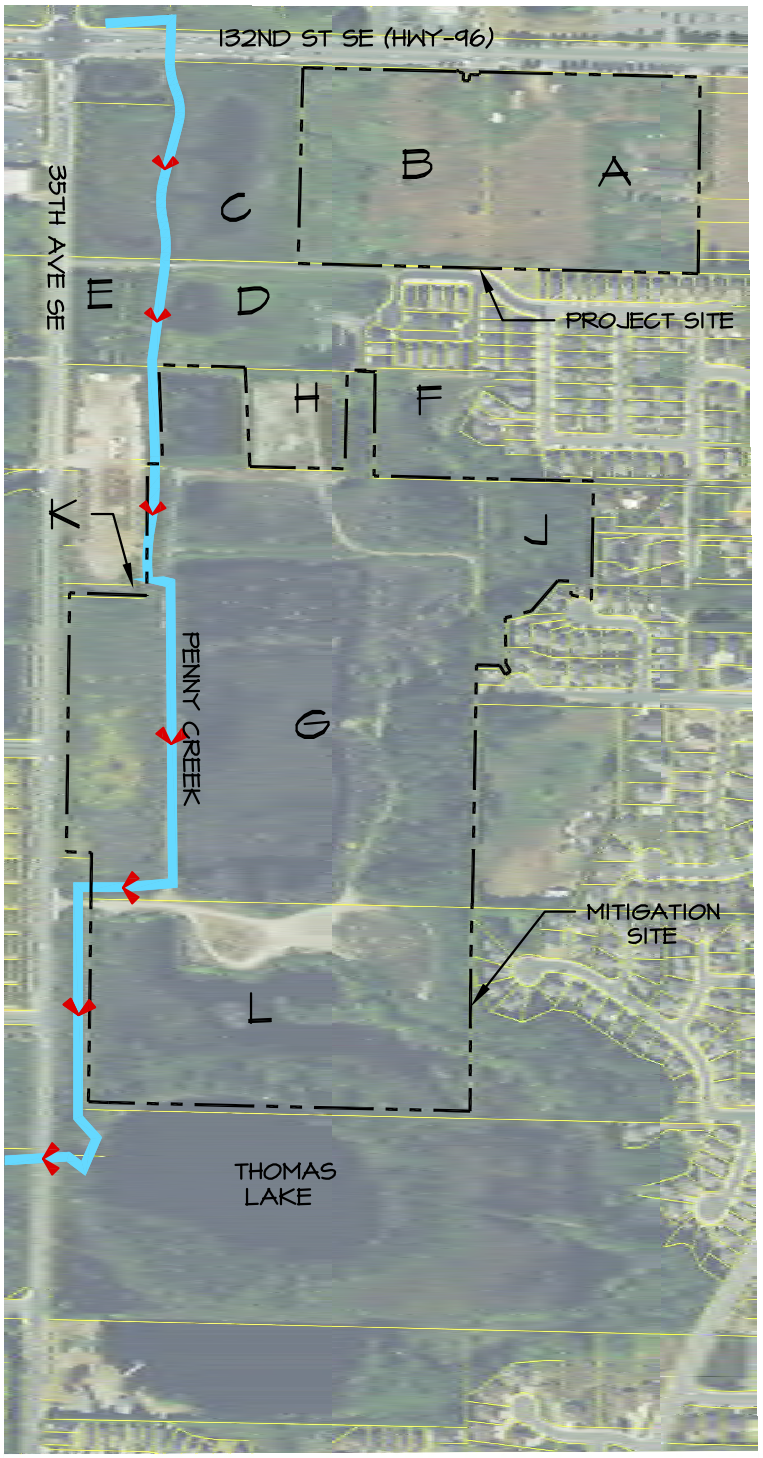
PARCEL INFORMATION	
INDEX	PARCEL NUMBER
A	28053300200200
B	28053300200300
C	28053300204000
D	01135400099100
E	01135400002600
F	01135400099000
G	28053300206800
H	28053300206700
J	NA
K	28053300206900
L	28053300300200



GRAPHIC SCALE
(IN FEET)

0 300 600 1200

SCALE: 1" = 600'

NORTH

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FIGURE #2

PARCEL MAP
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW/FH	726C
SCALE	AS SHOWN	
DATE	12-21-2018	2
REVISED		

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LEGEND

TYPE	DESCRIPTION
PEMICd	PALUSTRINE EMERGENT PERSISTENT, SEASONALLY FLOODED, PARTIALLY DRAINED DITCHED
PEMICx	PALUSTRINE EMERGENT PERSISTENT, SEASONALLY FLOODED, EXCAVATED
PEMIF	PALUSTRINE EMERGENT PERSISTENT, SEMIPERMANENTLY FLOODED
PEMIFd	PALUSTRINE EMERGENT PERSISTENT, SEMIPERMANENTLY FLOODED, PARTIALLY DRAINED DITCHED
PEMIFx	PALUSTRINE EMERGENT PERSISTENT, SEMIPERMANENTLY FLOODED, EXCAVATED
PFOA	PALUSTRINE FORESTED, TEMPORARY FLOODED
PSSC	PALUSTRINE SCRUB-SHRUB, SEASONALLY FLOODED
PSSCd	PALUSTRINE SCRUB-SHRUB, SEASONALLY FLOODED, PARTIALLY DRAINED DITCHED
PUBH	PALUSTRINE UNCONSOLIDATED BOTTOM, PERMANENTLY FLOODED
PUBHx	PALUSTRINE UNCONSOLIDATED BOTTOM, EXCAVATED
R4SBC	RIVERINE INTERMITTENT STREAMBED, SEASONALLY FLOODED

SOURCE: U.S. FISH AND WILDLIFE SERVICE, (JAN 2015). NATIONAL WETLANDS INVENTORY WEBSITE, U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, WASHINGTON D.C.
http://www.fws.gov/wetlands/data/wetland-codes.html
PHOTO INTERPRETATION DATE (S): 07-1973, 07-1981
(ACCESSED: 02-26-2018)

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FIGURE #3

NATIONAL WETLANDS INVENTORY
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW/FH	726C

SCALE NTS
DATE 12-21-2018
REVISED

3

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LEGEND

TYPE	DESCRIPTION, SLOPES
1	ALDERWOOD GRAVELLY SANDY LOAM, 0 TO 8 PERCENT SLOPES
17	EVERETT VERY GRAVELLY SANDY LOAM, 0 TO 8 PERCENT SLOPES
34	MUKILTEO MUCK
69	TERRIC MEDISAPRISTS, NEARLY LEVEL
83	WATER

SOURCE: SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE, WEB SOIL SURVEY. AVAILABLE ONLINE AT http://websoilsurvey.nrcs.usda.gov/. ACCESSED (2/27/2018).

GRAPHIC SCALE
(IN FEET)

0 300 600 1200

SCALE: 1" = 600'

NORTH

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
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FIGURE #4

NRCS SOILS MAP
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW/FH	726C
SCALE	AS SHOWN	
DATE	12-21-2018	4
REVISED		

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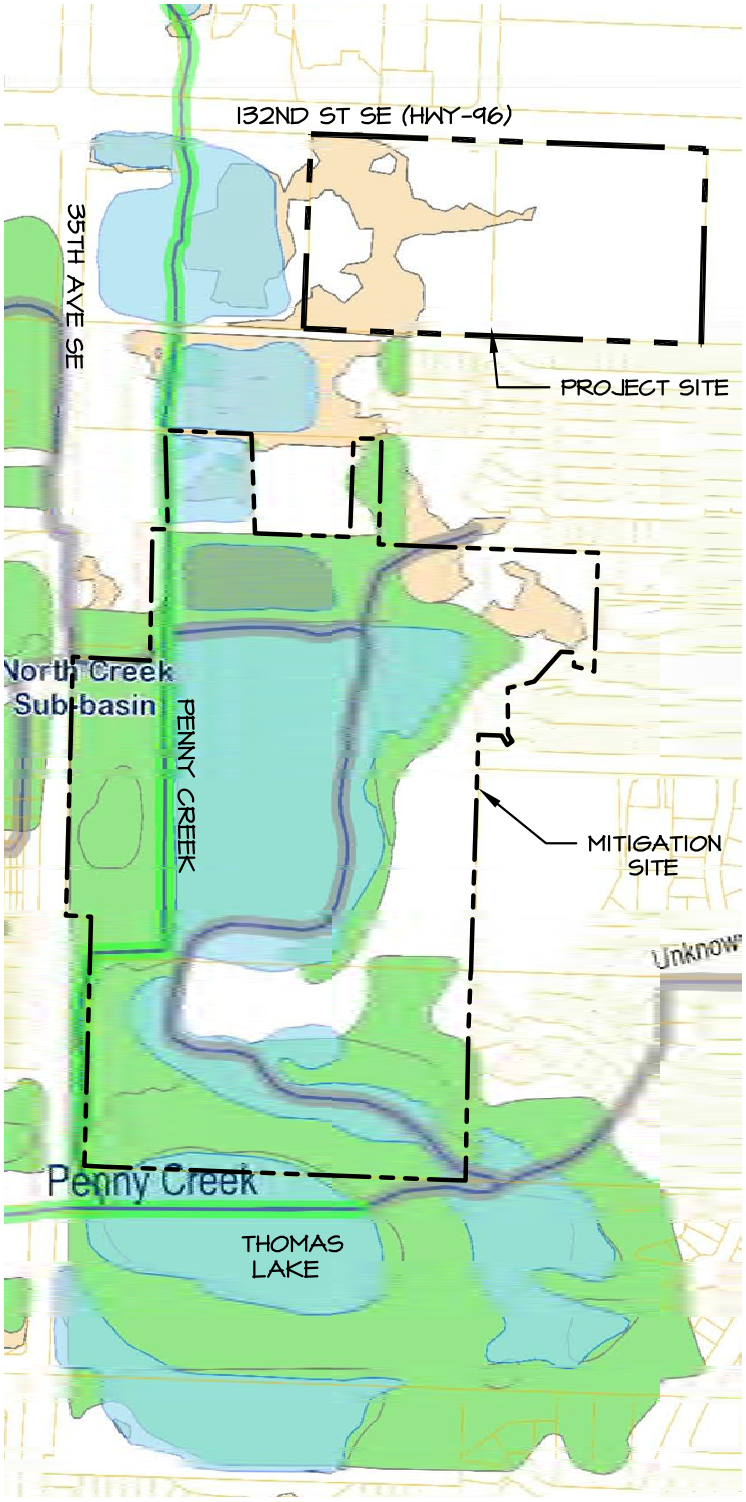
LEGEND

- Snohomish County Streams
  - Shoreline of Statewide Significance
  - Fish Habitat
  - Non-fish Habitat Perennial
  - Non-fish Habitat Seasonal
  - Unknown, Untyped
- Snohomish County Water Bodies
  - Shoreline of Statewide Significance
  - Fish Habitat
  - Non-fish Habitat Perennial
  - Non-fish Habitat Seasonal
  - Unknown, Untyped
- Subbasins
- Planning Development and Services Wetland Inventory
- Remote Sensing-based Wetland Model



GRAPHIC SCALE
(IN FEET)

0 300 600 1200

SCALE: 1" = 600'

NORTH

SOURCE: SNOHOMISH COUNTY PDS MAP PORTAL
HTTP://GISMAPS.SNOCO.ORG (ACCESSED 2-26-2018)

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Resource & Environmental Planning
15020 Bear Creek Road Northeast
Woodinville, Washington 98077
Bus (425)861-7550 – Fax (425)861-7549

FIGURE #5

SNOCO GIS DATABASE MAP
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

DESIGN	DRAWN	PROJECT
	MW/FH	726C

SCALE: AS SHOWN

DATE: 12-21-2018

REVISED

5

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APPENDIX A

Wetland Delineation Data Sheets, *US Army Corps of Engineers* (2010), Talasaea Consultants, 2017

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

Project/Site: TAL-726C City/County: Mill Creek Sampling Date: 3 April 2017

Applicant/Owner: Roger Sortino State: WA Sampling Point: A1

Investigator(s): DRT Section, Township, Range: Section 22, T28N, R5E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1-5

Subregion (LRR): A Lat: 47.8767 Long: -122.1812 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam 2 - 8 percent NWI classification:

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: Patterns of precipitation were wetter than normal for the month of March 2017. TP-A1 approximately 15 ft north of Flag A-6. Hydrology is present mostly due to excessive rain in previous month. Soils are decidedly not hydric and vegetation inconclusive.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. *Grasses*	80	Yes	FAC
2. *Holcus lanatus*	10	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 15 ft)			
1. *None*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 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: Site is vegetated with various pasture grasses that were unidentifiable at the time of our site work. Grasses had no residual seed heads.

SOIL

Sampling Point: A1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/2	100					SL	
7-10	10YR 2/2	100					GSL	
10-16	10YR 4/3	50					SL	Contains organic material
	10YR 3/3	50					SL	Contains organic material

[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 ☒

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 Stressed Plants (D1)(**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 11

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 5

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: TAL-726C City/County: Mill Creek Sampling Date: 3 April 2017

Applicant/Owner: Roger Sortino State: WA Sampling Point: A2

Investigator(s): DRT Section, Township, Range: Section 22, T28N, R5E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1-5

Subregion (LRR): A Lat: 47.8767 Long: -122.1812 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam 2 - 8 percent NWI classification:

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 ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: Patterns of precipitation were wetter than normal for the month of March 2017. TP-A2 approximately 4 feet south of A-6.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *None*			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. *Grasses*	70	Yes	FAC
2. *Juncus effusus*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 15 ft)			
1. *None*			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 30	x 2 = 60
FAC species 70	x 3 = 210
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 100 (A)	270 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ 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:

SOIL

Sampling Point: A2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Saprist	
10"+	10YR 4/4	100					Fibrist	

[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 ☐

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 Stressed Plants (D1)(**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

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: TAL-726C City/County: Mill Creek Sampling Date: 3 April 2017

Applicant/Owner: Roger Sortino State: WA Sampling Point: A3

Investigator(s): DRT Section, Township, Range: Section 22, T28N, R5E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1-5

Subregion (LRR): A Lat: 47.8767 Long: -122.1812 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam 2 - 8 percent NWI classification:

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 ☒ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: Patterns of precipitation were wetter than normal for the month of March 2017. TP-A3 is approximately 12 feet NE of A-18.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. *Grasses*	40	Yes	FAC
2. *Cirsium arvense*	10	No	FAC
3. *Ranunculus repens*	10	No	FAC
4. *Cirsium vulgare*	10	No	FACU
5. *Galium aparine*	2	No	FACU
6.			
7.			
8.			
	72 = Total Cover		
Woody Vine Stratum (Plot size: 15 ft)			
1. *None*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 0	x 2 = 0
FAC species 60	x 3 = 180
FACU species 12	x 4 = 48
UPL species 0	x 5 = 0
Column Totals: 72 (A)	228 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 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:

SOIL

Sampling Point: A3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					GSL	
8-20	10YR 4/4	60	10YR 4/3	40	C	M	GSL	

[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 ☒

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 Stressed Plants (D1)(**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 14

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 11

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: TAL-726C City/County: Mill Creek Sampling Date: 3 April 2017

Applicant/Owner: Roger Sortino State: WA Sampling Point: A4

Investigator(s): DRT Section, Township, Range: Section 22, T28N, R5E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1-5

Subregion (LRR): A Lat: 47.8767 Long: -122.1812 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam 2 - 8 percent NWI classification:

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 ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: Patterns of precipitation were wetter than normal for the month of March 2017. TP-A4 is approximately 3 feet WSW of A-18

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *None*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. *Grasses*	80	Yes	FAC
2. *Ranunculus repens*	10	No	FAC
3. *Phalaris arundinacea*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15 ft)			
1. *None*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 10	x 2 = 20
FAC species 90	x 3 = 270
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 100 (A)	290 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 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:

SOIL

Sampling Point: A4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100					Saprist	
18"+	7.5YR 4/4	100					Fibrist	

[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 ☐

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 Stressed Plants (D1)(**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 20"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 8"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

APPENDIX B

Wetland Rating Forms, *Washington State Department of Ecology Wetland Rating System for Western Washington* (2014), Talasaea Consultants, 2018

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL-726C Wetland A Date of site visit: 3 May 2016
Rated by DRT Trained by Ecology? ☒ Yes ☐ No Date of training 10-15
HGM Class used for rating Depressional Wetland has multiple HGM classes? ☐ Y ☒ N

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

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

1. Category of wetland based on FUNCTIONS

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

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

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	7

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

HGM Classification of Wetlands in Western Washington

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

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

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

☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe** – go to 1.1

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

☐ **NO – Saltwater Tidal Fringe (Estuarine)** ☐ **YES – Freshwater Tidal Fringe**

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

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

☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

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

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

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

☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

☐ The wetland is on a slope (*slope can be very gradual*),

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks, ____The water leaves the wetland **without being impounded**.

☒ NO – go to 5 ☐ **YES –** The wetland class is **Slope**

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

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

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number A

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

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

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

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

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

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

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

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

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

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

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	1
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions).* Yes = 4 No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *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	2
Total for D 1 Add the points in the boxes above	10

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

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

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

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	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	3

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

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

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

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

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

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

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

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

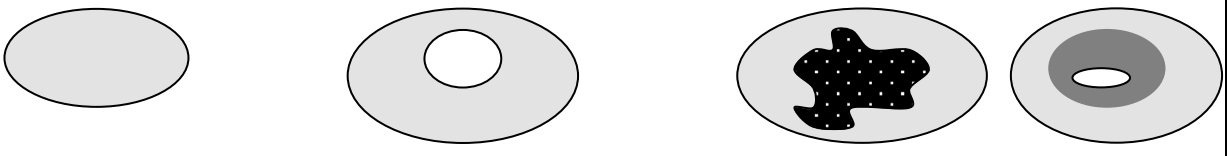
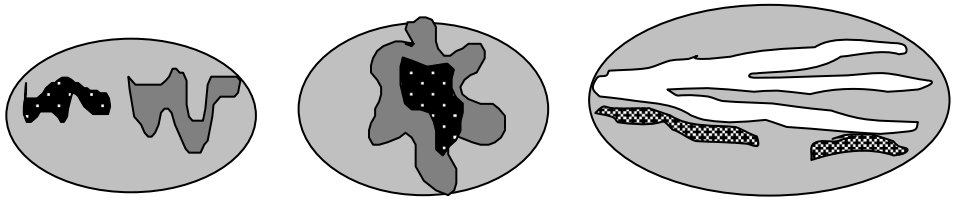
Rating of Landscape Potential If score is: ☒ **3 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

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

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 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	1
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	2
Total for D 6 Add the points in the boxes above	3

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

Wetland name or number A

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☒ Aquatic bed — 4 structures or more: points = 4 ☒ Emergent — 3 structures: points = 2 ☒ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☒ Permanently flooded or inundated — 4 or more types present: points = 3 ☒ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☒ Saturated only — 1 type present: points = 0 ☒ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	3
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	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points **Low** = 1 point **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	3

Wetland name or number A

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.* ☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ☒ 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)* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 Add the points in the boxes above	15

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

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

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 1 **+** [(% moderate and low intensity land uses)/2] 1 **= 2%** 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	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 16 **+** [(% moderate and low intensity land uses)/2] 1 **= 17%** 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	1
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	-2
Total for H 2 Add the points in the boxes above	-1

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

Wetland name or number A

WDFW Priority Habitats

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

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

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

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

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

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

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

☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *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**	No
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 unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	No
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**	No
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**	No

Wetland name or number A

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). ☐ Yes **= Category I** ☒ No **= Not a forested wetland for this section**	No
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 unmowed grassland. ☐ The wetland is larger than $^1/_{10}$ ac (4350 ft^2) ☐ Yes = **Category I** ☐ No = **Category II**	No
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**	No
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

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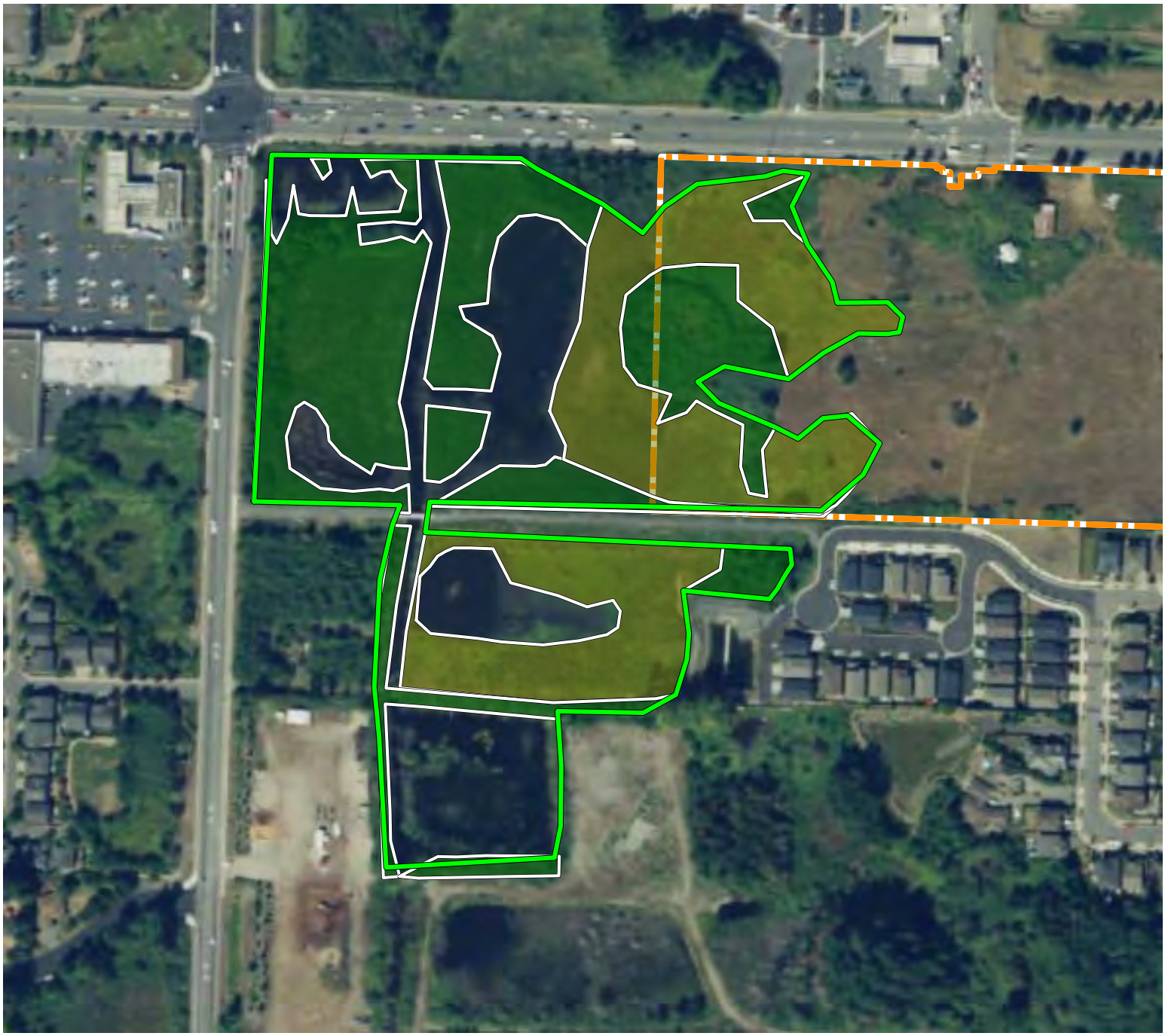

Reference: GIS parcel data from Snohomish County, 2016. Aerial image May 2017 from Google Earth Pro.

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FIGURE B1

COWARDIN PLANT CLASSES
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

DESIGN	DRAWN	PROJECT
	DRT	726C

SCALE 1 in : 250 ft

DATE 16 MARCH 2018

REVISED

B1

N

LEGEND

- Permanently Flooded or Inundated
- Seasonally Flooded or Inundated
- Saturated Only
- Permanently Flowing Stream

Reference: GIS parcel data from Snohomish County, 2016. Aerial image May 2017 from Google Earth Pro.

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FIGURE B2

HYDROPERIODS AND FLOW DIRECTION
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

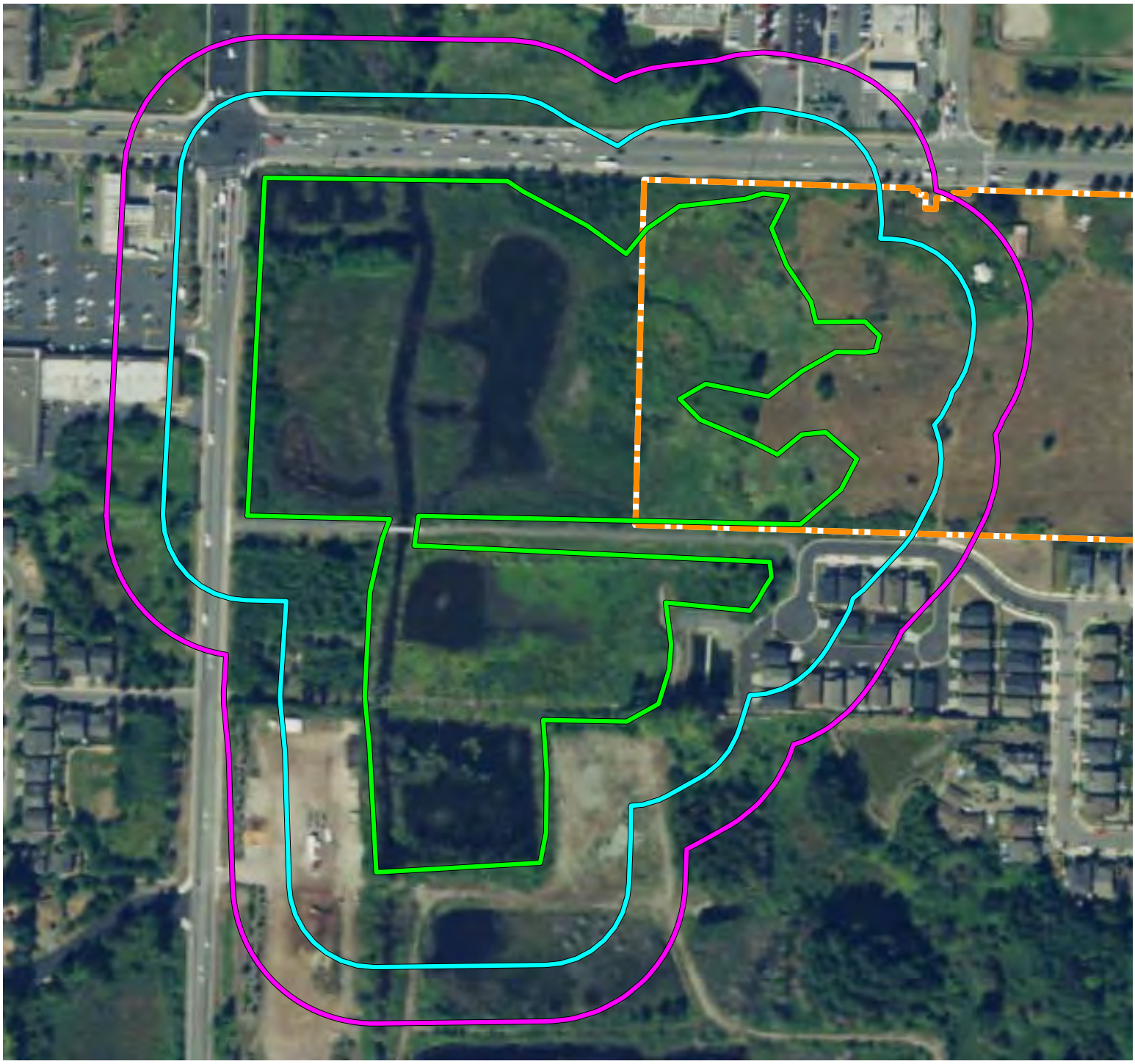
DESIGN	DRAWN	PROJECT
	DRT	726C

SCALE 1 in : 250 ft

DATE 16 MARCH 2018

REVISED

B2



N

LEGEND
Wetland A Unit
Area within 150 Feet
Area within 250 Feet

Reference: GIS parcel data from Snohomish County, 2016. Aerial image May 2017 from Google Earth Pro.

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FIGURE B3

ADJACENT AREA FIGURE
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

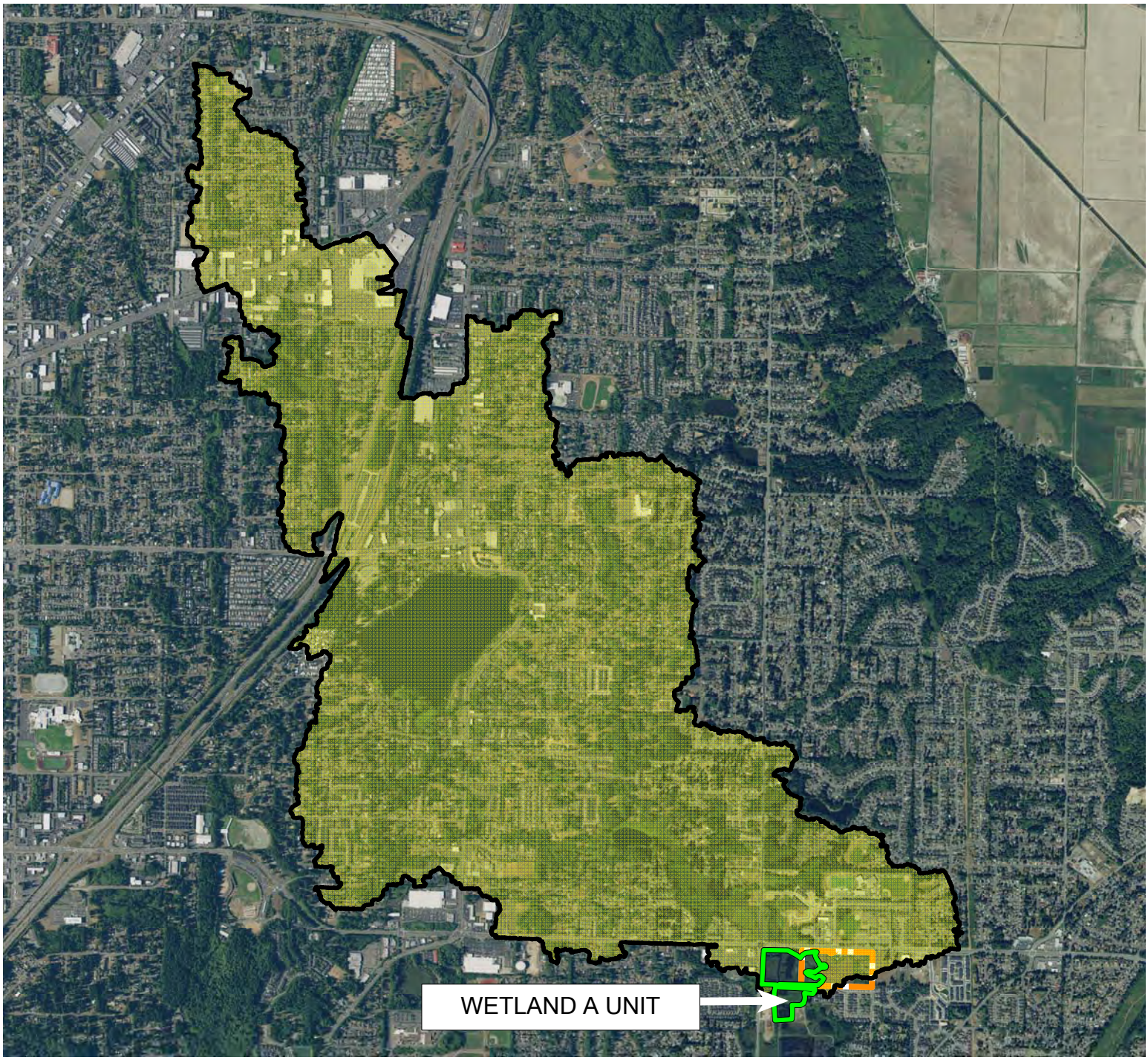
DESIGN	DRAWN	PROJECT
	DRT	726C

SCALE 1 in : 250 ft

DATE 16 MARCH 2018

REVISED

B3



Reference: GIS parcel data from Snohomish County, 2016. Aerial image 2015 from NAIP. Contributing basin for the Wetland A unit determined by using a GIS watershed function on LIDAR data. LIDAR data 2006 downloaded from the Puget Sound LIDAR Consortium

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FIGURE B4

CONTRIBUTING BASIN FOR WETLAND A UNIT
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

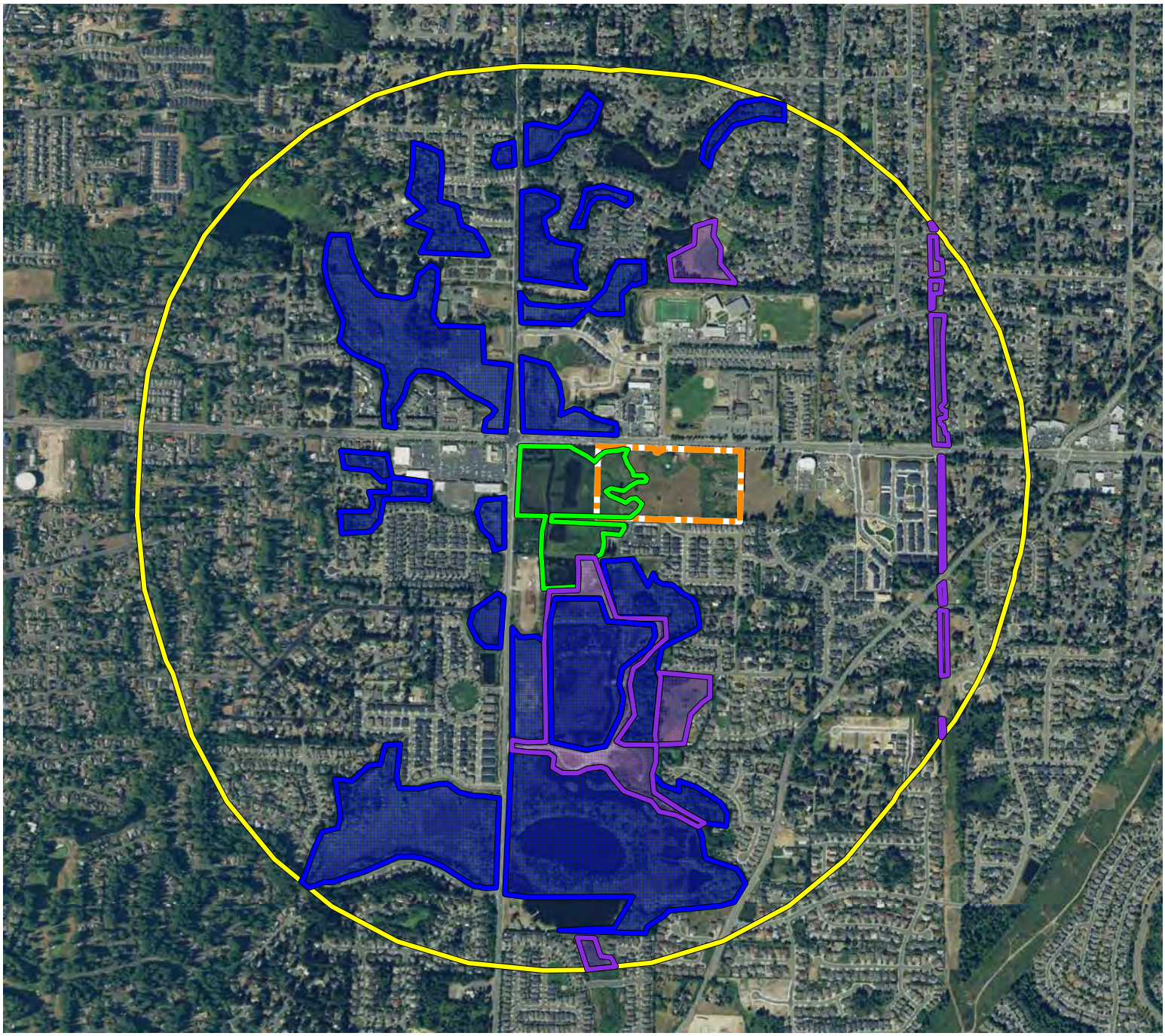
DESIGN	DRAWN	PROJECT
	DRT	726C

SCALE 1 in : 2500 ft

DATE 16 MARCH 2018

REVISED

B4



Habitat within 1km Assessment:
Area of 1km Polygon = 47,721,727sf
Area of Undisturbed Habitat = 7,639,450sf : 16%
Area of Moderate Land Use Intensity (÷ 2) = 1,256,807sf : 1%

N

LEGEND

- Wetland A Unit
- 1km Around Wetland A Unit
- Undisturbed Habitat
- Moderate Land Use Intensity

Reference: GIS data from Snohomish County, 2016. Aerial Image 2015 from NAIP.

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FIGURE B5

LAND USE INTENSITY WITHIN 1km
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

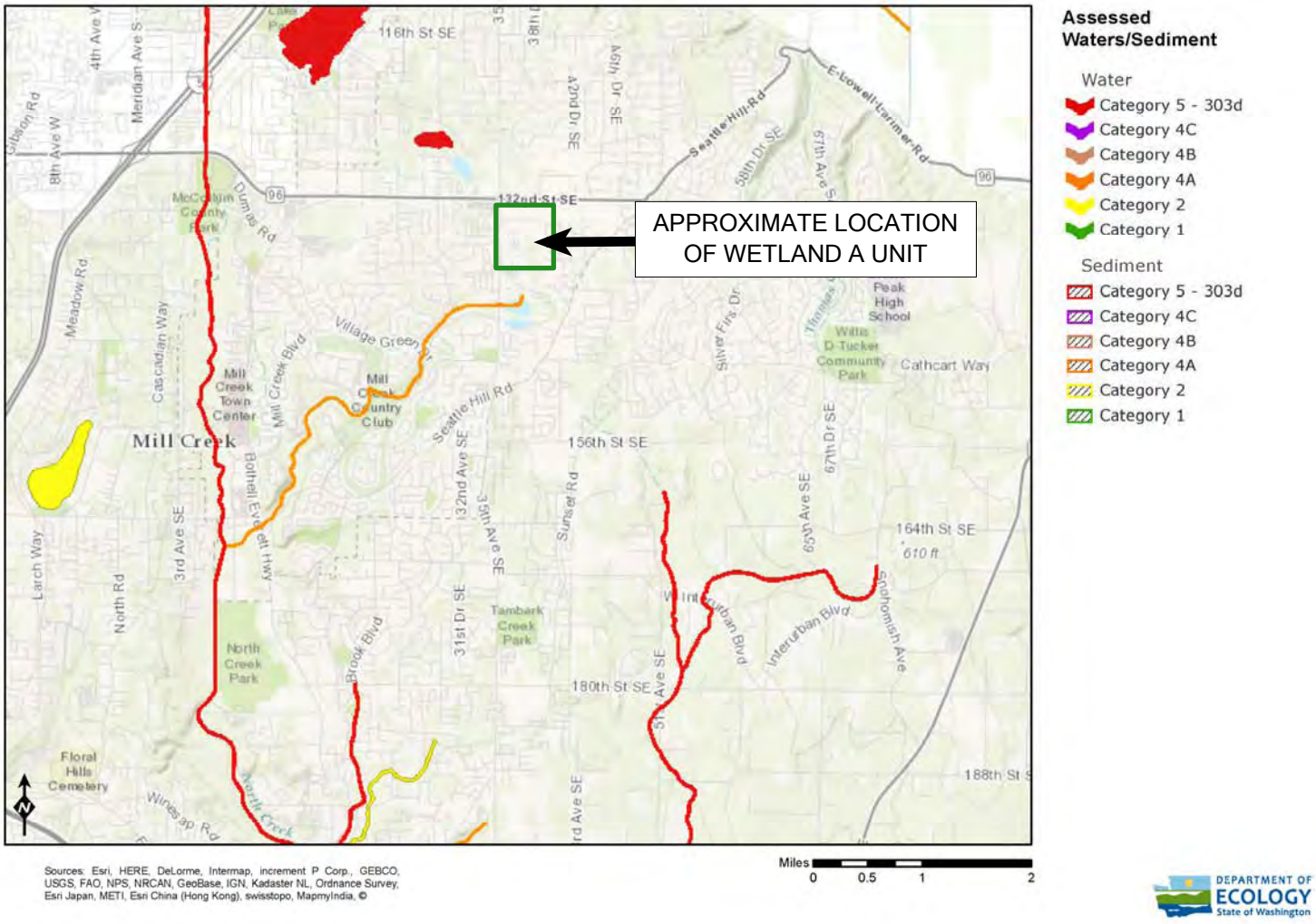
DESIGN	DRAWN	PROJECT
	DRT	726C

SCALE 1 in : 1250 ft
DATE 16 MARCH 2018
REVISED

B5

October 19, 2017

303(d) Map for Penny Creek



DEPARTMENT OF ECOLOGY
State of Washington

N

Reference: 303(d) map from WDOE Water Quality Atlas mapping program, 2017.

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FIGURE B6

303(d) MAP SCREEN CAPTURE
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

DESIGN	DRAWN	PROJECT
	DRT	726C

SCALE N.T.S.

DATE 16 MARCH 2018

REVISED

B6

WASHINGTON STATE DEPARTMENT OF ECOLOGY

North Creek Fecal Coliform Total Maximum Daily Load

Submittal Report

June 2002
Publication Number 02-10-020
Printed on Recycled Paper

Reference: Title Page of North Creek TDML for Fecal Coliform downloaded from WDOE, 2017.

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FIGURE B7

NORTH CREEK FECAL COLIFORM
TMDL TITLE PAGE
THE FARM AT MILL CREEK
MILL CREEK, WASHINGTON

DESIGN	DRAWN	PROJECT
	DRT	726C
SCALE	N.T.S.	
DATE	16 MARCH 2018	B7
REVISED		

APPENDIX C

Photodocument, Talasaea Consultants, 2018

The following photos were taken between 2014 and 2018 by Talasaea staff with the intention of helping reviewers of the Critical Areas Report become familiar with the existing conditions on-site, as well as the observed flooding in the Penny Creek watershed.

Existing Conditions On-Site

Photo 1. From the middle of the property, facing west toward Wetland A (30 September 2016).

Photo 2. Existing structures on-site surrounded by Himalayan blackberry (24 January 2018).

Existing Conditions Off-Site

Photo 3. Flooding in property south of Project Site (7 May 2015). The aluminum footbridge is on the left side of this photo. Photo is viewing west.

Photo 4. Flooding in property south of the Project Site (15 November 2016). Photo is viewing south.

Photo 5. Panorama photo of flooding north of the aluminum footbridge (6 March 2018).

Photo 6. Panorama photo of flooding south of the aluminum footbridge (6 March 2018)

Photo 7. Flooding near stormwater pond for Creekside Estates. Photo was taken on the western berm of stormwater pond and is viewing north-northwest (6 March 2018).

Photo 8. Creekside Estates stormwater pond (6 March 2018).

Tanaka Pond

Photo 9. Tanaka Pond, located northwest of the Project Site (20 July 2017).

Thomas Lake

Photo 10. Flooding in Thomas Lake, located approximately 0.5 miles south of the Project Site (13 December 2017). Photo is viewing south.

Photo 11. Flooding to the north of Thomas Lake (13 December 2017). Photo is viewing west.

APPENDIX D

Conceptual Mitigation Plan Sheets

W1.0. Existing Conditions Plan – Project Site
W1.1. Existing Conditions Plan – Mitigation Site

NW & SW ¼ OF SECT. 33, TWNSHP. 28 N, RNGE. 5 E, W.M.

EXISTING CONDITIONS PLAN - PROJECT SITE

GRAPHIC SCALE (IN FEET)
0 30 60 120
SCALE: 1"=60'

NORTH

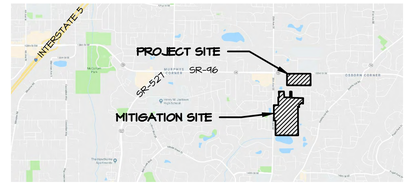
PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND
- APPROXIMATED WETLAND BOUNDARY (NOT SURVEYED)
- WETLAND BUFFER
- EXISTING CONTOUR
- ▲# WETLAND FLAG LOCATION*
- ●TP-# SOIL TEST PLOT LOCATION
- EXISTING TREES

* WETLAND A FLAGS FIELD VERIFIED BY ESA (1/20/2017). SURVEY BY LDC INC. (1/25/2018).

VICINITY MAP

NTS



SOURCE: GOOGLE MAPS; WWW.MAPS.GOOGLE.COM (ACCESSED 7/30/2018)

NORTH

CONTACTS

APPLICANT/OWNER
NAME: VINTAGE HOUSING DEVELOPMENT, LLC
ADDRESS: 369 SAN MIGUEL DRIVE, SUITE 135 NEWPORT BEACH, CALIFORNIA 92660
CONTACT: RYAN PATTERSON

ENGINEER/SURVEYOR
NAME: LDC, INC.
ADDRESS: 20210 142ND AVE NE WOODINVILLE, WA 98072
PHONE: (425) 806-1869
CONTACT: TOM ABBOTT SR., LG, LHG

ENVIRONMENTAL CONSULTANT
NAME: TALASAEA CONSULTANTS, INC.
ADDRESS: 15020 BEAR CREEK RD. NE WOODINVILLE, WA 98077
PHONE: (425) 861-7550
CONTACT: ANN OLSEN, RLA, SENIOR PROJECT MANAGAER
JENNIFER MARRIOTT PWS, SENIOR ECOLOGIST

SHEET INDEX

NOT FOR CONSTRUCTION

THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:

SUBJECT TO REVISION

811 Know what's below. Call before you dig.

NOTES

1. SURVEY & SITE PLAN FOR PROJECT SITE PROVIDED BY LDC, INC., 20210 142ND AVE NE WOODINVILLE, WA 98072, (425) 806-1869.
2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN OCTOBER 2018.

NOTE: EXISTING CONDITIONS FEATURES ON MITIGATION SITE WERE NOT SURVEYED. TOPOGRAPHY WAS ESTIMATED BY LIDAR AND PARCEL BOUNDARIES SOURCED FROM GIS DATA.

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CONCEPTUAL CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - PROJECT SITE
THE FARM
MILL CREEK, WASHINGTON

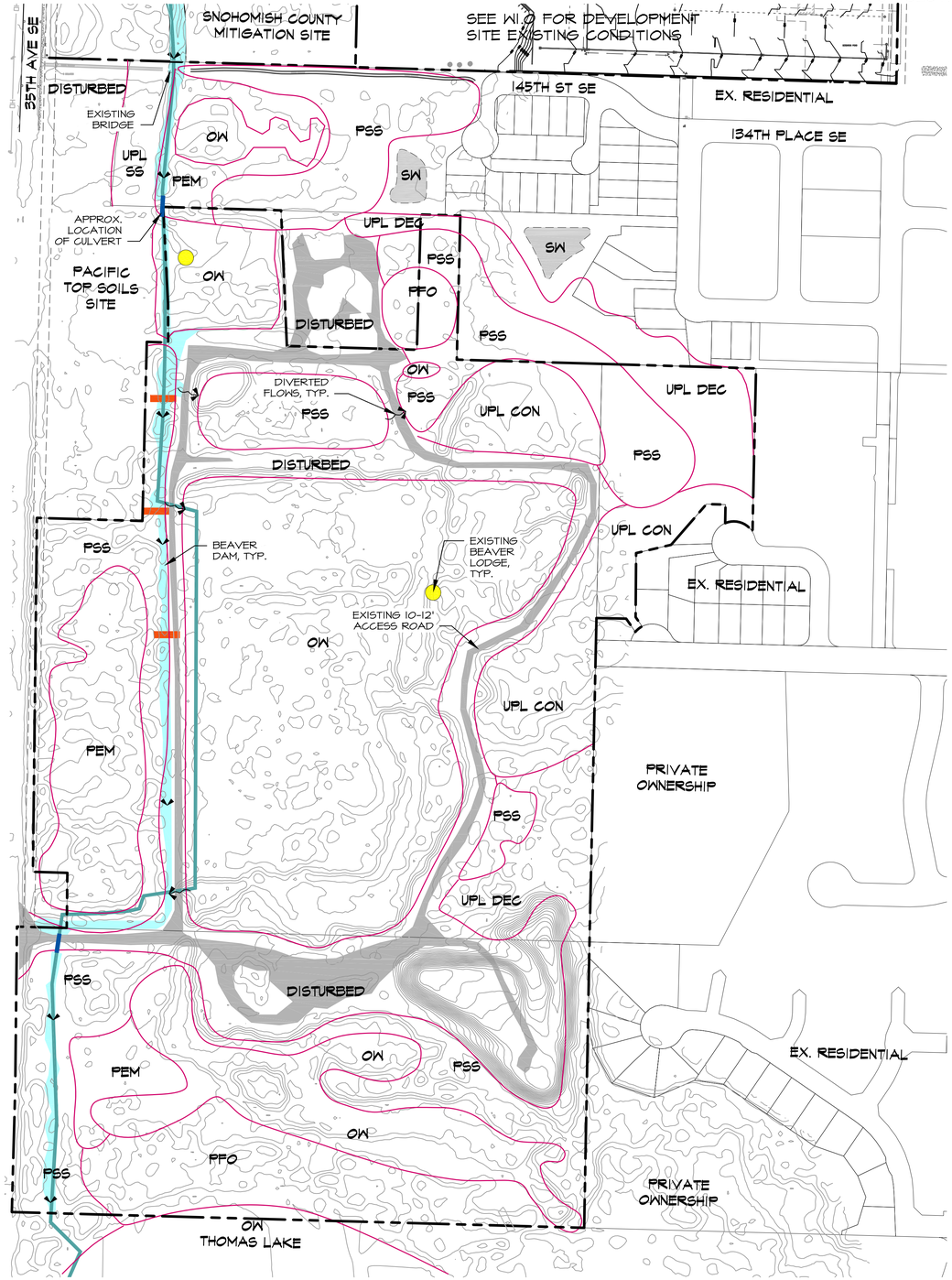
Revisions	Date	By
TAL EDITS	10-18-2018	ABS
CITY & DOE COMMENTS	12-21-2018	MW

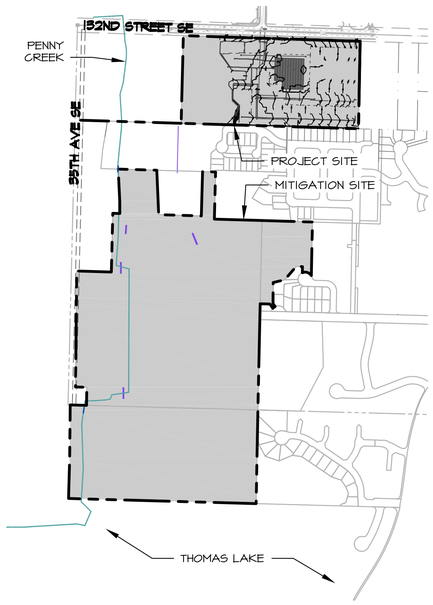
Date 8-9-2018
Scale AS NOTED
Designed AO/BS
Drawn ABS
Checked AO
Approved BS

Project # 1266

Sheet # W1.0

NW & SW ¼ OF SECT. 33, TWNSHP. 28 N, RNGE. 5 E, W.M.





PROJECT AREA KEY

SCALE: 1" = 500'

EXISTING CONDITIONS PLAN - MITIGATION SITE

GRAPHIC SCALE (IN FEET)
0 75 150 300
SCALE: 1"=150'
NORTH

EXISTING VEGETATION COMMUNITIES

DISTURBED	COMPACTED TRAILS AND ACCESS ROADS DUE TO PREVIOUS USE
OW	OPEN WATER
PEM	PALUSTRINE EMERGENT
PFO	PALUSTRINE FORESTED
PSS	PALUSTRINE SCRUB-SHRUB
SW	STORMWATER FACILITY
UPL CON	UPLAND CONIFER FOREST
UPL DEC	UPLAND DECIDUOUS FOREST
UPL SS	UPLAND SCRUB-SHRUB

NOTE: EXISTING FEATURES ARE NOT SURVEYED. VEGETATION WAS IDENTIFIED BY GOOGLE EARTH AERIAL (IMAGE DATED 5-23-2018) AND FIELD VERIFIED.

PLAN LEGEND

- PROPERTY LINE
- EXISTING GRAVEL ROAD
- XX — APPROX. LIMIT OF EXISTING VEGETATION COMMUNITY (SEE EXISTING CONDITIONS LEGEND)
- PENNY CREEK (NOT SURVEYED)
- EXISTING BEAVER DAM
- EXISTING BEAVER LODGE
- EXISTING CULVERT (NOT SURVEYED)
- DIRECTION OF DIVERTED FLOW
- 100 — EXISTING CONTOUR - LIDAR
- EXISTING TREES

NOT FOR CONSTRUCTION

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CONCEPTUAL CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - MITIGATION SITE
THE FARM
MILL CREEK, WASHINGTON

Revisions	Date	By
TAL EDITS	10-18-2018	ABS
CITY & DOE COMMENTS	12-21-2018	MH

Date	8-9-2018
Scale	AS NOTED
Designed	AO/BS
Drawn	ABS
Checked	AO
Approved	BS

Project # 726C

Sheet # WI.1