CONCEPTUAL MITIGATION PLAN

EAST TOWN CROSSING

APRIL 2023

Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

Conceptual Mitigation Plan

East Town Crossing

April 7, 2023

Project location
2902, 13102, & 3104 East Pioneer Avenue
813, 901, & 911 Shaw Road East
Puyallup, Washington 98374

Prepared for
Ash Development
1001 Shaw Road
Puyallup, Washington 98371

Prepared by
Soundview Consultants LLC
2907 Harborview Drive
Gig Harbor, Washington 98335
(253) 514-8952

Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

Executive Summary

Soundview Consultants LLC (SVC) has been assisting Ash Development (Applicant) with a Mitigation Plan for the proposed mixed-use development of a 10.93-acre site located at 2902, 13102, and 3104 East Pioneer Avenue and 813, 901, and 911 Shaw Road East in the City of Puyallup, Pierce County, Washington. The subject property consists of seven parcels situated in the Southeast ¼ of Section 26 and the Northeast ¼ of Section 35, Township 20 North, Range 4 East, W.M. (Pierce County Tax Parcel Numbers 0420264021, 0420264053, 0420264054, 0420351030, 0420351029, 0420351026 & 0420351066).

The subject property was previously investigated by John Comis Associates, LLC in 2008, 2009, and 2020 for the presence of potentially regulated wetlands, waterbodies, and fish and wildlife habitat conservation areas, with follow-up investigations in 2020 to verify initial findings. More recently, Habitat Technologies investigated the site in 2021 and again in 2022. Using current methodology, John Comis Associates (2020) and Habitat Technologies (2021) confirmed the absence of onsite wetlands. However, Habitat Technologies identified two streams on the eastern and northern portions of the site and one potential wetland offsite to the east of the site. Habitat Technologies later treated the potential wetland offsite to the east of the site as a wetland; however, no wetland hydrology indicators were observed during a summer site investigation (Habitat Technologies, 2022). The east stream (herein referred to as Stream Y) is classified as a Type IV water and the north stream (herein referred to as Stream Z) is classified as a Type III water per Puyallup Municipal Code (PMC) 21.06.1010(3)(a). Type III streams are subject to a standard 50-foot buffer, and Type IV streams are subject to a standard 35-foot buffer per PMC 21.06.1050(2). The wetland identified offsite to the east was preliminarily classified as a Category III wetland with an associated 80-foot buffer under PMC 21.06.930(2). In addition, John Comis Associates identified and delineated one wetland (previously Wetland A, herein referred to as Wetland 1) offsite to the south, as previously delineated by Herrera Environmental Consultants in 2000. Wetland 1 was classified as a Category II wetland subject to a standard 100-foot buffer per PMC 21.06.930(2).

SVC investigated the area offsite to the east for the presence of potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority habitats or species in February 2023. Using current methodology, the site investigation confirmed the absence of wetlands in the area of Habitat Technologies' preliminary wetland determination in 2022. No areas met all three required wetland delineation criteria (a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology). Specifically, no wetland hydrology was observed under normal hydrologic conditions during the winter wet season when groundwater was fully recharged. No other potentially-regulated wetlands, waterbodies, or priority habitats or species were identified within 300 feet of the site. Offsite wetland determinations will be discussed in detail under separate cover.

The Applicant proposes a phased project to construct a mixed-use development. Phase 1 will include development of residential and commercial buildings, parking, utilities, stormwater infrastructure, and frontage improvements along Shaw Road East. Phase II of the project will implement the required frontage improvements along East Pioneer Avenue and expand the mixed-use development onsite. The proposed project has been carefully designed to avoid and minimize impacts to the greatest extent feasibly by utilizing the existing disturbed upland areas onsite. During Phase 1, buildings and parking areas will be developed outside of the existing critical areas and buffers, and work within the critical area buffers will be limited to the utility crossings of the Stream Z buffer necessary to connect to existing infrastructure. During Phase II of the project, required frontage improvements and the proposed Stream Z crossing for site access cannot avoid critical area impacts. Given the location of Stream Z within the existing right-of-way (ROW) of East Pioneer Avenue, shifting Stream Z south is necessary and unavoidable to provide updated sidewalk, curb gutters, and landscaping to meet current City requirements. Given the proposed mixed-use development with several apartment buildings and commercial space, one site access point from Shaw Road East is not practicable. Therefore, the existing crossing from East Pioneer Avenue will need to be upgraded and widened to provide safe site access for the new development across the realigned Stream Z; the upgraded crossing will alleviate traffic issues by aiding in vehicle circulation and splitting use between two arterials and will also allow multiple access points for safety vehicles. The crossing will be designed as a bottomless culvert to allow for fish passage. PMC 21.06.1030(1) states that relocation of Type II, III, and IV streams are permitted when the action will result in equal of better habitat and water quality and will not diminish the flow capacity of the stream. The mitigation actions described herein demonstrate how the project is anticipated to increase ecological functions when compared to the existing degraded conditions of the streams.

Temporary impacts to existing critical area buffers resulting from utility installations during Phase I will be restored. To offset the necessary and unavoidable direct impacts to Stream Z during Phase II, the project proposes to restore and realign Stream Z within a reestablished, riparian corridor on the northern portion of the project area. In the existing linear, ditched alignment, Stream Z is extremely degraded as the system lacks riparian cover, habitat complexity, and floodplain function and is situated in a roadside ditch with several piped segments. The proposal will provide a protected 36-foot-wide riparian corridor with a highly functional stream with large woody debris, flood benches, and dense riparian plantings that will all increase the complexity and functionality of the stream system. In addition, the Applicant proposes to voluntarily restore Stream Y to its historic channel immediately offsite along the eastern property boundary and enhance onsite buffer area during Phase II. In its existing alignment, Stream Y is diverted into a stormwater pond and then piped for approximately 471 feet before discharging into Stream Z along East Pioneer Avenue. Therefore, in its current alignment, Stream Y is extremely degraded and returning the stream to its historic channel and providing buffer enhancement will increase stream habitat availability and functions. Habitat Technologies previously described Stream Z and Stream Y as seasonal streams. The streams are tributaries to Deer Creek, which provides habitats for a number of fish species. However, prior assessments by Habitat Technologies and the Puyallup Tribe did not document fish utilization within the ditch system associated with the Pioneer Way East Corridor east of the confluence with Deer Creek (Habitat Technologies, 2022).

The mitigation plan will provide a comprehensive stream restoration approach with watershed-level benefits to significantly increase stream functions of two tributaries that drain to Upper Deer Creek approximately 0.25-mile offsite to the west. Upper Deer Creek drains to the Puyallup River and is a gradient accessible stream for coho, Chinook, chum, pink and steelhead and also has known trout populations. In addition, Upper Deer Creek has documented water quality issues due to the 4A listing for high levels of bacteria from fecal coliform. Downgradient of the site, the Puyallup River also has documented water quality issues due to the 303d listings for high levels of bacteria from fecal coliform, high water temperatures, and high levels of mercury; these 303d listings resulted in the development of Puyallup River Watershed Fecal Coliform Total Maximum Daily Load (TMDL) Water Quality Report and Implementation Plan (WSDOE, 2011). The Puyallup River TMDL identifies Deer Creek in the Shaw Road area near the project site as an ideal area to restore riparian habitat. Further, both streams are within mapped FEMA 100-year floodplain but currently provide de minimis flood functions due to the straightened, ditched conditions. Restoring stream and riparian habitat will improve usable fish habitat within Stream Z over time, increase sediment and pollutant filtration to improve documented water quality issues, and provide flood benches to increase hydrologic functions and flow capacity that will reduce local flooding. Therefore, the project is aligned with the Puyallup River TMDL and is anticipated to result in a net gain in ecological functions in the watershed when compared to the existing degraded conditions of the stream that will be impacted from the frontage improvements and upgraded crossing. A Conceptual Mitigation Plan is provided in Chapter 2 of this report. The information provided in this report should adequately address comments provided by the City of Puyallup dated January 27, 2023.

The table below identifies the critical areas and summarizes the potential regulatory status by local, state, and federal agencies.

Wetland/ Waterbody Name	Size Onsite	Category/ Type[1]	Regulated Under PMC Chapter 21.06	Regulated Under RCW 90.48	Regulated Under Clean Water Act
Wetland 1	N/A	II	Yes	Yes	Likely
Stream Y	~581 LF	Type IV	Yes	Yes	Likely
Stream Z	~548 LF	Type III	Yes	Yes	Likely

Note:
1. Current Washington State Department of Ecology (WSDOE) wetland rating system (Hruby, 2014) per PMC 21.06.910(3); stream definitions per PMC 21.06.1010(3)(a) and Habitat Technologies (2021).

The table below identifies the proposed stream impacts.

Stream	Onsite Area	Type[1]	Impact Type	Impact Area
Z	548 LF	Type III	Direct	548 LF

Note:
1. Stream definitions per PMC 21.06.1010(3)(a) and Habitat Technologies (2021).

The summary table below identifies linear feet of stream segments onsite pre- and post-development.

Stream	Type[1]	Condition	Existing	Proposed
Y	IV	Open Channel	110 LF	496 LF
		Culvert	471 LF	0 LF
		Total	**581 LF**	**496 LF**
Z	III	Open Channel	421 LF	463 LF
		Culvert	127 LF	117 LF
		Total	**548 LF**	**580 LF**

Note:
1. Stream definitions per PMC 21.06.1010(3)(a) and Habitat Technologies (2021).

Site Map

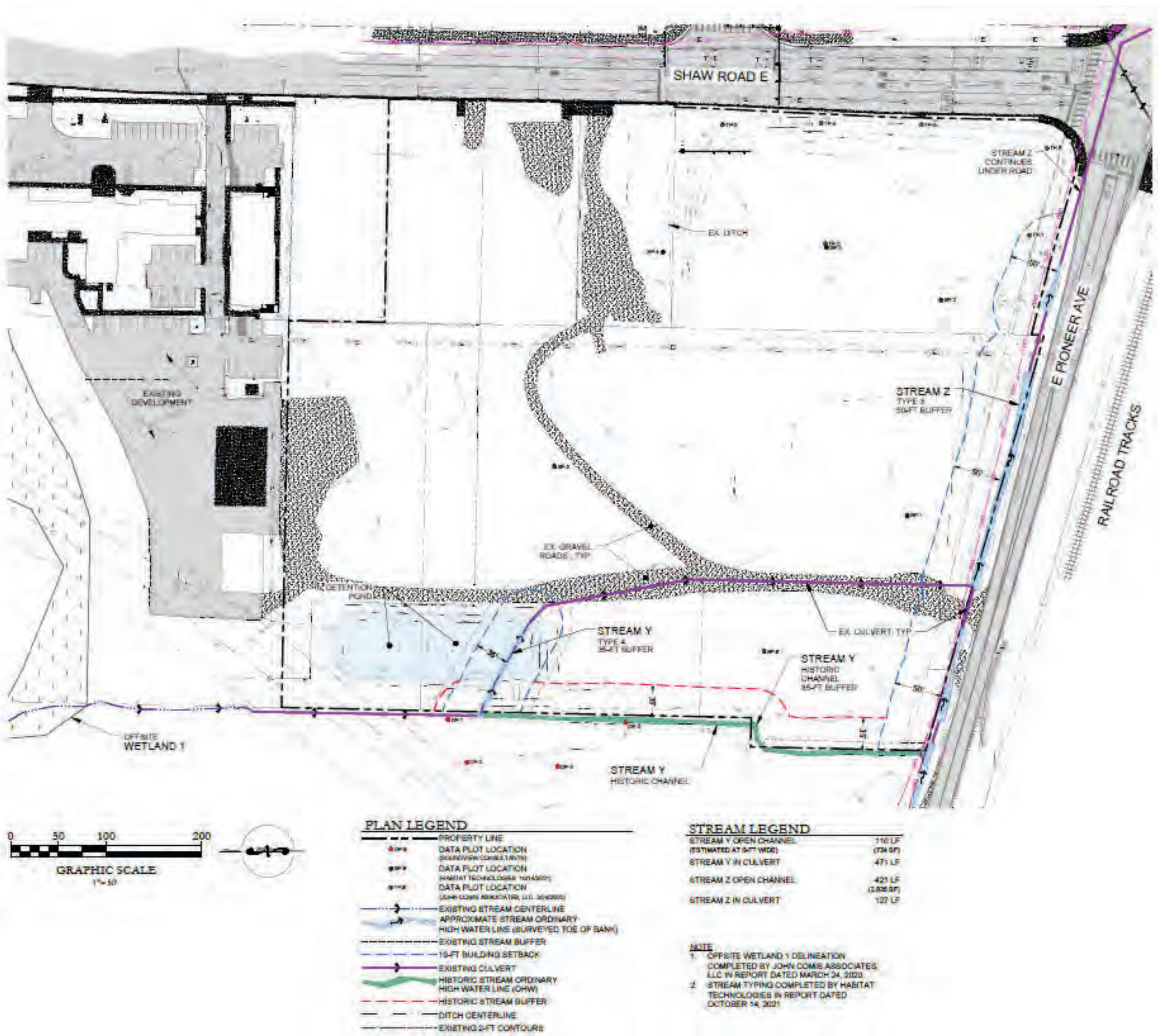
SHAW ROAD E
E PIONEER AVE
RAILROAD TRACKS
STREAM Z CONTINUES UNDER ROAD
EX. DITCH
STREAM Z
TYPE 3
50-FT BUFFER
EXISTING DEVELOPMENT
EX. GRAVEL ROADS, TYP.
DETENTION POND
STREAM Y
TYPE 4
35-FT BUFFER
EX. CULVERT, TYP.
STREAM Y
HISTORIC CHANNEL
35-FT BUFFER
OFFSITE WETLAND 1
STREAM Y
HISTORIC CHANNEL
0
50
100
200
GRAPHIC SCALE
PLAN LEGEND
PROPERTY LINE
DATA PLOT LOCATION
DATA PLOT LOCATION
DATA PLOT LOCATION
EXISTING STREAM CENTERLINE
APPROXIMATE STREAM ORDINARY HIGH WATER LINE (SURVEYED TOE OF BANK)
EXISTING STREAM BUFFER
15-FT BUILDING SETBACK
EXISTING CULVERT
HISTORIC STREAM ORDINARY HIGH WATER LINE (OHW)
HISTORIC STREAM BUFFER
DITCH CENTERLINE
EXISTING 2-FT CONTOURS
STREAM LEGEND
STREAM Y OPEN CHANNEL 110 LF
STREAM Y IN CULVERT 471 LF
STREAM Z OPEN CHANNEL 421 LF
STREAM Z IN CULVERT 127 LF
NOTE
1. OFFSITE WETLAND 1 DELINEATION COMPLETED BY JOHN COMIS ASSOCIATES LLC IN REPORT DATED MARCH 24, 2020
2. STREAM TYPING COMPLETED BY HABITAT TECHNOLOGIES IN REPORT DATED OCTOBER 14, 2021

Table of Contents

Tables

Appendices

Chapter 1. Regulatory Considerations

The proposed project utilizes a combination of prior referenced critical area reports and current site investigations for a complete determination of identified critical areas. John Comis Associates (2020) established the presence of offsite Wetland 1 (previously referred to as Wetland A) south of the subject property. Most recently, Habitat Technologies (2021) confirmed the absence of onsite wetlands and the presence of two onsite streams (Streams Y and Z) on the eastern and northern portions of the site, respectively. Refer to Appendix A for these prior referenced critical areas reports. In addition, SVC's site investigation in February 2023 confirmed the absence of offsite wetlands to the east of the subject property. No other potentially-regulated wetlands, waterbodies, fish and wildlife habitat, or priority habitats or species were identified within 300 feet of the site during the site investigations.

1.1 Local Considerations

1.1.1 Buffer Standards

PMC 21.06.910(3) has adopted the current wetland rating system for western Washington (Hruby, 2014). Category II wetlands provide a high level of function and ecological characteristics. Wetland 1 was identified offsite to the south of the subject property by John Comis Associates (2020). Wetland 1 was classified as a Category II wetland subject to a standard 100-foot buffer per PMC 21.06.930(2). The buffer associated with Wetland 1 does not project onsite.

Habitat Technologies (2021) identified two streams on the eastern and northern portions of the site. The east stream (Stream Y) is classified as a Type IV water and the north stream (Stream Z) is classified as a Type III water per PMC 21.06.1010(3)(a). Type III streams are subject to a standard 50-foot buffer, and Type IV streams are subject to a standard 35-foot buffer per PMC 21.06.1050(2).

A building setback of 10 feet is required for all buildings and structures from the edges of all critical area buffers per PMC 21.06.840.

1.1.2 Mitigation Sequencing

The Applicant proposes necessary and unavoidable direct impacts to Stream Z. Under PMC 21.06.1020(1) and PMC 21.06.1080, adverse impacts to riparian and non-riparian habitats shall be fully mitigated in accordance with the standards set forth in PMC 21.06.610. Per PMC 21.06.610(1), when an alteration to a critical area is proposed, the applicant shall demonstrate that all reasonable efforts have been taken to avoid, minimize, or compensate for impacts in that order with the mitigation definition contain in PMC 21.06.210(84).

a) *Avoiding the impact altogether by not taking a certain action or parts of actions.*

   The Applicant proposes a phased project to construct a mixed-use development. Phase 1 will include development of residential and commercial buildings, parking, utilities, stormwater infrastructure, and frontage improvements along Shaw Road East. Phase II of the project will implement the required frontage improvements along East Pioneer Avenue and Stream Z crossing and expand the mixed-use development onsite.

   The proposed project has been carefully designed to avoid and minimize impacts to the greatest extent feasibly by utilizing the existing disturbed upland areas onsite. During Phase 1, buildings and parking areas will be developed outside of the existing critical areas and buffers, and work within the critical area buffers will be limited to the utility crossings of the Stream Z buffer necessary to connect to existing infrastructure. During Phase II of the project, required frontage improvements and the proposed stream crossing for site access cannot avoid critical area impacts. Given the location of Stream Z within the exiting right-of-way (ROW) of East Pioneer Avenue, shifting Stream Z south is also necessary and unavoidable to provide updated sidewalk, curb gutters, and landscaping to meet current City requirements. Given the proposed mixed-use development with several apartment buildings and commercial space, one site access point from Shaw Road East is not practicable. Therefore, the existing crossing from East Pioneer Avenue will need to be upgraded and widened to provide safe site access for the new development; this site access will alleviate traffic issues by aiding in vehicle circulation and splitting use between two arterials and will also allow multiple access points for safety vehicles. PMC 21.06.1030(1) states that relocation of Type II, III, and IV streams are permitted when the action will result in equal of better habitat and water quality and will not diminish the flow capacity of the stream; the mitigation actions described herein demonstrate how the project is anticipated to increase ecological functions when compared to the existing degraded conditions of the streams.

The project avoids direct impacts and take of listed threated or endangered species per PMC 21.06.1020(4) as no threatened or endangered species are present in the project area.

b) *Minimizing impacts by limiting the degree or magnitude of the action and its implementation.*

During Phase I, the proposed project has minimized impacts by locating buildings and parking areas outside of standard buffer widths for the existing stream alignments and incorporating an underground stormwater vault that avoids the need for an above ground detention facility. During Phase II, the proposed direct impacts to Stream Z are the minimum necessary to provide the required frontage improvements and upgrade the existing crossing from East Pioneer Avenue for safe site access. The upgraded crossing will consist of a bottomless, fish-passable, culvert. Appropriate BMPs and TESC measures will be implemented for the duration of project activities to minimize potential construction impacts. The stream relocation work will be completed in the dry season when hydrology is either absent or minimal to limit temporary turbidity.

c) *Rectifying impacts by repairing, rehabilitating, or restoring the affected environment.*

During Phase I, the proposed project will rectify the temporary impacts of utility installation within the existing Stream Z buffer by replanting temporarily impacted areas with a native seed mix.

To offset the necessary and unavoidable direct impacts to Stream Z during Phase II, the project proposes to restore and realign Stream Z within a reestablished riparian corridor on the northern portion of the project area. In the existing linear, ditched alignment, Stream Z is extremely degraded as the system lacks riparian cover, habitat complexity, and floodplain function and is situated in a roadside ditch with several piped segments. The proposal will provide a protected 36-foot-wide riparian corridor with a highly functional stream with large woody debris, flood benches, and dense riparian plantings that will all increase the complexity and functionality of the stream system. In addition, the Applicant proposes to voluntarily restore Stream Y to its historic channel along the east property boundary and enhance the onsite buffer during Phase II. In its existing alignment, Stream Y is diverted into a stormwater pond and then piped for approximately 471 feet before discharging into Stream Z along East Pioneer Avenue. Therefore, in its current alignment, Stream Y is extremely degraded and daylighting the stream to its historic channel will increase stream habitat availability and functions.

The mitigation plan will provide a comprehensive stream restoration approach with watershed-level benefits to significantly increase stream functions of two tributaries that drain to Upper Deer Creek approximately 0.25-mile offsite to the west. Upper Deer Creek drains to the Puyallup River and is a gradient accessible stream for coho, Chinook, chum, pink and steelhead and also has known trout populations. In addition, Upper Deer Creek has documented water quality issues due to the 4A listing for high levels of bacteria from fecal coliform. Downgradient of the site, the Puyallup River also has documented water quality issues due to the 303d listings for high levels of bacteria from fecal coliform, high water temperatures, and high levels of mercury; these 303d listings resulted in the development of Puyallup River Watershed Fecal Coliform Total Maximum Daily Load (TMDL) Water Quality Report and Implementation Plan (WSDOE, 2011). The Puyallup River TMDL identifies Deer Creek in the Shaw Road area near the project site as an ideal area to restore riparian habitat. Further, both streams are within mapped FEMA 100-year floodplain but currently provide de minimis flood functions due to the straightened, ditched conditions. Restoring stream and riparian habitat will improve usable fish habitat within Stream Z over time, increase sediment and pollutant filtration to improve documented water quality issues, and provide flood benches to increase hydrologic functions and flow capacity that will reduce local flooding. Therefore, the project is aligned with the Puyallup River TMDL, will result in equal or better habitat and water quality per PMC 21.06.1030(1), and is anticipated to result in a net gain in ecological functions in the watershed per PMC 21.06.1080(3) when compared to the existing degraded conditions of the stream that will be impacted from the frontage improvements and upgraded crossing.

d) *Reducing or eliminating an impact over time by preservation and maintenance operations during the life of the action.*

The stream restoration areas created during Phase II will be monitored for a period of up to 10 years to ensure success of the mitigation actions over time. In addition, the mitigation areas will be placed in a separate tract or dedicated to the City as a permanent protective mechanism per PMC 21.06.610(7) and PMC 21.06.830. Fencing and signage will also be provided per PMC 21.06.810 to reduce intrusion into the critical areas and prevent future impacts to the critical areas.

e) *Compensating for an impact by replacing or providing substitute resources or environments.*

See response to criterion C above. The unavoidable direct stream impacts will be compensated through onsite and offsite, in-kind stream creation mitigation measures. The project will ensure no net loss of area under PMC 21.06.1080(3) and PMC 21.06.610(2) by providing buffer enhancement and a minimum 1:1 ratio of creation to impacts to achieve equivalent or greater functions for Stream Z per PMC 21.06.1080(2). The mitigation will result in no net loss of ecological functions when compared to the existing degraded condition of the stream proposed to be impacted.

f) *Monitoring the mitigation and taking remedial action when necessary.*

The stream mitigation and voluntary restoration areas created during Phase II will be monitored for a period of 10 years to ensure success of the actions over time, consistent with PMC 21.06.630.

Appropriate contingency measures will be implemented if monitoring indicates that goals and performance standards of the mitigation plan are not being met.

1.1.3 Performance Standards – Alteration of Streams and Riparian Habitats

PMC 21.06.1030 outlines standards for allowed alterations to streams and associated riparian habitats. Necessary and unavoidable stream impacts are required for frontage improvements, upgrading an existing crossing from East Pioneer Avenue for additional site access, and providing power to the property.

PMC 21.06.1030(2) states the following for proposed bridges/culverts:

> *Bridges are the preferred crossing for fish-bearing streams. Culverts are allowed only in Type II, III, and IV streams; provided, that they are designed according to the Washington Department of Fish and Wildlife criteria for fish passage, are necessary for utility crossings, road crossings, or other limited access situations, and are in accordance with a state Hydraulic Project Approval permit. The applicant or property owner shall keep any culvert free of debris and sediment at all times to allow free passage of water and, if applicable, fish. The city may require that a stream be removed from a culvert as a condition of approval, unless the culvert is not detrimental to fish habitat or water quality, or removal would be detrimental to fish or wildlife habitat or water quality.*

The proposed crossing will be in accordance with the most recent WDFW crossing design criteria for fish passage, and the Applicant will apply for a Hydraulic Project Approval (HPA) from WDFW. The crossing is essential for providing necessary site access. Having two site access points is required by City development standards and will alleviate traffic issues by aiding in vehicle circulation and splitting use between two arterials and will also allow multiple access points for safety vehicles. The new/upgraded crossing will be bottomless to allow free passage of water. The bottomless crossing will be monitored to ensure that it functions as intended over time.

PMC 21.06.1030(6) states that utility lines may be permitted to cross streams and riparian habitat areas subject to the following standards:

a) *Impacts to fish and wildlife shall be avoided to the maximum extent possible;*

During Phase I, the project propose to install a stormwater line and a new power drop, consisting of a transformer box and electrical line, within the existing Stream Z buffer. The proposed utility installations are necessary to connect to existing infrastructure. The stormwater line is necessary to discharge treated and detained runoff into the existing pipe and ditch system that drains the site. The stormwater line will be connected through to an existing pipe adjacent to East Pioneer Avenue using a manhole. The same pipe conveys Stream Z as it exits the site, and the proposed stormwater connection point has been selected to be downgradient of the realigned and daylit Stream Z channel proposed under Phase II. The new power drop will connect to an existing power line along East Pioneer Avenue; the proposed transformer box and electrical line will be located as near to an existing power pole as feasible to minimize the length of electrical line in the buffer.

b) *Installation shall be accomplished by boring beneath the scour depth and hyporheic zone of the water body and channel migration zone, where feasible;*

The proposed stormwater line will cross through the existing Stream Z buffer and connect to an existing pipe adjacent to East Pioneer Avenue. The proposed stormwater line will not be beneath the open, daylit channels of the existing Stream Z channel or the realigned Stream Z channel proposed under Phase II. The proposed transformer box will be located within the existing Stream Z buffer; the proposed electrical line will cross a piped section of the existing and proposed Stream Z alignments. Due to the presence of piped stream sections, boring beneath the scour depth and hyporheic zone of the water body is not applicable.

c) *The utilities shall cross at an angle greater than 60 degrees to the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible;*

The proposed stormwater line will cross through the outermost portion of the existing Stream Z buffer before turning north towards East Pioneer Avenue to connect the existing pipe. The portion of line that turns north to connect to the existing pipe is perpendicular or near perpendicular to the piped stream. The small section of stormwater line that is proposed to cross the outermost edge of the existing buffer will be outside of the 36-foot-wide riparian corridor proposed for the realigned Stream Z under Phase II.

d) *Crossings shall be contained within the footprint of an existing road or utility crossing where possible;*

The proposed stormwater line will convey detained and treated runoff to an existing pipe downgradient of the Stream Z realignment proposed under Phase II. The crossing of the existing stream buffer is therefore located outside of the footprint of an existing road or utility crossing.

No power crossings currently existing along East Pioneer Avenue and crossing location is limited by the proximity of adjacent power poles.

e) *The utility route shall avoid paralleling the stream or following a down-valley course near the channel where feasible; and*

The proposed utility crossings of the existing Stream Z buffer are perpendicular to the piped sections of Stream Z under existing and proposed realignment conditions of Phase I. A small section of stormwater line that is proposed to be parallel to the stream channel will be outside of the 36-foot-wide riparian corridor proposed for the realigned Stream Z under Phase II. In addition, the existing buffer conditions are degraded and temporary impacts are proposed to be restored using a native seed mix.

f) *The utility installation shall not increase or decrease the natural rate of channel migration.*

The proposed utility crossings will not disturb the new stream channel and will not increase or decrease the rate of channel migration.

1.2 State and Federal Considerations

On January 18, 2023, USACE and EPA published a revised definition of "Waters of the United States." The revised rule becomes effective on March 20, 2023. Under the 2023 revised rule, Waters of the United States is described as follows (USACE and EPA, 2023):

(a) Waters of the United States means:

(1) Waters which are: (i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (ii) The territorial seas; or (iii) Interstate waters, including interstate wetlands;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section: (i) That are relatively permanent, standing or continuously flowing bodies of water; or (ii) That either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in paragraph (a)(1) of this section;

(4) Wetlands adjacent to the following waters: (i) Waters identified in paragraph (a)(1) of this section; or (ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3)(i) of this section and with a continuous surface connection to those waters; or (iii) Waters identified in paragraph (a)(2) or (3) of this section when the wetlands either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in paragraph (a)(1) of this section;

(5) Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) of this section: (i) That are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3)(i) of this section; or (ii) That either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in paragraph (a)(1) of this section.

Wetland 1 appears hydrologically connected to Stream Y. Streams Y and Z are relatively permanent tributaries that discharge into Upper Deer Creek and eventually the Puyallup River, a traditional navigable water. Therefore, the identified critical areas are likely jurisdictional under the Clean Water Act. The project proposal assumes that the USACE will assert jurisdiction over the identified streams and wetland.

The identified streams and offsite wetland are also likely to be regulated as natural surface waters by the WSDOE under the Revised Code of Washington (RCW) 90.48.

Chapter 2. Conceptual Mitigation Plan

The proposed compensatory mitigation actions for the project attempt to strike a balance between achieving project goals as well as a positive ecological result. In general, joint USACE and EPA rules have been established that require more careful mitigation planning efforts utilizing a watershed approach in site selection (USACE & EPA, 2008). The proposed impacts and mitigation actions attempt to closely adhere to these rules and to the local critical areas regulations specified in PMC Chapter 21.06 and local watershed planning and restoration documents. This chapter presents the mitigation details for the proposed mixed-use project.

2.1 Purpose and Need

The purpose of the proposed project is to provide a mixed-use development that will help alleviate the shortage of housing in the greater Seattle area and expand the local economy by providing new services to the area through available commercial space.

2.2 Description of Impacts

The Applicant proposes a phased project to construct a mixed-use development. Phase 1 will include development of residential and commercial buildings, parking, utilities, stormwater infrastructure, and frontage improvements along Shaw Road East. Phase II of the project will implement the required frontage improvements along East Pioneer Avenue and expand the mixed-use development onsite. The proposed project has been carefully designed to avoid and minimize impacts to the greatest extent feasibly by utilizing the existing disturbed upland areas onsite. During Phase 1, buildings and parking areas will be developed outside of the existing critical areas and buffers, and work within the critical area buffers will be limited to the utility crossings of the Stream Z buffer necessary to connect to existing infrastructure. During Phase II of the project, required frontage improvements and the proposed Stream Z crossing for site access cannot avoid critical area impacts. Mitigation sequencing for the proposed project is provided under Section 1.1.2 Mitigation Sequencing.

Under Phase I, approximately 750 square feet of temporary impacts to the existing Stream Z buffer are proposed to install the stormwater line through the buffer. These temporary impact areas resulting from the stormwater installation will be located outside of the 36-foot-wide riparian corridor proposed for Stream Z under Phase II. Approximately 250 square feet of impacts to the existing Stream Z buffer are anticipated to install the power drop, which will consist of a transformer box and electrical line.

Under Phase II, the project requires the complete fill and relocation of 548 linear feet of the Stream Z channel to provide City-required frontage improvements. An approximately 55-foot-wide crossing of the proposed, realigned Stream Z channel is required to provide safe site access, allow multiple points of access for emergency vehicles, and alleviate traffic congestion by aiding in vehicle circulation and splitting use between two arterials. Temporary construction impacts may also occur but will be minimized to the greatest extent feasible with the implementation of all appropriate BMPs and TESC measures. The Applicant proposes to voluntarily restore Stream Y to its historic channel along the east property boundary and enhance the onsite buffer. The proposed beneficial realignment of Stream Y may also result in temporary stream impacts. Habitat Technologies previously described Stream Z and Stream Y as seasonal streams. The streams are tributaries to Deer Creek, which provides habitats for a number of fish species. However, prior assessments by Habitat Technologies and the Puyallup

Tribe did not document fish utilization within the ditch system associated with the Pioneer Way East Corridor east of the confluence with Deer Creek (Habitat Technologies, 2022).

2.2.1 Permanent Stream Impacts

In the existing linear, ditched alignment, Stream Z is extremely degraded as the system is situated in a roadside ditch with several piped segments and lacks riparian cover, habitat complexity, and floodplain function . The stream consists of one long run that lacks pool and riffle sequences. The stream along the majority of its length is choked with non-native invasive reed canarygrass, which reduces water velocity and creates low levels of dissolved oxygen due to the stagnant conditions and die-off of vegetative material. The majority of the onsite stream channel will be permanently filled, and portions of the stream piped will be modified pre- and post-development based on frontage improvement requirements and existing conditions. The proposed stream relocation will result in a permanent loss of existing degraded habitat. Refer to Appendix C for photographs of Stream Z in its existing degraded condition.

A summary of impacted streams is provided in Table 1 below.

Table 1. Stream Impact Summary

Stream	Onsite Area	Type[1]	Impact Type	Impact Area
Z	548 LF	Type III	Direct	548 LF

Note:
1. Stream definitions per PMC 21.06.1010(3)(a) and Habitat Technologies (2021).

2.2.1 Temporary Stream Impacts

To minimize temporary impacts, stream relocation activities will occur in the summer during low stream flow or dry conditions. Dewatering activities associated with the realignment of Stream Z and restoration of Stream Y are not anticipated to significantly impact fish and other aquatic vertebrate species potentially present in the channels at the time of construction given the timeline of construction in the summer months when hydrology is minimal and with all appropriate BMPs and TESC measures in place.

If water is present in the existing stream channels prior to realignment, then fish exclusion, capture and relocation actions and water quality monitoring actions will be implemented. Temporary turbidity increases within the new stream channels of Streams Y and Z are likely to occur during the rewatering of the new stream channels. Rewatering within the new channels is not anticipated to be completed in more than one segment for each stream separately. The Washington Administrative Code (WAC) 173-201A-200(1)(e) makes allowances for a temporary area of mixing during and immediately after in-water construction activities subject to the constraints of WAC 173-201A-400(4) and (6). For waters less than or equal to 10 cfs flow at the time of construction, the point of compliance shall be 100 feet downstream of the action. Water quality monitoring will be completed to evaluate compliance during rewatering, and fish exclusion nets will remain in place until suspended sediment levels match the point of compliance. The proposed fish exclusion and sediment controls are anticipated to lead to an avoidance or significant reduction in direct fish exposure to elevated suspended sediments if fish are present in the streams. A Water Quality Monitoring Plan and Fish Protection and Exclusion Plan will be prepared under separate cover if requested by regulatory agencies.

2.3 Stream and Riparian Mitigation Strategy

2.3.1 Phase I

Temporary impacts to the existing Stream Z buffer resulting from the installation of a stormwater line and power drop will be restored through reseeding of the existing degraded buffer using a native seed mix. The proposed transformer box will be located within the existing Stream Z buffer but outside of the 36-foot-wide riparian corridor for the realigned Stream Z proposed under Phase II.

2.3.2 Phase II

The compensatory mitigation actions outlined herein are intended to compensate for lost stream functions and values by providing an overall improvement in water quality, hydrologic, and habitat functions according to the needs of the site, local sub-basin, and overall Puyallup River watershed. The unavoidable direct stream impacts will be compensated through onsite and offsite, in-kind stream creation mitigation measures. The project will ensure no net loss of area under PMC 21.06.1080(3) and PMC 21.06.610(2) by providing a minimum 1:1 stream creation to impact ratio to achieve equivalent or greater Stream Z functions per PMC 21.06.1080(2) (Table 2). To offset the necessary and unavoidable direct impacts to Stream Z, the project proposes to restore and realign Stream Z within a reestablished riparian corridor on the northern portion of the project area. Voluntary restoration of Stream Y will occur through realignment of the stream through a historic stream channel that is located immediately offsite along the eastern property boundary and enhancement of onsite buffer area within the standard 35-foot buffer. Buffer restoration or enhancement is proposed for 34,362 square feet of onsite buffers proposed to protect the realigned Streams Y and Z.

In the existing linear, ditched alignment, Stream Z is extremely degraded as the system lacks riparian cover, habitat complexity, and floodplain function and is situated in a roadside ditch with several piped segments. The proposal will provide a protected 36-foot wide riparian corridor with a highly functional stream with large woody debris, flood benches, and dense riparian plantings that will all increase the complexity and functionality of the stream system. In addition, the Applicant proposes to restore Stream Y to its historic channel immediately offsite adjacent to the eastern property boundary and enhance onsite buffer area. In its existing alignment, Stream Y overflows into a stormwater pond and is then piped for approximately 471 feet before discharging into Stream Z along East Pioneer Avenue. The proposed realignment of Stream Y will daylight the stream, increasing functional stream habitat (Table 2). Table 2 quantifies the length and condition of stream segments onsite pre- and post-development.

Table 2. Summary of Stream Segments Pre- and Post-Development

Stream	Type[1]	Condition	Existing	Proposed
Y	IV	Open Channel	110 LF	496 LF
		Culvert	471 LF	0 LF
		Total	**581 LF**	**496 LF**
Z	III	Open Channel	421 LF	463 LF
		Culvert	127 LF	117 LF
		Total	**548 LF**	**580 LF**

The mitigation plan will provide a comprehensive stream restoration approach with watershed-level benefits to significantly increase stream functions of two tributaries that drain to Upper Deer Creek approximately 0.25-mile offsite to the west. Upper Deer Creek drains to the Puyallup River and is a gradient accessible stream for coho, Chinook, chum, pink and steelhead and also has known trout populations. In addition, Upper Deer Creek has documented water quality issues due to the 4A listing for high levels of bacteria from fecal coliform. Downgradient of the site, the Puyallup River also has documented water quality issues due to the 303d listings for high levels of bacteria from fecal coliform, high water temperatures, and high levels of mercury; these 303d listings resulted in the development of Puyallup River Watershed Fecal Coliform Total Maximum Daily Load (TMDL) Water Quality Report and Implementation Plan (WSDOE, 2011). The Puyallup River TMDL identifies Deer Creek in the Shaw Road area near the project site as an ideal area to restore riparian habitat. Further, both streams are within mapped FEMA 100-year floodplain but currently provide de minimis flood functions due to the straightened, ditched conditions. Restoring stream and riparian habitat will improve usable fish habitat within Stream Z over time, increase sediment and pollutant filtration to improve documented water quality issues, and provide flood benches to increase hydrologic functions and flow capacity that will reduce local flooding. Therefore, the project is aligned with the Puyallup River TMDL, will result in equal or better habitat and water quality per PMC 21.06.1030(1), and is anticipated to result in a net gain in ecological functions in the watershed per PMC 21.06.1080(3) when compared to the existing degraded conditions of the stream that will be impacted from the frontage improvements and upgraded crossing.

The existing linear Stream Z channel that consists of one long run will be replaced with a "pilot channel" that will naturally scour to create a sinuous stream with pool and riffle structure. Creating a pilot channel allows the stream to naturally form within the constructed bankfull width. The restored Stream Z channel will consist of a meandering channel with connected flood terrace habitats within a riparian corridor containing native forest, shrub, and emergent plant communities. The stream creation will provide gradual side slopes above the OHWM and created flood terraces. Large woody debris will be incorporated along the realigned Stream Z channel for additional habitat complexity and provide cover for aquatic wildlife. The proposed Stream Z and Stream Y upland buffers onsite will also be restored or enhanced to provide sediment and pollutant filtration, reduction of surface flows, and habitat interspersion and complexity beneficial to urban fauna. Once established, the riparian habitat corridor will provide immediate and long-term benefits for terrestrial and aquatic wildlife and provide cool, clean, and clear water from the native plantings which will increase stream shading, stormwater filtration, and wood recruitment as well as decreased streambank erosion.

The proposed native plant communities will be established according to location relative to the stream channels and topographic position within the remaining riparian corridor buffer areas. Tree and shrub plantings are proposed. Willows (*Salix* spp.) will dominate the banks of the stream channels to provide bank stability and shading. The proposed native species have been carefully selected according to indicator status and local vegetation observations to ensure the plants take root and thrive in the newly created riparian corridor. Given the limited space within the riparian corridor, smaller trees will be proposed to maximize use and plant quantities within the area to ensure dense screening and protections to Streams Y and Z. With establishment of the protective riparian corridor, fencing and signage around the entire sensitive areas tracts, and implementation of the required monitoring and maintenance actions, the mitigation areas are projected to be highly functional, persistent, and successful.

The proposed actions include, but are not limited to, the following:

- Realign and restore Stream Z within a new riparian corridor;

- Realign and restore Stream Y within a historic stream channel and provide an onsite functional buffer;
- Pre-treat invasive plants with an herbicide approved by the Washington State Department of Agriculture for use in aquatic areas. After pre-treatment, grub to remove the invasive plants and replant all cleared areas with native trees, shrubs, and ground covers listed in Appendix B; Pre-treatment of the invasive plants should occur a minimum of two weeks prior to removal;
- Replant all impacted areas with native trees, shrubs, and groundcovers listed in Appendix B, or substitutes approved by the responsible Project Scientist, to help retain soils, filter stormwater, and increase biodiversity;
- Install large woody debris habitat features within the realigned Stream Z channel;
- An approved native seed mix will be used to seed the disturbed mitigation areas after planting to reduce short-term erosion potential;
- Maintain and control invasive plants annually, at a minimum, or more frequently if necessary. Maintenance to reduce the growth and spread of invasive plants is not restricted to chemical applications but may include hand removal, if warranted;
- Provide dry-season irrigation as necessary to ensure native plant survival;
- Install split-rail fencing and critical area signage at the locations indicated in Appendix B;
- Store all construction equipment and materials outside of the critical areas and associated buffers;
- Direct exterior lights away from the streams and buffers wherever possible; and
- Place all activities that generate excessive noise (e.g., generators and air conditioning equipment) away from the streams and buffers where feasible.

2.4 Approach and Best Management Practices

Planting or seeding will occur immediately after grading is complete to the extent practicable. TESC measures will be implemented that consists of high-visibility fencing (HVF) installed around native vegetation along existing stream areas not proposed to be impacted, silt fencing between the graded areas and buffers, plastic sheeting on stockpiled materials, and seeding of disturbed soils. These TESC measures will be installed prior to the start of development or mitigation actions and actively managed for the duration of the project.

Equipment used will be typical for land clearing, grading, and excavation activities and will be kept in good working conditions and free of leaks. Equipment to be used will likely include excavators, backhoes, bulldozers, dump trucks, graders, et cetera. All equipment staging and materials stockpiles will be kept out of the critical areas and regulated buffers avoided by the proposed project, and the area will be kept free of spills and/or hazardous materials using a SPCCC prepared and implemented by the contractor. All clean fill material for site preparation will be sourced from upland areas onsite or from approved suppliers and will be free of pollutants and hazardous materials.

All equipment staging and materials stockpiles will be kept out of the identified critical areas and associated buffer areas, and the areas will need to be kept free of spills and/or hazardous materials. Construction materials along with all construction waste and debris will be effectively managed and stockpiled on paved surfaces and kept free of the critical areas and associated buffers. Following completion of the development, the entire site will be cleaned and detail graded using hand tools wherever necessary, and TESC measures will be removed.

The general project BMPs include, but are not limited to, the following:

- Staging areas and material stockpiles will be located a minimum of 50 feet from realigned or preserved waters of the state to the extent practicable.
- Machinery and equipment used during construction shall be serviced, fueled, maintained, and parked on uplands a minimum of 50 feet, and where practical, 100 feet, from realigned or preserved waters of the state to prevent contamination to any surface water. Bypass and sump pumps, if appropriate, will have to be located closer than 50 feet from waterbodies due to their operational constraints involving head pressure, intake length, and functionality. These pumps will all have dual containment tanks, automatic fluid pressure failure shut-offs, and be placed within separate containment pads. The sump pump will be moved outside the work area for refueling if necessary.
- No petroleum products, fresh concrete, lime, chemicals, or other toxic or deleterious materials shall be allowed to enter realigned or preserved waters of the state.
- Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working area shall not be discharged into realigned or preserved waters of the state. A separate, contained area, will be established for washing down vehicles and equipment that does not have any possibility of draining to realigned or preserved waters of the state.
- All construction debris, concrete waste material, excess sediment, and other solid waste shall be properly managed and disposed of in an upland disposal site approved by the appropriate regulatory authority.
- Appropriate BMPs shall be implemented to minimize track-out during construction.
- Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., shall be checked regularly for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters.
- A written spill prevention, control, and countermeasures (SPCC) plan will be prepared for activities that include the use of heavy equipment. The SPCC describes measures to prevent or reduce impacts due to accidental leaks or spills, as well as all hazardous materials that will be used, their proper storage and handling, and the methods that will be used to monitor their use.
- The site's Construction Stormwater General Permit conditions, TESC Plan, and SWPPP (all prepared under separate cover) will be implemented for erosion and sediment control and for protection of water quality for construction stormwater.

Specific overwater and in-water protection measures include the following:

- All equipment that will operate over or within waters of the state shall be free of external petroleum-based products. Accumulation of soils or debris shall be removed from the drive mechanisms and the undercarriage of equipment prior to use. Equipment shall be inspected daily for leaks, accumulation of grease, etc. Any identified problems shall be fixed before operating over or within waters of the state.
- An emergency spill kit will be available on-site during construction whenever work is being performed in or near the water. It will be stored in a location that facilitates its immediate deployment if needed.

- BMPs including, but not limited to, the following will be used to ensure no deleterious work materials or debris enter the water:
  - In-water work conducted within the existing stream and ditch channels will occur in sections isolated from upgradient flow by installation of temporary dams. Overwater work will be minimized.
  - Silt fence and/or straw wattles will be installed along the newly constructed stream channel to minimize materials, sediment, and turbid water from entering the adjacent waters.
  - Any materials dropped into the water that are not part of the work activities will be removed immediately by hand by the contractor as feasible
  - Pump around any water in the work area during construction to limit potential turbidity.

Streamflow realignment will occur through the installation of a diversion pipe to convey flows to the new stream channel. All temporary diversion structures and dewatering activities will follow BMPs to avoid or minimize water quality impacts:

- The temporary dams to divert water around the work areas shall be in place prior to initiation of other work in the wetted perimeter of these areas.
- The temporary diversions shall be of sufficient size, constructed of non-erosive materials, and installed to divert the entire flow through the bypass or around the isolated work area for the duration of the project.
- The diversion system shall be designed and operated so as not to cause erosion in the restoration channel or on the bank of any waterbody in which the work is being conducted.
- Prior to relocating water flow to the work area, all bank protection measures shall be in place.
- Re-introduction of water into the isolated work area shall be done gradually, and at a rate not higher than the normal flow, in order to minimize the mobilization of sediments and fines.
- Coir log check dams will be placed within the newly constructed stream channel during rewatering to encourage the settling of suspended sediments before water exits this section of stream channel as needed.
- Upon completion of the project, all material used for the temporary diversions shall be removed from the site.
- Turbid restoration site water (including turbid water generated from cleaning and maintenance activities) shall not be discharged directly into waters of the state if it is beyond the prescribed turbidity threshold described in section 1.4. This turbid water may be diverted to an upland area, such as the designed settling pond to allow the suspended sediments to settle out. The discharge from the upland areas shall meet water quality criteria at the point of discharge into surface waters and/or wetlands.

2.5 Mitigation Implementation

Compensatory mitigation and voluntary restoration actions will occur concurrently with the development of Phase II of the project. Initial actions will include excavation and grading required for Streams Z and Y realignment. Minor portions of the mitigation site may initially remain ungraded to ensure the separation of the proposed stream channel from the existing channels. Realignment of the streams should occur during the summer during low flow conditions and shall occur during in-water work windows approved by the regulatory agencies. Following the initial excavation and grading, native plants may be installed following consultation with the Project Scientist to determine feasibility given summer hydrology conditions. Streams Y and Z will then be realigned; minor excavation and grading work will be necessary in order to provide the connections between the new and existing stream channels. Native plants are anticipated to be fully installed during the fall or early winter (September 1– December 31) following the realignment of Streams Y and Z during the summer season. The mitigation site should be seeded prior to the beginning of the wet season to minimize erosion.

TESC measures will be implemented according to the TESC plan prepared for the proposed project. Typical TESC measures include silt fencing where appropriate to protect potential offsite critical areas, plastic sheeting on stockpiled materials, and seeding of disturbed soils which will be actively managed for the duration of the project.

The Project Scientist should be consulted prior and during the mitigation actions to ensure that mitigation actions are conducted according to the intent of the mitigation plan. The Project Scientist will inspect and approve the planting stock and review the planting plans with the landscaping contractor to ensure clear understanding of the plan prior to installation of plant materials. The Project Scientist will assist the landscape contractor in making any final adjustments in the planting schedule as needed, in response to field conditions.

The proposed actions will include the excavation of material to create the new Stream Z channel and to connect Stream Y to its historic channel. Mitigation and restoration actions may be completed separately from clearing and grading actions in the rest of the Project Area. The new stream channels will be entirely excavated prior to the stream relocation, with a berm left on the upstream end of each channel to prevent the streams from immediately diverting into the new channel. Large woody debris will be installed following channel excavation. Soil amendments will be installed as needed throughout the riparian corridor. The onsite soil amendments may be sourced from scraped topsoil. Imported topsoil or soil amendments may be used at the discretion of the landscape contractor.

Re-watering of the streams should occur during in-water work windows approved by regulatory agencies. If water is present in the stream channels immediately prior to the realignment, then nets will be installed at the upstream and downstream ends of existing stream sections to be de-watered and fish capture and relocation efforts will proceed as needed. The fish protection efforts will be completed using netting to capture fish and relocate them to non-impacted areas. The realigned stream channels will then be re-watered. Sediment control structures may be installed within the new stream channels to address water quality issues. The existing stream channels may be filled immediately following the re-watering of the realigned stream channels.

The project sequencing is anticipated to as follows:

- Pre-construction conferences and regulatory notifications;
- Pre-treatment of non-native invasive plant species;
- Install TESC measures;
- Remove debris and invasive plant material from the mitigation areas;

- Rough grade the stream restoration areas according to the approved grading plan;
- Remove existing culverts within the mitigation site and install new bottomless crossing;
- Rough grade inspection;
- Finish grade and prepare grounds for planting in all mitigation areas;
- Install LWD;
- Install streambed substrates
- Dewater existing stream channel and rewater new stream channel;
- Monitor site hydrology;
- Plant inspections;
- Install plant materials and seed disturbed soils for erosion control;
- Post-construction inspection and as-built survey; and
- Post-construction maintenance, monitoring, and annual reporting.

2.5.1 Pre-Construction Meetings and Post-Construction Inspection

Two pre-construction meetings are recommended to be held involving representatives from the Applicant, Project Manager or Contractor, and Project Scientist.. The first pre-construction meeting should occur prior to commencement of mitigation actions, and the second meeting should occur onsite after construction staking has been placed by professional surveyors. The overall purpose of the first pre-construction meeting should be to discuss the primary intent of the stream relocation and regulatory requirements; identify points of contact; establish communication lines between the Project Scientist, Project Manager or Contractor and landscaping personnel; review project scheduling; and address any questions or issues associated with the mitigation plan. The overall purpose of the second pre-construction meeting should be to discuss project implementation, protection of onsite habitat, construction BMPs, and identify invasive species management actions.

Post-construction inspection of all mitigation areas will be necessary to verify the installation conforms to the approved plan. This post-construction inspection effort will occur after completion of the stream relocation and all appropriate seeding and planting actions. The post-construction inspection will be documented in an As-Built (Year 0) Report. Any significant changes to the mitigation design will also be coordinated with regulatory staff as specified in regulatory approvals and presented in the As-Built Report. During the post-construction inspection, the Project Scientist will identify and mark long-term monitoring plots and photographic stations in the field that represent representative conditions of the stream relocation and other mitigation areas. The long-term monitoring locations will be GPS located and included in the As-Built Report.

2.6 Goals, Objectives, and Performance Standards

The goals and objectives for the proposed onsite and offsite, in-kind mitigation actions are based on establishing and enhancing stream areas to compensate for the loss of stream areas. Non-compensatory mitigation actions are proposed to provide additional ecological benefits at the mitigation site. These non-compensatory mitigation actions include the replacement of one undersized culvert with an upgraded culvert to improve fish passage, and enhancement of all onsite buffer areas. In addition, the stream relocation will significantly improve overall habitat conditions. The goals and objectives of the proposed mitigation actions are as follows.

"Cover" is used in this Mitigation Plan to mean the proportion of the ground surface that is covered by vegetation when viewed from above. Native recruits will be utilized in assessing performance standards unless otherwise specified for a particular performance standard. Dead or dying plants may be replaced, and replacement plants may be utilized in assessing performance standards, unless otherwise specified for a particular performance standard.

Goal 1 – Compensate for the loss of 548 linear feet the existing Stream Z channel by realigning Stream Z.

Objective 1.1 – Create 580 linear feet of new Stream Z channel.

Performance Standard 1.1.1 – The new Stream Z channel will be created according to the final approved design and documented in the As-Built Report.

Performance Standard 1.1.2 – Large woody debris in the new Stream Z channel will be installed according to the final approved design and documented in the As-Built Report.

Goal 2 – Voluntarily restore 496 linear feet of Stream Y channel by relocating Stream Y into its historic channel.

Objective 2.1 – Restore 496 linear feet of Stream Y channel.

Performance Standard 1.2.1 – The connection of Stream Y to the historic channel will be created according to the final approved design and documented in the As-Built Report.

Goal 3 – Establish and enhance 34,362 square feet (0.79 acres) of riparian buffer for the newly restored Streams Y and Z to protect the streams and to provide improvements in buffer functions over existing degraded buffer conditions.

Objective 3.1 – Establish 34,362 square feet (0.79 acres) of riparian buffer that is vegetated with native woody plant cover to create diverse horizontal and vertical vegetation structure and wildlife habitat.

Performance Standard 3.1.1 – In Year 1, survival of installed woody vegetation will be 100 percent in the riparian buffer areas.

Performance Standard 3.1.2 – Native woody plant species will cover at least 15 percent of the mitigation areas at the end of Year 2, 25 percent cover at the end of Year 3, 35 percent cover at the end of Year 5, 50 percent cover at the end of Year 7, and 65 percent by the end of Year 10.

Performance Standard 3.1.3 – In all monitoring years, the riparian buffer area will contain at least 2 species of native trees and 3 species of native shrubs.

Objective 3.2 – Effectively control and/or eliminate non-native invasive species in riparian buffer areas.

Performance Standard 3.2.1 – Non-native invasive plants (excluding reed canary grass) will not make up more than 20 percent cover during all monitoring years. Non-native invasive plants are plants listed by the Washington State Noxious Weed Board.

Performance Standard 3.2.2 – Total reed canary grass cover will be reduced compared to baseline conditions established prior to the mitigation actions: 15 percent reduction below baseline cover by Year 5, and 30 percent reduction below baseline by Year 10.

Goal 4 – Protect stream processes and fish passage within the new Stream Z channel.

Objective 4.1 – Ensure the new bottomless culvert crossing of Stream Z functions allows for unobstructed flows.

Performance Standard 4.1.1 – The bottomless culvert crossing of Stream Z will be installed according to the final approved design and documented in the As-Built Report.

Performance Standard 4.1.2 – Unobstructed streamflow conveyance through the bottomless culvert will be observed in all monitoring years.

2.7 Plant Materials and Installation

2.7.1 Plant Materials

All plant materials to be used for the restoration actions will be nursery grown stock from a reputable, local source. Only native species are to be used; no hybrids or cultivars will be allowed. Plant material provided will be typical of their species or variety; if not cuttings they will exhibit normal, densely developed branches and vigorous, fibrous root systems. Plants will be sound, healthy, vigorous plants free from defects, and all forms of disease and infestation.

Container stock shall have been grown in its delivery container for not less than six months but not more than two years. Plants shall not exhibit rootbound conditions. Under no circumstances shall container stock be handled by their trunks, stems, or tops. Seed mixture used for hand or hydroseeding shall contain fresh, clean, and new crop seed mixed by an approved method. The mixture is specified in the plan set.

Fertilizer will be in the form of Agriform plant tabs or an approved like form. Mulch or coir rings may be installed around woody vegetation as determined to be necessary for plant survivability by the landscape contractor.

2.7.2 Plant Scheduling, Species, Density, and Location

Plant installation should occur as close to conclusion of clearing and grading activities as possible to limit erosion and limit the temporal loss of function provided by the onsite habitat. All plantings should occur between September 1 and May 1 to ensure plants do not dry out after installation, or temporary irrigation measures may be necessary. All plantings will be installed according to the procedures detailed in the following subsections and as outlined on the site plans in Appendix C.

2.7.3 Quality Control for Planting Plan

All plant material should be inspected by the landscape contractor or Project Biologist upon delivery. Plant material not conforming to the specifications above will be rejected and replaced by the landscape contractor. Rejected plant materials shall be immediately removed from the site.

The landscape contractor should provide the Project Biologist with documentation of plant material that includes the supplying nursery contact information, location of genetic source, plant species, plant quantities, and plant sizes.

2.7.4 Product Handling, Delivery, and Storage

All seed should be delivered in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. This material should be stored in a manner to prevent wetting and deterioration. All precautions customary in good trade practice shall be taken in preparing plants for moving. Workmanship that fails to meet industry standards will be rejected. Plants will be packed, transported, and handled with care to ensure protection against injury and from drying out. If plants cannot be planted immediately upon delivery they should be protected with soil, wet peat moss, or in a manner acceptable to the Project Biologist. Plants and mulch not installed immediately upon delivery shall be secured on the site to prevent theft or tampering. No plant shall be bound with rope or wire in a manner that could damage or break the branches. Plants transported on open vehicles should be secured with a protective covering to prevent windburn.

2.7.5 Preparation and Installation of Plant Materials

The landscape contractor shall verify the location of all elements of the mitigation plan with the responsible Project Biologist prior to installation. The responsible Project Biologist reserves the right to adjust the locations of landscape elements during the installation period as appropriate. If obstructions are encountered that are not shown on the drawings, planting operations will cease until alternate plant locations have been selected by and/or approved by the Project Biologist.

Circular plant pits with vertical sides will be excavated for all container stock. The pits should be at least 2 times the width of the rootball, and the depth of the pit should accommodate the entire root system. Please refer to planting detail in Appendix C.

Broken roots should be pruned with a sharp instrument and rootballs should be thoroughly soaked prior to installation. Set plant material upright in the planting pit to proper grade and alignment. Water plants thoroughly midway through backfilling and add Agriform tablets or similar. Water pits again upon completion of backfilling. No filling should occur around trunks or stems. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water and install a 3- to 4-inch layer of mulch around the base of each container plant if determined to be necessary by the landscape contractor.

Topsoil, mulch, compost, or other amendments may be installed to ensure plant survivability at the discretion of the landscape contractor.

2.7.6 Temporary Irrigation Specifications

While the native species selected for the habitat restoration actions are hardy and typically thrive in northwest conditions and the proposed actions are planned in areas with sufficient hydroperiods for the species selected, some individual plants might perish due to dry conditions. Therefore, irrigation or regular watering may be provided as necessary for the duration of the first two growing seasons while the native plantings become established. If used, irrigation will be discontinued after two growing seasons. Irrigation is recommended two times per week. Frequency and amount of irrigation will be dependent upon climatic conditions and may require more or less frequency watering than two times per week.

2.7.7 Invasive Plant Control and Removal

Invasive species to be removed include reed canarygrass and all listed noxious weeds. To ensure non-native invasive species do not expand following the habitat restoration actions, non-native invasive plants within the entire mitigation area will be pretreated with a root-killing herbicide approved for use in aquatic sites (i.e., Rodeo) a minimum of two weeks prior to being cleared and grubbed from the restoration areas. A second application is strongly recommended in areas with dense cover of non-native, invasive species. The pre-treatment with herbicide should occur prior to all planned restoration actions, and spot treatment of surviving non-native invasive vegetation should be performed again each fall prior to senescence for a minimum of five years.

2.8 Maintenance & Monitoring Plan

Conceptual Maintenance and Monitoring Plans are described below in accordance with PMC 21.06.630 and anticipated conditions from other regulatory agencies. The Applicant is committed to compliance with the conceptual mitigation plan and overall success of the project. As such, the Applicant will continue to maintain the project, keeping the site free from non-native invasive vegetation and trash. Maintenance frequency may be altered depending on the success of the mitigation site as evaluated during the monitoring visits.

The mitigation actions will require continued monitoring and maintenance to ensure the mitigation actions are successful. Therefore, the mitigation site will be monitored for a period of 10 years with formal inspections by a qualified Project Scientist. An As-Built (Year 0) inspection will occur within 30 days of the completion of plant installation. The maintenance/monitoring period will begin upon completion of an as-built plan and certification from the Project Scientist certifying the mitigation was installed per the mitigation plan. Formal monitoring events will be scheduled during Years 1, 2, 3, 5, 7, and 10. Close-out assessment with also be conducted in Year 10.

Monitoring will consist of percent cover measurements and stem counts at permanent monitoring stations, walk-through surveys to identify invasive species presence and dead or dying enhancement plantings, photographs taken at fixed photo points, wildlife observations, and general qualitative habitat and wetland function observations. Data collected during monitoring visits will be appropriate for the performance standards of the relevant monitoring year. The permanent monitoring stations will be established such that the mitigation site is representatively sampled. Circular sample plots, approximately 30 feet in diameter (706 square feet), will be centered at each monitoring station. Sample plots will be located entirely within the proposed mitigation site. Sample plot shapes may need to be adjusted to ensure that sample plots do not cross the mitigation site boundaries; adjusted sample plot shapes should maintain the same area as the 30-foot-diameter circular sample plots. Mean survivorship and percent cover measurements from the sample plots will be used to estimate survivorship and percent cover across the mitigation site.

To determine survivorship, individual tree and shrub stems within the relevant circular sampling plots will be counted. Plants which grow several stems from a single base will be counted as one individual plant. These trees and shrubs will then be recorded as dead/dying or alive. To determine percent cover and species richness of woody vegetation, each species of tree or shrub within the approximately 30-foot-diameter circular sampling plots will be recorded and identified as native or invasive. Plants may be recorded by genus if species is unable to be determined at the time of the monitoring visit. Herbaceous vegetation will be sampled from a 10-foot diameter (78.5 square feet), established at the same location as the center of each tree and shrub sample plot. Herbaceous vegetation within the sampling plot will be recorded to at least the genus level and identified as native or invasive. A list of observed tree, shrub, and herbaceous genera or species, cover estimates, and wetland indicator status will be included within each monitoring report.

Non-native, invasive plant control will be performed throughout the monitoring period. Plants listed by the Washington Noxious Weed Board will be controlled to meet applicable performance standards. Herbicide applications will be made in accordance with the Washington Department of Agriculture pesticide application procedures unless prohibited by the City of Puyallup. Herbicides will be herbicides approved by the Washington State Department of Agriculture for use in aquatic areas and will only be applied by a licensed applicator in aquatic areas.

2.9 Reporting

Following the implementation of the mitigation actions, the responsible Project Scientist will prepare an As-Built (Year 0) Report and will be submitted to the City of Puyallup's project manager and appropriate agencies within 90 days following the post-construction monitoring event. Following each monitoring event, a monitoring report detailing the current ecological status of the mitigation actions, measurement of performance standards, and management recommendations will be prepared and submitted to the City of Puyallup and appropriate agencies within 90 days of each monitoring event to ensure full compliance with the mitigation plan, performance standards, and regulatory conditions of approval. Per PMC 21.06.630(2), monitoring reports are only required annually for the first three years following construction and at least upon the completion of the last monitoring year.

2.10 Contingency Plan and Long-Term Management Plan

If monitoring results indicate that performance standards are not being met, it may be necessary to implement all or part of the contingency plan. Careful attention to maintenance is essential in ensuring that problems do not arise. Should any portion of the site fail to meet the success criteria, a contingency plan will be developed. Such plans are adaptive and will be prepared on a case-by-case basis to reflect the failed mitigation characteristics. Contingency plans can include additional plant installation, erosion control, and plant substitutions including type, size, and location. The contingency measures outlined below can also be utilized in perpetuity to maintain the streams and buffers associated with the proposed mitigation site.

This project proposes 10 years of monitoring for the mitigation actions in compliance with the goals and performance standards outlined in Section 2.6 of this report. However, the agencies may request additional years of monitoring and formal reporting if the site has not met the goals and performance standards by Year 10.

Contingency/maintenance activities may include, but are not limited to:

1. Using plugs instead of seed for emergent vegetation coverage where seeded material does not become well-established;
2. Replacing plants lost to vandalism, drought, or disease, as necessary;

3. Replacing any plant species with a 20 percent or greater mortality rate after two growing seasons with the same species or native species of similar form and function;
4. Irrigating the mitigation areas only as necessary during dry weather if plants appear to be too dry, with a minimal quantity of water;
5. Reseeding and/or repair of mitigation areas as necessary if erosion or sedimentation occurs;
6. Spot treat non-native invasive plant species, and
7. Removing all trash or undesirable debris from all mitigation areas as necessary.

2.11 Financial Assurances

Per PMC 21.06.650, a mitigation surety is required ensure that mitigation is fully functional. The Applicant will provide a performance bond and monitoring and maintenance bond in an amount equal to 125 percent of the total estimated fair market cost of mitigation actions. Per PMC 21.06.650, the mitigation surety shall be based on a detailed itemized cost estimate of the mitigation activity including clearing and grading, plant materials, plant installation, irrigation, weed management, and other costs. The bond quantity worksheet will be provided for the Final Mitigation Plan.

2.12 Critical Area Protection

The mitigation areas will be placed in a separate tract or dedicated to the City as a permanent protective mechanism per PMC 21.06.610(7) and PMC 21.06.830. Critical area tracts shall be designated as native growth protection areas and shall be recorded on all documents of title of record for all affected lots and will be designated on the face of the plat or recorded drawing. Fencing and signage will also be provided per PMC 21.06.810 to reduce intrusion into the critical areas and prevent future impacts to the critical areas.

Chapter 3. Closure

The findings and conclusions documented in this report have been prepared for specific application for the East Town Crossing project. These findings and conclusions have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. The conclusions and recommendations presented in this assessment report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, our observations and conclusions applicable to this assessment may need to be revised wholly or in part in the future.

Chapter 4. References

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Appendix A – Prior Referenced Critical Area Reports

1036

Verification Report for the Wetland & Stream Delineations at *"EAST TOWN CROSSING"* for the Abbey Road Group (ARG) Project #06-171

(REF: City of Puyallup #P-09-0039—Binding Site Plan & SEPA—2902 E. Pioneer for "*East Town Crossing*"; formerly: "*Pioneer Village Mixed Use Development*", City of Puyallup Case No. 02-17-005)

Located at
2902 East Pioneer, Puyallup, WA 98372
Parcel Nos. 0420264021, 0420264053, 0420264054,
0420351066, 0420351026, 0420351029, 0420351030

Situated in the
SE ¼ of the SE ¼ of Section 26-T20N-R4E, and
NE ¼ of the NE ¼ of Section 35-T20N-R4E, W.M.,
City of Puyallup, Pierce County, Washington

Prepared for
Gil Hulsmann, CEO-Director of Land Development Services
Abbey Road Group Land Development Services Company, LLC
PO Box 1224, Puyallup, WA 98371
Phone: 253-435-3699 (ext. 101)
Fax: 253-446-3159
Cell: 253-405-1246
Gil.Hulsmann@AbbeyRoadGroup.com

March 24, 2020

Prepared by
JOHN COMIS ASSOCIATES, LLC
Consulting for Wetlands, Streams & Mitigation Designs since 1989
1027 North Oakes Street
Tacoma, WA 98406
Phone: 253-272-6808
Mobile: 253-686-4007
E-mail: jcomis@johncomisassociates.com
JCA Job#200217 (Formerly: #090806 & #070321)

JOHN COMIS ASSOCIATES, LLC

Consulting for Wetlands, Streams, & Mitigation Designs since 1989

1027 North Oakes Street
Tacoma, WA 98406
Office: (253) 272-6808
Mobile: (253) 686-4007
E-mail: jcomis@johncomisassociates.com

March 24, 2020

City of Puyallup
Development Services Center
333 South Meridian, 2nd Floor
Puyallup, WA 98371
Attention: Rachael N. Brown, Assistant Planner, 253-841-5462, rnbrown@ci.puyallup.wa.us

SUBJECT: Verification Report for the Wetland & Stream Delineations at "***East Town Crossing***" for the Abbey Road Group (ARG) Project #06-171

REF: (1) The original 2008 and 2009 wetland delineation reports by JCA for this project site analysis using original data and standards dated May 30, 2008, JCA Job #070321, and revised August 21, 2009, JCA Job#090806; (2) City of Puyallup #P-09-0039-Binding Site Plan & SEPA for "*East Town Crossing*"; formerly: "*Pioneer Village Mixed Use Development*", City of Puyallup Case No. 02-17-005

To Whom It May Concern:

This report documents a verification for wetland and stream delineations with findings and recommendations for the property known as the "East Town Crossing" located at located at 2902 East Pioneer, Puyallup, WA 98372. The project site is situated in the City of Puyallup, Pierce County, Washington, and consists of the following parcel numbers: 0420264021, 0420264053, 0420264054, 0420351066, 0420351026, 0420351029, 0420351030.

This report is submitted to the City of Puyallup on behalf of the property owner, Gil Hulsmann, CEO-Director of Land Development Services, Abbey Road Group Land Development Services Company, LLC, for the City's review and approval. The report includes an onsite and offsite analysis of wetlands and streams that exist within 300 feet [1] of a Project Site as indicated on Figure 1.

The report concludes with JCA's recommendation for a "Non-Regulated drainage ditch along the eastern side of the property"; and "no regulated wetlands onsite", and the regulated offsite wetland buffer, which is more than 150 feet from the southern side of the site, does not extend into this project site. We understand that after reviewing this report, the City will send a letter to the applicant that outlines steps to take for final approval.

[1] The 300-foot distance is the maximum buffer width for the highest rated wetland, PMC 21.06.140, Identification and mapping of critical areas. This represents a reasonable distance from which a "regulated activity" should not impact a "regulated wetland.

Standard of Care

Please be advised that John Comis Associates (JCA) has provided professional services that are in accordance with the degree of care and skill generally accepted in the performance of this environmental evaluation. Wetland determinations, delineations, classifications, ratings and other analysis should be reviewed and approved by the City of Puyallup, the local government agency with permitting authority, and potentially other agencies with regulatory authority prior to extensive site design or development. No warranties are expressed or implied by this study until approved by the appropriate resource and permitting agencies.

The findings expressed in this report are based on my field investigations, available data, and professional judgment. If you have any questions regarding this information or findings, please feel free to call or e-mail JCA at the above listed numbers to discuss these findings.

Wetland Specialist Certification

This report correctly represents a wetland and stream study made by me or under my direct supervision at the request of Gil Hulsmann, CEO-Director of Land Development Services (the Owner/Applicant), for the Abbey Road Group "*East Town Crossing*", ARG Project #06-171 (formerly "Pioneer Village Mixed Use Development"), located at 2902 East Pioneer, Puyallup, WA 98372; Parcel Nos. 0420264021, 0420264053, 0420264054, 0420351066, 0420351026, 0420351029, 0420351030, situated in the City of Puyallup, Pierce County, Washington.

John G. Comis, PWS — 3/24/2020 (Date)
Professional Wetland Scientist (SWS-PCP #0810)
Certified Wetlands Specialist (by Pierce County since 1992)

Enclosures: (see Table of Contents for figures and appendices included with report)
File: \AbbeyRdGrp-ETownCrossingVerificationRpt.doc (JCA Job#200217)
Cc: Gil Hulsmann, CEO-Director of Land Development Services
Abbey Road Group Land Development Services Company, LLC
PO Box 1224, Puyallup, WA 98371
Phone: 253-435-3699 (ext. 101)
Fax: 253-446-3159
Cell: 253-405-1246
Gil.Hulsmann@AbbeyRoadGroup.com

Table of Contents

Page No.

REPORT SECTIONS:

FIGURES:

APPENDICES:

Verification Report for the Wetland & Stream Delineations at "*East Town Crossing*" for the Abbey Road Group (ARG) Project #06-171

1. Introduction, Background and Summary of Proposed Activity

a. Introduction

The site is generally located in the southeastern part of the City of Puyallup, just east of Shaw Road and south of Pioneer Way (East Pioneer Avenue). The intersection of these 2 major arterials is at the northwest corner of this property. The property extends approximately 660 feet east from the intersection and approximately 1400 feet south from the intersection. The details for site location and data are shown on the *Vicinity Map* (Figure 1).

The project site data and specifications are as follows:
- Project Description: Mixed Use Development—Retail, Commercial and Residential
- Site Address: 2902 East Pioneer, Puyallup, WA 98372
- Site Location: SE ¼ of the SE ¼ of Section 26-T20N-R4E, and NE ¼ of the NE ¼ of Section 35-T20N-R4E, W.M., City of Puyallup, Pierce County, Washington State
- Tax Parcel Nos. (see *Parcel Map*, Figure 2)
    - # 0420264021 Site Size: 88,893 SF Acres: 2.04
    - # 0420264053 Site Size: 206,192 SF Acres: 4.73
    - # 0420264054 Site Size: 43,338 SF Acres: 0.99
    - # 0420351066 Site Size: 59,591 SF Acres: 1.37
    - # 0420351026 Site Size: 25,265 SF Acres: 0.58
    - # 0420351029 Site Size: 25,265 SF Acres: 0.58
    - # 0420351030 Site Size: 25,700 SF Acres: 0.59
- Total Acreage: 10.887 Acres (474,244 SF)

b. Background

The findings and recommendations expressed in this report are based on field investigations conducted by John Comis Associates (JCA) at the project site, together with a review of other available data, reports and information compiled by JCA during the course of this study. This verification includes a routine onsite determination of the presence or absence of regulated wetlands using field indicators for hydrophilic vegetation, hydric soils, and wetland hydrology, and an approximate delineation of any onsite wetland boundaries. Approximate wetland delineations are based on the current "*Washington State Wetlands Identification and Delineation Manual for Western Washington*" [2]. Wetland categorization or rating is based on the current "*Washington State Wetland Rating System for Western Washington: 2014 Update*", effective January 2015 (WDOE Pub #04-06-029).

This wetland study is based on the City's current standards and requirements for regulated wetland areas. JCA has provided new wetland reconnaissance maps for the project area showing approximate locations of the offsite wetlands that are derived from this reconnaissance and earlier studies of this area by JCA and others. This mapping includes wetland information that shows locations of existing wetlands, buffer boundaries, and proposed new development within the project site. JCA has evaluated applicable parts of

[2] Please note that delineations are done in accordance with the current *Washington State Wetlands Identification and Delineation Manual* (WDOE, 1997). This manual method has been updated by the US Army Corps of Engineers (USACE) using the current *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010).

the original 2008 and 2009 reports and provides new findings and recommendations for onsite and/or offsite wetlands and streams that are applicable for review by the City. This verification includes background information provided by the Client such as the 2006 Herrera Study of the offsite area just south of this project site.

Generally, the project site is situated along the east side of Shaw Road and south of Pioneer Way within the City limits of Puyallup. The total size of the project site is 10.887 Acres (474,244 SF). It is located approximately ¼ mile to the east of *Deer Creek*, which is a regulated stream in accordance with the City of *Puyallup Municipal Code* (PMC 21.06.1010, Stream designation, mapping and rating).

Regulated offsite wetlands are found to be approximately 150 feet south of this project site boundary at the closest point (see Figures 5, 6 & 7 for details). A detailed offsite wetland analysis was done by JCA in 2008 that included this project site and 2 more parcels to the south of the current project site.

Offsite wetland boundaries are delineated as shown on the maps included with this report. The offsite wetland is designated as **Wetland "A"** by this study. Wetland "A" is situated south of the site. A drainage ditch and buried culvert pipe extend to the north along the eastern side of the site. The drainage pipe and ditch extend from the northern end of Wetland "A", which is located about 150 feet south of the SE property corner. More about this may be found in the Hydrology Section.

Offsite wetland delineation points were previously surveyed on 8/10/00 at the locations marked on the survey map published by "Herrera Environmental Consultants", December 2001. The Herrera 2001 report was for the development called "ABSHER Construction Co. Panel Yard & Carpenter Shop" (Parcel Nos. 0420355018 & -5025) and "Abbey Road Group Office Building" (Parcel No. 0420355026). That study was reviewed and approved by the City of Puyallup in 2001 for building permits issued for that development. The offsite wetland was rated Category II by that study and a standard buffer width of 50 feet was required at that time, which was subsequently modified to be 25 feet with buffer enhancements that were approved by the City.

In 2001, the buffer boundary was staked and a wooden split-rail fence was constructed around the original wetland that extended through Parcel Nos. 042026-5018, -5025, and -5026 (see *Parcel Map*, Figure 2). These are the properties along Shaw Road and south of the current project site. The fencing is still in place at this time. The storage yard that exists near the southeast side of *East Town Crossing* appears to be filled to the edge of the original 25-foot wide buffer in accordance with permits approved by the City.

The offsite wetland rating has been rechecked by JCA using the current City of *Puyallup Municipal Code* (PMC) requirements for critical wetland areas, together with current wetland categorization or rating is based on the "*Washington State Wetland Rating System for Western Washington: 2014 Update*", effective January 2015 (WDOE Pub #04-06-029). Please refer to the new rating information completed by JCA and included with this report.

Critical area studies have been conducted for onsite and offsite areas. These studies include the following:

- Approved SEPA Determination for parcel #0420264021, dated 1/06/05 (#04-31-027)
- Approved Grading Permit for parcel #0420264021, dated 3/25/05 (#PW3149)
- Piezometer Monitoring Study for the "Shaw Road Extension Project", by JCA, dated 8/15/01
- Wetland Analysis Report by for parcel #0420264021 ("Willows #4"), by JCA, dated 6/25/02
- Wetland Verification Report for parcel #0420264021 by JCA, dated 11/9/04
- Geotechnical Engineering Study prepared by Earth Consultants, dated 8/21/01
- Mitigated Determination of Non-Significance, dated 6/7/02
- Revised Determination of Non-Significance, dated 6/16/03
- Topography/boundary Survey by Abbey Road Group, dated 2/8/07

A SEPA checklist was submitted on April 12, 2002 in accordance with State and local environmental regulations. In addition to the checklist, the applicant submitted the supplementary information: *Wetland Technical Study* prepared by Herrera Environmental Consultants (December 2001); *Preliminary Storm Drainage and Erosion Control Report* prepared by C.E.S. NW, Inc. (April 2002); *Geotechnical Engineering Study* prepared by Earth Consultants (August 21, 2001); and an *Abbreviated Trip Generation Analysis* prepared by Heath & Associates (April 11, 2002).

c. Summary of Proposed Activity

At this time, the proposed project includes the new development of the "*East Town Crossing*". The combined 10.887 acres (474,244 SF) of this project site may be divided into phases for construction. The first phase includes a plan for retail development. Phase 2 includes a plan for commercial development. Phases 3 through 5 may consist of multi-family townhouse development. The combined retail, commercial and the townhouse dwelling areas are not known at this time, but should have adequately sized unit areas with parking stalls/garages on the property for the prescribed number of units.

The proposed 5 phases in the building areas, including parking, driveways, landscaping, and access points to the arterial streets should be provided in the future to the City by the applicant and project engineer. All utilities including water, sewer and power are available in this area from existing public systems. A clearing and grading permit have already been obtained from the City for site development purposes and completed in 2008.

The project does not include any regulated activities within a wetland or stream buffer area. The proposed project avoids impacts to wetlands or streams such as filling, draining, constructing, or altering within a regulated wetland or stream. Potential impacts to onsite and offsite wetlands or streams are discussed in later sections of this report.

2. Dates and Weather Conditions during Analysis

On 3/4/2020, JCA conducted a field investigation to verify onsite and offsite wetlands and review the previous studies done by JCA and others in this area. The field investigation was conducted by John G. Comis, PWS, Certified Wetlands Specialist, or under his direct supervision.

The field investigations were conducted during normal wet weather conditions during the early part of the 2020 "mesic" growing season. Previous site visits had been done during dry weather conditions in September and in August 2007. The specific dates and weather conditions are recorded on our field notes and maps. The wet weather conditions in March of this year are generally summarized as follows:

- Partly cloudy; light rain during past 24 hours, and heavier rain during the past week;
- Generally, "wet" site conditions; standing water present in depressions and flowing water in some roadside ditches;
- Standing and flowing water present in lowest parts of depressional Wetland "A";
- Antecedent moisture condition at the site is recorded as "wet" (i.e. AMC=3.0, Temp=52^0 F; in the "early growing season".

3. Methods Used for Identifying and Delineating Wetlands

The wetland verification includes a routine onsite determination for the presence or absence of regulated wetlands using field indicators for hydrophilic vegetation, hydric soils, and wetland hydrology, and approximate delineation of any onsite wetland boundaries. Approximate wetland delineation are based on the current "*Washington State Wetlands Identification and Delineation Manual for Western Washington*" [3]. Wetland categorization or rating is based on the current "*Washington State Wetland Rating System for Western Washington: 2014 Update*", effective January 2015 (WDOE Pub #04-06-029). Please note that offsite wetlands must be evaluated if they are located within 300 feet [4] of a Project Site, but not with the same detail. This work may include other delineation information provided by the Client such as the 2006 Herrera Study south of this site.

This wetland and stream study are based on the City's current standards and requirements for regulated wetland areas. JCA reviewed the original 2008 and 2009 reports describing findings and recommendations for offsite wetlands. The work includes revised wetland reconnaissance maps of the project area showing approximate locations of offsite wetlands that are derived using this reconnaissance and the other studies of this area. The mapping includes wetland delineation data that shows the locations of the offsite wetland and any proposed buffer boundaries. This report by JCA is a supplement to the original 2008 report and describes the new or revised findings and recommendations that are applicable to the project site in accordance with current the City's wetland requirements.

For an area to be determined a "jurisdictional wetland" it must necessarily meet the scientific ***definition and 3-parameter criteria***. These criteria are the presence of hydrophytic vegetation, hydric soil and persistent hydrology. The selection of a specific method or procedure for determining jurisdictional wetlands follows: 1) the "routine onsite delineation method" for normal, undisturbed and non-problem area wetlands; 2) the "offsite delineation method" for areas within 315 feet of the project boundary; and/or 3) the "disturbed area and problem area wetland delineation procedures" for areas with disturbed vegetation, soils or hydrology.

JCA researched other records for wetland information such as the Pierce County Public GIS online map data, the National Wetland Inventory (NWI) map data (see Figure 1), Aerial Photos, Soil Surveys, Flood Study maps, Topography and Drainage maps. That data was used to determine if mapped wetlands or streams are within or near the project site. The offsite wetland area was indicated on some of those maps (see figures included with this report for details).

The wetland and/or non-wetland determination for this site is based on our professional judgment and existing conditions found at the project site during our site visits. The existing conditions include established man-made changes such as clearing and drainage that are verified in onsite and offsite areas.

The plant community criterion is used where vegetation is generally undisturbed and identification of dominant wetland indicator species can be done. The hydric soil criterion is used along with the hydrology criterion when it is present (i.e. when wetland depressions are not dried out during dry summer periods). If there is a marginal condition where the plants alone are not sufficient to make a determination, then soil and hydrology conditions rule.

Sample test plots were examined at various locations along the east side of the project site, both within and adjacent to the existing drainage ditch that is supposed to flow along this side of the site. JCA also examined the adjacent offsite area to the south within Wetland "A" (see Figure 7 and the Field Note Sketch Map in Appendix 2 for locations and details). These test holes were dug by hand generally 18 to 30 inches deep to compare and contrast dominant soil and hydrology characteristics. Test holes along the drainage ditch was used to verify that the bottom of the ditch was dry and the soil was not saturated to depths of 24" to 30" deep, and hydrology criterion was not met along this ditch in the onsite and adjacent offsite areas.

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[3] Please note that delineations are done in accordance with the current *Washington State Wetlands Identification and Delineation Manual* (WDOE, 1997). This manual method has been updated by the US Army Corps of Engineers (USACE) using the current *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010).

[4] The 300-foot distance is the maximum buffer width for the highest rated wetland, PMC 21.06.140, Identification and mapping of critical areas. This represents a reasonable distance from which a "regulated activity" should not impact a "regulated wetland.

The offsite boundary of Wetland "A" that is nearest to the project site was checked and verified. The boundary appeared to be clearly defined, and only a few points were documented for the wetland and non-wetland areas.

4. Flagging Used for Onsite and Offsite Areas

The *Aerial Photo with Wetland Delineation* (Figure 6) and the *Wetland Delineation Map with Notes* (Figure 7) show data points that were flagged during the original field investigation by JCA in 2007, during the recent verification investigation by JCA in 2020. Please note that the offsite wetland unit farther to the south was originally marked in 2000 and 20011 by others. [5]

The offsite wetland boundaries were flagged and surveyed for the Herrera study and plotted to scale on their site plan map dated 8/10/00. The Herrera study information was subsequently overlaid by JCA onto the *Wetland Delineation Map with Notes* (Figure 7) in this report and used as the basis for the offsite delineation of the wetland area we have designated as Wetland "A" for this study.

Data points in onsite and adjacent offsite areas are flagged with colored ribbon marked as follows:

- "TEST PLOT-*number*" (blue and green ribbons, tied to vegetation or wooden stakes, see triangles on map)
- "DRA-*number*" (blue ribbon, tied to vegetation, marking centerline (CL) of drainage (DRA) ditch and survey for drainage culvert inlet and outlet (see TP#'s on maps)

5. Field Observations and Data Analysis

There are no onsite regulated wetlands within the northern part of the *East Town Crossing* site. This is in the new and *Development Area Site Plan* (Figure 8) in the northern part of the site, north of Parcel No. 0420355026. Please see the maps provided with this report (*Parcel Map*, Figure 2, *Aerial Photo with Wetland Delineation*, Figure 6, and *Wetland Delineation Map with Note*, Figure 7) for details of parcel boundaries, the project site boundary, physical features that exist within and near the site, and specific offsite wetland delineation information.

Within the northern site area, we found no field indicators for wetlands including hydrophytic vegetation, hydric soils, or sufficient wetland hydrology, except in the bottom of an existing storm water retention pond. The storm pond is a 2-chamber facility for controlling drainage waters and runoff from this site.

For the purpose of this study, storm ponds and drainage ditches that are not built and maintained in pre-existing wetland areas are considered exempt from critical area regulations in accordance with the PMC definitions for "wetlands" and "exemptions".

The *Wetland Delineation Map with Notes* (Figure 7) is prepared by JCA. It is based on a land survey prepared by Abbey Road Group dated 2/8/07. The map includes current wetland data and analysis by JCA during field investigations on 4/6/07 and 9/28/07. This map also shows wetland information that we compiled based on other wetland delineations and studies done in 2001 for this area such as the offsite wetland delineations done by Herrera Environmental Consultants dated 8/10/00. Figure 7 shows the location of surveyed data points together with the offsite wetland delineation by JCA in the northern part of Wetland "A". These data are plotted to scale on Figure 7.

A photo survey of the original site conditions that were found on 4/6/07 and 9/28/07, and used to document the 2008 study is provided with this report in Appendix 4. The photo survey of the site conditions that are

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[5] Wetland Study prepared by Herrera Environmental Consultants (December 2001), see Background Section 1.b, page 5 for details.

used for the current 2020 verification study of the project site is provided in Appendix 5. Both photo surveys included a record of observations made for both onsite and offsite areas. Please refer to Figure 6 for photo locations that were used in 2008. The numbered arrows show the position and direction from which the photos were taken. These photographs show the important features such as a small, offsite drainage ditch that flows to the north along the east side of the project site. They also show the changes that have occurred over the 12 years between these two studies. Additional photographs were taken in these areas by JCA, which are not included and which are on file with JCA.

a. Vegetation

Vegetation in offsite Wetland "A" is a mixture of emergent grasses and forbs in the northeastern part of the wetland; and forested-shrub in the southwestern part. Vegetation in the surrounding edges of Wetland "A", along the steep terrace hillside, includes forested class with understory shrubs and herbaceous plants in 3 strata that each covers at least 20% of the forested polygon.

Invasive plant species such as reed canary grass (*Phalaris arundinacea*, FACW indicator status) are dominant in the northeastern part of Wetland "A" as mostly perennial core plants which are normally adapted to expand into a massive mat as the soils are saturated and functioning as a hydric soil. There are at least 12 different species identified within the wetland. The dominant species in the wetland area closest to the project site include cattail (*Typha latifolia*, OBL) and soft rush (*Juncus effuses*, FACW), buttercup (*Ranunculus repens*, FACW), willows (*Salix spp*., FACW), red-osier dogwood (*Cornus stolonifera*, FACW), and hardhack (*Spiraea douglasii*, FACW).

Vegetation along the offsite drainage ditch at the eastern side of the site is a mixture of facultative upland (FACU) and facultative wetland (FACW) species. Plants that dominate the upland areas along the ditch are primarily dense stands of Himalayan blackberry (*Rubus discolor*, FACU) and clumps of red alder (*Alnus rubra*, FAC), hardhack, wild rose (*Rosa spp.* FAC), Scot's broom (*Cytisus scoparius*, NI(UPL)) and various grasses including reed canary grass that is growing in large patches throughout parts of the upland on the east side of the ditch.

Vegetation is growing across and within the offsite drainage ditch, chocking much of the flow at this time, is mostly dense reed canary grass. This grass is an introduced and invasive species and as described above, it is mostly perennial core plants which are normally adapted to expand into a massive mat as the soils are saturated.

There is no unusual or dominant non-native PLANT species identified within the wetland. There is no endangered, threatened or sensitive PLANT species known to exist on this site. This is based on observations at the site and comparison with the current report by the Washington Department of Natural Resources, 1990 "*Endangered, Threatened & Sensitive Vascular Plants of Washington*", compiled by the Washington Natural Heritage program.

b. Soils

Soils were examined in test plot holes dug by a hand generally 14 to 15 inches deep to compare and contrast dominant soil characteristics in clearly hydric soil areas with soil characteristics in possible or non-hydric areas. A "hydric soil" is saturated or flooded or ponded long enough during the 'mesic' growing season (Mar to Oct) to develop anaerobic conditions in the upper part of the soil horizon (generally less than 12" deep).

Field indicators for hydric soil included dominant matrix colors with a chroma of /1 or /2, together with at least 2 secondary indicators such as prominent (or distinct) red or gray mottles at depths less than 12" (if the mottles are not relic mottles).

The non-hydric soil test plots are characterized by higher chroma colors of /3 or /4, and if it has a chroma of /2, then it lacks at least 2 secondary indicators such as prominent (or distinct) mottles at depths less than 12". Non-hydric soil characteristics also include deep roots and soil textures that have a relatively higher proportion of sands and gravel, and less silty clay, or blocky structure. These soils generally appear in areas that are better drained. Non-hydric soils developed under predominantly aerobic conditions and support plant communities that are adapted to having dryer root zones.

Soils 'series' are generally shown on the *Soils Survey Map* (Figure 3) within onsite area as a Briscot loam (6A map unit), or as a Puyallup fine sandy loam (31A map unit), with 0-3% slopes. It should be noted that from the soil description for a Briscot soil, this soil type may be hydric if it is undrained. That means that if the soil is not naturally or artificially drained by ditches or subdrains, then the soil may retain enough water to produce anaerobic characteristics and become hydric.

The onsite soils that we identified during the field investigations generally correspond with these soil types. However, most of the site has been filled, graded or agriculturally managed over many years in the past. The Briscot soil that is still evident and exposed in the onsite area is drained by ditches and other artificial means over the years and does not appear to be a hydric soil. The remaining portions of the site are either imported fill material and therefore are technically a "non-soil" or are graded and developed agricultural land.

A hydric Semiahmoo muck (37A map unit) is shown on the soil survey map about 200 feet south of the site. This generally corresponds to the actual location of Wetland "A" that we found in that area during this study. The soil map also indicates a Kitsap silt loam (20D) with 15-30% & steeper slopes, and Xerochrepts (47F) with 45-65% slopes, extend up the hillside area along the south and eastern sides of this wetland area. Other map units that are indicated in this area and that may be inclusions within the mapped units are listed in the legend on the *Soils Survey Map* (Figure 3).

The soils that we found outside of the delineated offsite wetland area do not have dominant hydric soil characteristics. The non-wetland test plots reveal a mineral soil in the upper A and B horizons with a sandy or silty sandy loam texture, a soil color with matrix chroma of 2 or greater, a deeper root zone, and no distinct or prominent mottles. The mottles, if present, are faint (weak) with a mottle color that is less than 4 chroma points from the matrix color.

The soil within the delineated wetland remains saturated for sufficient periods of time to produce hydric soil indicators typical of a Semiahmoo muck with prominent (or distinct) redoximorphic features, low chroma color characteristic of this hydric soil.

c. **Hydrology**

In the past JCA has conducted extensive and detailed wetland hydrology monitoring studies for Parcel No. 0420264021 (Figure 2) in the northwest part of *East Town Crossing* site. This area was studied by JCA as part of the "*Willows--4*" site in 2002. Hydrology monitoring data was collected during an early growing season in 2001. That study extended from the end of February thru the first of April, 2001. Monitoring stations were laid out along transect lines across the *Willows-4* site, which were identified as possible wetlands by the City. Hydrology data was compiled together with surface drainage and soil data by JCA and the study extended through March 2002. The report was published by JCA dated June 25, 2002, titled *Wetland Analysis Report and Monitoring Study for the "Willows Holdings Site #4 Property" in the City Limits of Puyallup, Washington*. The report was submitted to the City of Puyallup by the applicant and was subsequently approved.

At that time JCA found that 2 ditches were associated with roadway drainage and flowed intermittently along the north side of the site (south side of Pioneer Way), and along the west side of the site (east side of Shaw Road). The northern ditch along Pioneer Way carried offsite runoff from what appeared to be spring fed areas south of the site from along the terrace hillside to the culvert system under the intersection of Pioneer Way and Shaw Road. The northern ditch was the main ditch that carried most of the flow that bypassed the site and discharged directly into the culvert under that intersection.

Most of the drainage from the *Willows-4* site went directly to a small ditch on the west side of the property that water flowed ephemerally (only during wet weather events) to the west and under Shaw Road thru a cast iron culvert pipe to a catch basin on the west side of Shaw. The culvert under Shaw Road appeared to have been elevated and may have acted to detain flow in the ditch until sufficient "headwater" depth was reached and it begin flowing on out. Please refer to the *Topography and Drainage Map* (Figure 5) in this report that shows the drainage patterns and test plot locations from the original *Willows-4* study of this area.

During the *Willows-4* study, the lowest part of the site was along the west ditch at the culvert under Shaw. TP14 was set nearest to that location (see Figure 5); TP13 was set about 20 feet NE in a slightly higher location; and TP12 was set in a spot-depression at the SW corner of the *Willows-4* site, which had been observed with standing water earlier in that study. The rest of the site had no standing water or saturation as evidenced by the test holes that were dug in 1996 for a preliminary site reconnaissance and then re-dug in March 2002 for the detailed monitoring study.

When saturation was measured in the *Willows-4* piezometer study, it was found to be above 12 inches. However, the occurrence was found to be of a short duration (13 to 14 days). The soils appeared to be generally drained Briscot loam (although not "well drained") by ditches and/or sub-drains that were established within the site for agricultural purposes. In all the piezometers and open test pits, no prolonged saturation remained above 12 inches for more than 20 consecutive days during the early growing season. When onsite surface ponding did occur in shallow depressions, it did not remain for sufficient periods to create prolonged saturation or hydric soil conditions. In all of the *Willows-4* test plots, no sufficient hydroperiod was observed that produced a positive wetland determination (i.e. after various rainfall events we monitored the groundwater levels and found that the groundwater appears to drain back down to below 12 inches after about 13 to 14 days).

The conclusion of the *Willows-4* hydrology analysis was that inundation and/or saturation was occasionally present for less than 20 consecutive days during the early 'mesic' growing season. And onsite areas were consistently found to be non-wetland based on the lack of sufficient hydrology and lack of dominant field indicators for hydric soil determination. However, the bottoms of the roadside ditches appeared to have sufficiently long periods of inundation and saturation to produce a positive wetland determination.

These same conditions appeared to have been present in surrounding areas to the south and east of the *Willows-4* site—in the properties that are now under study for *East Town Crossing*.

Some surface water had been standing in shallow depressions in the *East Town Crossing* parcels during the same periods in 2001. These parcels were not studied in detail at that time with piezometer monitoring stations. However, it appeared that water flowed out these areas in culverts and in the ditches around these parcels in the same manner as the detailed *Willows-4* parcel. The ditches and culverts appeared to provide the same drainage and lack of prolonged saturation that would produce similar non-wetland determinations. Basically, all the surrounding parcels appeared to have the same sufficient drainage conditions as the *Willows-4* property. These drainage conditions had been established by the old farmers in this area over past years to support agricultural activities including tillage for crops and pasture and hay for livestock.

At the present time of the 2020 study, the *East Town Crossing* parcels have been filled and graded. Storm drainage ponds, culverts and storm water control systems have been constructed and are existing onsite (see the survey map, Figure 7, for details). Onsite hydrology data is generally the same as previously determined for this area. The onsite conditions for hydrology are as "non-wetland" or "upland" across all of the project site due to permitted filling and grading over most of the existing site area.

The only exception to that finding is within the Storm Water Detention Pond that has an existing 15" diameter corrugated metal pipe (CMP) outlet that was flowing half full during the onsite investigation by JCA on 3/4/2020. The existing drainage ditch along the eastern side of the project site that was previously identified as receiving runoff waters from Wetland "A" that drained north to Pioneer Way was now completely dry during early growing season to depths greater than 24" (see photo Appendix 4 for 2007 and 2008 photos, and Appendix 5 for the 2020 photos of the ditched area).

It appears that all the surface and most groundwater that had previously flown north in the ditch is now diverted directly into the onsite Storm Water Detention Pond. Water flow from the Wetland Unit "A" appears to be unintentionally diverted into the Pond from a broken pipe. Water flows out of the pond in a 15" dia. CMP pipe to the north to the drainage ditch along the south side of Pioneer Way. JCA found the approximate location of the diversion from the old drain pipe during the 3/4/2020 field investigation. Furthermore, all of the offsite land to the east of the project site also appears to be "UPLAND" and non-wetland based on hydrology conditions found in the lower part of the site that was tested at TP5 (see Figure 7 for location and field note data in Appendix 2). The bottom of all the test plots examined in detail had no saturation to the bottoms at 18" to 30" deep. The shallowest saturation was at 18" in the bottom of TP2 that was dug near the Pioneer Way drainage ditch, which had a small amount of water flow in the ditch at that time.

In 2007, JCA observed surface water flowing very slowly in the drainage ditch along the eastern side of the property toward Pioneer Way. Most of the eastern ditch was overgrown with reed canary grass, and some standing water was observed at the culvert inlet near the southeast property corner. At that time during wet weather conditions, the drainage ditch had standing or very slowly flowing water at a depth of 4 inches. The drainage ditch along Pioneer Way had flowing water at a depth of 4-6 inches.

At this time in 2020, no onsite areas had shallow standing water. However, depressions appear to be very shallow and small, and if standing water does occur, it would have a very short duration hydroperiod. The onsite areas have an existing Storm Water Detention Pond and culvert drainage system for control and drainage of excess runoff from this site. The 2-cell pond has dense scrub-shrub and forested vegetation growing in the bottom but the pond area. The storm ponds and associated engineered drainage systems are all exempt and non-regulated as "wetland" in accordance with the PMC.

The drainage patterns to this project site from offsite areas are shown on the *Topography and Watershed Boundary Map* (Figure 4) and *Topography and Drainage Map* (Figure 5). Figure 4 shows the overall drainage from the major watershed and subwatershed areas with watershed boundaries. Figure 5 shows details for drainage from sub-watersheds (tributary areas) that drain surface water runoff to the northern part of Wetland "A". This information is based on Pierce County *Comprehensive Drainage Program Maps* for this area (PCPWD, 1986). The subwatershed information has been compiled by JCA from various wetland and drainage studies for various project sites that were done in the past for this area since 1996.

A 36.7 acre subwatershed contributes water to the northeastern part of offsite Wetland "A" as shown by the topography and drainage maps (Figures 4 and 5). The surface water runoff flows to the northeastern part of Wetland "A" from the terrace hillside. This runoff includes both surface and groundwater that emerges from springs and seepages along the hillside, and into a natural stream that flows north in a narrow channel to an old culvert pipe that is buried just southeast of the project site (see Figures 6 and 7). Wetland "A" serves to detain runoff waters and provide natural flood attenuation for downstream areas at constricted locations along the flow path.

The northeastern part of Wetland Unit "A" appears to be separated from the southwestern part by slightly higher elevations at a narrow area between the northern and southern wetland. The narrow area forms a hydrologic division between the two parts of this wetland unit. However, due to continuous hydric soils and overall hydrology and vegetation patterns in the wetland, these 2 areas are connected and therefore considered as one wetland unit for the purpose of this study.

The conclusion of this hydrology analysis is that inundation and saturation are present for at least 20 consecutive days during the early growing season within the offsite Wetland Unit "A". Sufficient hydrologic indicators are found including standing water or saturation to near the surface in test holes at depths of less than 12 inches measured by JCA. Encrusted detritus and blackened leaves are observed within Wetland "A" and it may assume that this area floods occasionally during peak storm events.

d. Water Bodies within ¼ Mile of Project Site

Offsite areas were checked for water bodies including streams that may have buffer(s) that extend into or through the site. This was based primarily on information obtained by JCA using the best available data from City and other map sources. These included the USGS Quadrangle information that is shown and analyzed by JCA on the *Topography and Watershed Boundary Map* (Figure 4). We also used the Pierce County Comprehensive Drainage Program information that is shown on the *Topography and Drainage Map* (Figure 5). These were field verified to see if water bodies or streams may be within ¼ mile of the project site in accordance with the City code requirements.

"Deer Creek" is located 0.26 miles west of the project site and flows in ditches along 25th Street SE and Pioneer Way toward a wooded riparian corridor northwest of Pioneer Way and the Burlington Railroad tracks.

Wetland "A" as described above drains via tributary ditches that confluence with *Deer Creek* at the intersection of Pioneer Way and 25th Street. The ditches that are directly associated with this project site, namely the eastern ditch that flows north. This ditch appeared to previously flow out of Wetland "A". However, this drainage ditch no longer conveys flows out of the offsite wetland unit. That flow out of Wetland Unit "A" is now diverted into the onsite Storm Water Control Pond that is situated in the southeastern part of the project site.

The water flow appears to be unintentionally diverted into the Pond from a broken pipe which was located and shown on the original survey map (see Figure 7). Water flows out of the storm pond in a 15" Dia. CMP pipe to the north and into the drainage ditch along the south side of Pioneer Way. Please refer to the JCA field notes in Appendix 2 and the map figures provided with this report for details about this finding.

JCA finds that the drainage waters and the associated channels and closed conduits are not "salmonid streams" nor are they identified as being within ¼ mile of the main channel of *Deer Creek*. The drainage waters from the wetland unit that flow into the Storm Detention Pond and thence out to Pioneer Way through the existing storm drain pipes do not appear to be regulated stream or drainage courses.

Deer Creek, as the receiving water for drainage from this site, does not appear to be adversely affected by runoff from either Wetland "A" or the project site. Furthermore, it appears from an earlier study by Parametrix Engineering for the Shaw Road Extension that the upper reach of *Deer Creek*, upstream of the railroad tracks, does not support anadromous salmonid use due to blockages to upstream migration at existing elevated culverts. Therefore, *Deer Creek* may not be regulated as a salmonid stream at this time or support anadromous salmonid species.

6. Potential Impacts of Proposed Development

Potential impacts to the regulated Wetland "A" from the project are evaluated and mitigation measures are recommended to **avoid** impacts. The impacts include:

a. Flood attenuation (storage and conveyance)

The onsite development area does not drain directly into Wetland "A". Onsite area drains north into the main drainage ditch along the south side of Pioneer Way. All of the onsite runoff is directed into storm water detention ponds by a system of catch basins and storm drains. These are engineered for the new development in accordance with City requirements for onsite storm water control of excess storm water runoff.

The functions provided Wetland "A" should not be changed by the proposed project as none of the runoff into or out of the wetland should be altered by the plan. The flood control functions and flood attenuation provided by the wetland should remain the same after development as before development.

Siltation control fences have already been constructed along the lower side of the building areas of the site, along the eastern property lines, to provide filtration and control of silt in runoff that may flow into the adjacent offsite ditch as required by City storm drainage regulations.

b. Water quality (biofiltration of sediment and pollution)

The value of Wetland "A" is high for removal of suspended sediments, silts and nutrient pollution that may occur in runoff from roads and residential developments within offsite subwatershed areas south of this project site. Biofiltration is provided by long retention times in the wetland and emergent vegetation that filters and retains the silts and sediments that may be entrained within the runoff waters from these offsite areas. These functions should continue and not be effected by this development. No potential impacts on water quality in Wetland "A" are anticipated from the development of this project site.

However, runoff water from the project site should be directed away from the offsite Wetland "A". The storm water runoff should be directed into the onsite storm water control facilities that are indicate on the "*Wetland Delineation Map with Notes*" (Figure 7). The maps indicate onsite storm water detention pond should provide for filtration of the runoff waters from any new development through bioswales and the large onsite detention pond located in the southeastern part of the project site.

c. Wildlife habitat (diversity and abundance for plants and animals)

The potential impacts to wildlife habitat from the new project development are judged to be very small due to existing development within the project area and adjacent commercial and residential development in adjacent offsite areas. The offsite Wetland Unit "A" should not be disturbed by new development of this project site.

The wildlife habitat value for offsite Wetland Unit "A" is judged to be "**low**". This is due to the relatively small size of the wetland (0.76 acres) and the proximity of the wetland to existing residential and commercial development along the west and north sides of the wetland. Please note that the current WDOE ruling on Habitat Scores is that all scores of 5 or less shall have a rating of "low" and receive a standard buffer width based on a habitat score of "4" (see Table and Footnote below for details).

Table for Converting Category Scores (WDOE 2004 to 2014)

2004	Western WA Category Score	2014		2004	Final Habitat Score [6]	2014
≥ 70	Category I	23-27		29-36	High	8-9
51-69	Category II	20-22		20-28	Medium	6-7
30-50	Category III	16-19		≤ 19	Low	3-5
<30	Category IV	9-15				

[6] WDOE has modified its buffer table to adjust the habitat score break points. The modified table now groups habitat scores of 3 to 5 into low habitat function and scores of 6 and 7 into moderate habitat function. For more details, please see "Tables for adjusting rating scores (2004 to 2014 versions with July 2018 modifications)" under this link: https://ecology.wa.gov/Water-Shorelines/Wetlands/Tools-resources/Rating-systems

There are no endangered, threatened or sensitive ANIMAL species known to inhabit the project site or adjacent offsite areas. This is based on observations at the site and comparison with current lists in publications by the Washington Department of Wildlife titled "*Washington Priority Habitats and Species*", "*Status Report on Endangered and Threatened Species*", and "*Nongame Data Systems Special Animal Species List*". These lists also include species of "special concern" as non-game animals.

The wetland habitat functions are limited by the relatively low interspersion between wetland classes. There are no major habitat features such as beaver use, heron rookery, dead snags or other major habitat features within the regulated wetland. The relatively low diversity at habitat "edges" around the wetland, the low structural diversity (lacking tall trees for roosting and cover around most of the wetland, the small size (less than 1 acre), and seasonal availability of a water source, provides limited wildlife habitat.

There are no endangered, threatened or sensitive listed species known to grow or inhabit the wetland or the associated upland buffer. The level of plant diversity should not be further reduced by clearing and paving within the new development due to the existing permitted uses that exist within the site as commercial storage and parking areas.

Buffers are required by the City Code to provide continuity and minimize the loss or disturbance of habitat along the wetland edge. This new development should be sufficiently distant from the nearest parts of offsite Wetland "A" so as to minimize potential impacts.

d. Human use (recreation, education or other uses)

Humans do not appear to use Wetland "A" for recreation, education or other uses. This is probably due to the location and isolation of the wetland by existing agricultural and commercial property in this area. The lack of development such as residences in the adjacent area south and east of Wetland "A" is limited by the steep forested hillsides.

Potential impacts by humans using of the Wetland "A" appear to be limited to pedestrian traffic (probably youth) that may enter into the offsite wetland from Shaw Road along the south side of the project site. However, the wetland is separated from schools located west of Shaw Road by commercial and residential development. Therefore, the likely hood of this happening is very small.

There is no formal plan to use the regulated offsite wetland or buffer for recreation, education or other uses at this time or in the future.

7. Wetland Rating Discussed

The "rating" (or class) of a wetland is based on the 4-tiered system described in the City of *Puyallup Municipal Code* (PMC), 2015, *Environmentally Critical Areas Management*, Chapter 21.06 (Ord. 3170 § 1, 2018; Ord. 3101 §9, 2015, Ord. 3076 §4, 2014, Ord. 2859 §1, 2006). The standards are applied to areas that are "regulated wetlands" for rating purposes based on PMC 21.06.910, Wetland designation, mapping, and rating (see Appendix 1, Part E for details and excerpts from the PMC).

The use of the rating system generally assists in determining the degree of protection a particular wetland needs and the applicable buffer standards and setback requirements for each wetland. Specific details for wetland regulation and rating are described in the "Methodology" section (see Appendix 1, part E in this report for details).

Wetlands are rated and regulated according to the categories defined by the Washington Department of Ecology (WDOE) in accordance with the *Washington State Wetlands Rating System, Western Washington, 2014 Update*.

Wetland Unit "A" (offsite) is rated **Category II** by JCA in accordance with the PMC, and standards applied to the offsite areas. Wetland unit "A" has a total score for functions of 21 points; water quality functions score of 9; hydrologic functions score of 7; and habitat functions score of 5. [7] This rating is based on field observations for a "depressional" wetland and conditions that exist at the time of this study. (See WDOE Wetland Rating Form completed by JCA in Appendix 3 for details).

There are no Category I wetland criteria as outlined in the PMC that are known to exist in offsite Wetland "A". This includes the presence of endangered or sensitive plant or animal species. The point's total for the offsite wetland analysis confirms the Category II rating that was recommended by JCA using the older WDOE Wetland Rating System (2004) and published in the 2008 JCA report as Appendix 3.

As stated previously, the project site is situated east of "*Deer Creek*". *Deer Creek* is rated a Type II stream as designated by the PMC 21.06.1010, Stream designation, mapping and rating (see Appendix 1, E, in this report for details). For purposes of the PMC for fish and wildlife habitat regulation, a Type II stream is a natural stream that is not a Type I stream and is either perennial or intermittent, and has known or potential use by anadromous or resident fish species, significant recreational value, or significant wildlife habitat functions. Within the city's corporate limits and the urban growth area, known Type II streams include *Deer Creek.*

8. Buffers Recommended

Buffers are provided to limit or mitigate impacts that may arise from the development of the new building area in the northern part of this site. These may include impacts such as glare, noise or intrusion from sources near the wetland. Upland buffers also preserve valuable wildlife habitat in an upland area adjacent to the wetland.

Wetland buffer areas shall be established for the development proposal and activities adjacent to Wetland "A". This is required to be done to determine the need for the buffer to protect the integrity, functions and value of the wetland. The director shall determine appropriate buffer widths based upon the critical area report prepared pursuant to PMC 21.06.950.

Wetland buffers shall be measured perpendicular to the wetland edge as marked in the field. Except as otherwise permitted by this chapter, buffers shall consist of an undisturbed area of native vegetation.

The standard buffer width as required by PMC 21.06.930, Performance standards – Wetland buffer widths, are considered to be the minimum required and presume the existence of a relatively intact native vegetation community in the buffer zone adequate to protect the wetland functions and values at the time of the proposed activity. If the vegetation is inadequate, then the buffer width may be increased and/or the buffer planted to maintain or improve the buffer functions. The standard buffer width requirement for a Category II wetland is established by the Code to be **100 feet**.

The closest distance from offsite Wetland "A" to the south boundary of the project site is measured to be over 150 feet. Therefore, the wetland buffer does not extend into the project site and the site is sufficiently distant from the wetland to minimize potential impacts in accordance with PMC requirements.

Deer Creek is required to have a standard **100-foot** buffer in accordance with the PMC 21.06.1050, Performance standards – Stream and riparian buffer widths. This buffer distance does not extend into the project site.

[7] The 2008 JCA report rated Wetland "A" using the older rating form (2004) that produced a similar Category II rating with a total score of 65 points; water quality functions score of 26; hydrologic functions score of 16; and habitat functions score of 23 points.

Summary of Wetland Findings and Recommendations

1. The WETLAND DELINEATION MAP (Figure 7) is based on a land survey prepared by The Abbey Road Group LLC (Project #06-171) dated 2/8/07, and includes current wetland data and analysis prepared by John Comis Associates, Inc. (JCA) during field investigations on 4/6/2007, 9/28/2007 and 3/4/2020. This map shows a composite of wetland delineations and studies done by others since 2000 for developments in this area. It shows offsite wetland delineation points marked by Herrera Environmental Consultants dated 8/10/00. This map shows a revised offsite wetland delineation in the area closest to the project site, which is plotted to scale based on current field data by JCA.

2. **No regulated wetlands are found within the site boundary.** Offsite wetlands are delineated as shown on the maps included with this report, using routine onsite and approximate offsite methods. Where wetlands are located nearest to the property boundary and/or near to a building site, the delineation of a wetland boundary is based on detailed examination of field indicators for the presence or absence of all 3 parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Offsite areas are evaluated within 300 feet using best available data including mapped delineations by others: National and Local wetland inventory maps, Pierce County and Google aerial photo map imagery, LiDAR topographic map data, NRCS soil survey data, FEMA Flood Insurance Study maps and data, and other topography and drainage maps (see figures and references included with this report for details).

3. Wetland Unit "A" (offsite) is rated Category II by JCA in accordance with the PMC for *Environmentally Critical Areas Management Regulations*, and based on the WDOE "*Washington State Wetlands Rating System for Western Washington-Updated 2014*". Wetland Unit "A" has a total score for functions of 21 points; water quality functions score of 9; hydrologic functions score of 7; and habitat functions score of 5 points (low). This rating is based on field observations for a "depressional" wetland and conditions that exist at the time of this study. (See WDOE Wetland Rating Form completed by JCA in Appendix 3 for details).

4. Wetland buffer widths are required to be **100 feet** for a Category II wetland (PMC 21.06.930). The closest distance from offsite Wetland A to the south boundary of the project site is measured to be 153 feet. Therefore, the wetland buffer does not extend into the project site.

National Wetland Inventory Legend

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake

Legend for NWI Wetland Abbreviations selected for this area

P=Palustrine (system)
R=Riverine (system)
UB=Unconsolidated Bottom (class)
EM=Emergent (class)
SS=Scrub-Shrub (class)
FO=Forested (class)
x=excavated (special modifier)

JOHN COMIS ASSOCIATES, Inc.
Wetlands, Streams & Mitigation Designs since 1989
1027 N. Oakes St. Tacoma WA, 98406
Office: (253) 272-6808 Fax: (253) 272-6807

VICINITY MAP

LEGEND

Yellow = Project Site Boundary
Red = 330' Radius Around Project Site

"Pioneer Village Mixed Use Development"

For Gil Huismann, Director of Land Development Services; Abbey Road Group, LLC

Tax Parcel Nos.: 0420264021, 0420264053, 0420264054, 0420351066, 0420351026, 0420351029, 0420351030

Site Address: 2902 East Pioneer, Puyallup, WA 98372

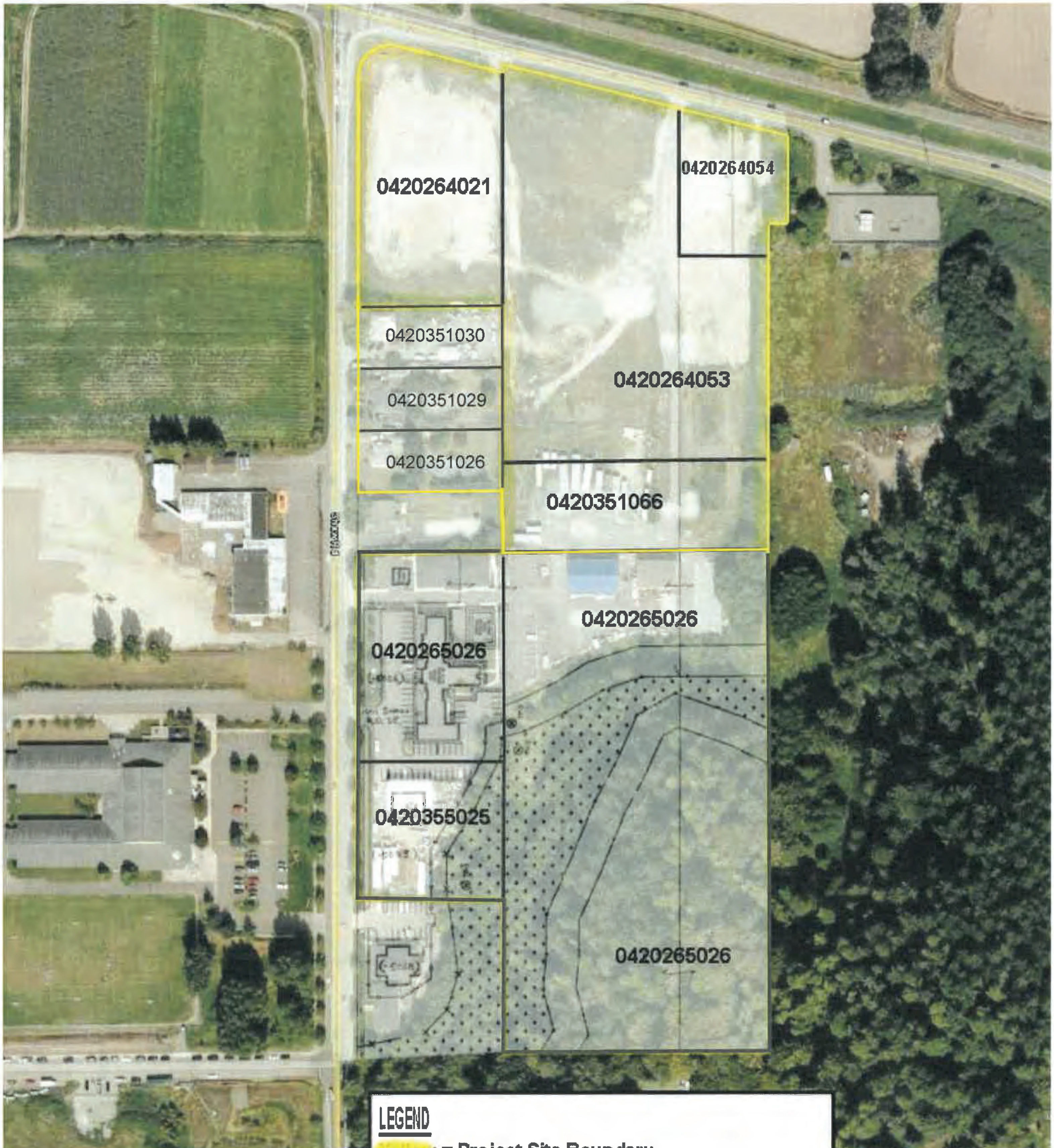
Map Source: a portion of the Image Data from "Google Earth" overlaid with a NWI map, 2007.

N

0 500 1000

1"=1000'

Fig: 1



LEGEND

Yellow = **Project Site Boundary**

Map Source: a portion of the Image Data from "Google Earth" overlaid with survey parcel map from Herrera Environmental Consultants, 2007.

0 100 200

1"=200'

N

Fig: 2

PARCEL AERIAL MAP

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Office: (253) 272-6808 Fax: (253) 272-6807

LEGEND

Yellow = Project Site Boundary

31A = Soil Map Units

W = Open Water

Pierce County Area, Washington (WA653)

6A Briscot loam
31A Puyallup fine sandy loam
42A Sultan silt loam
18E Indianola loamy sand, 15 to 45 percent slopes
20B Kitsap silt loam, 2 to 8 percent slopes
20C Kitsap silt loam, 8 to 15 percent slopes
20D Kitsap silt loam, 15 to 30 percent slopes
20F Kitsap silt loam, 30 to 65 percent slopes
29A Pilchuck fine sand
38A Shalcar muck

Note: The soils indicated by asterix (*) are listed as hydric. Inclusions of other soil types may occur within a soil map unit (see the list of hydric soils from "Hydric Soils in Pierce County" by SCS dated Sept. 18, 1986).

Map Source: A portion of the Image Data from "Google Earth" overlaid with a Web Soil Survey Map taken from the Natural Resources Conservation Service (USDA); found at URL http://websoilsurvey.nrcs.usda.gov/app/, 2007.

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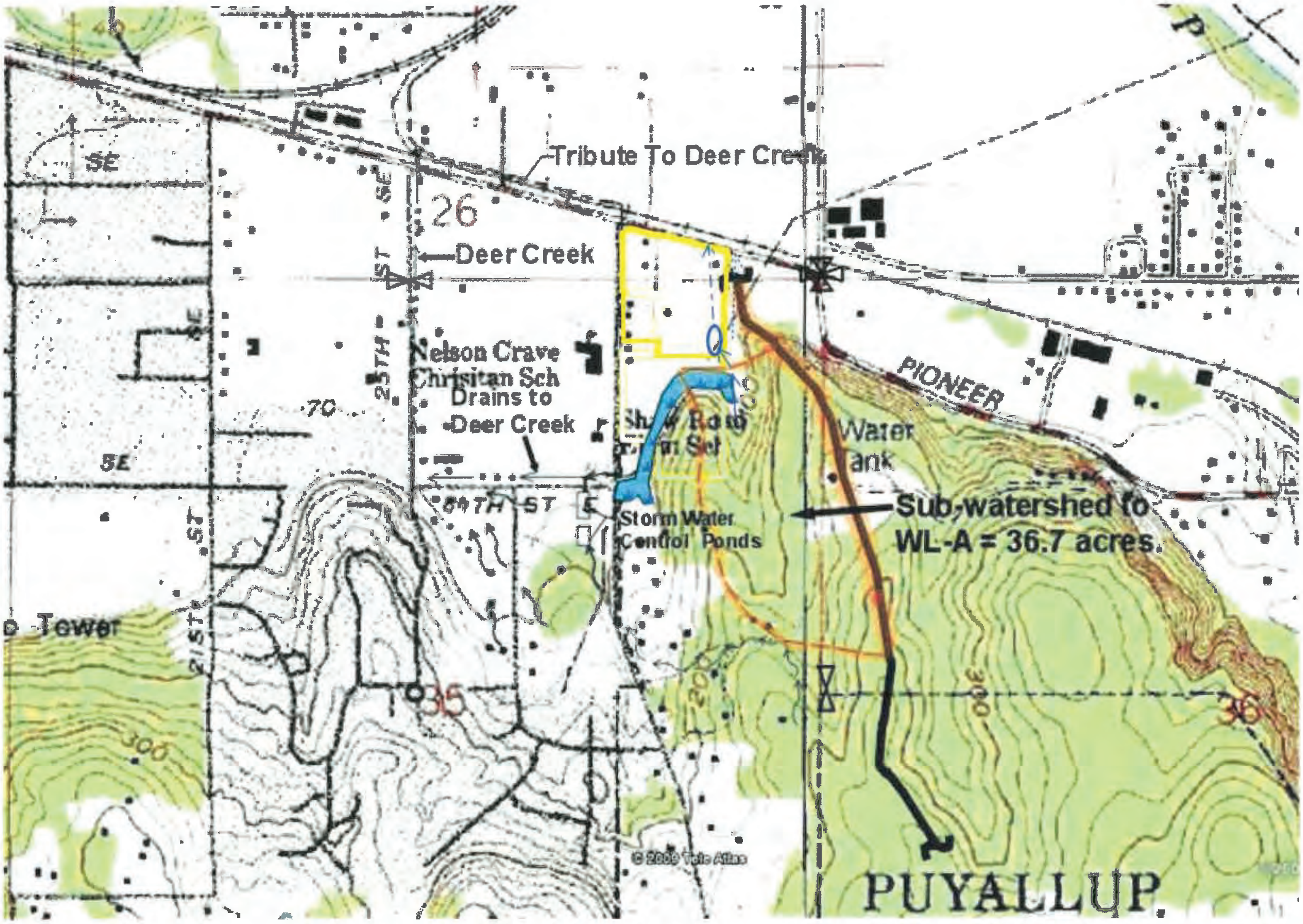
SOIL SURVEY MAP

N

1"=500'

Fig: 3



TOPOGRAPHY AND WATERSHED BOUNDARY MAP

LEGEND

Yellow **= Project Site Boundary**
= Stream
= Surface drainage pattern
Orange = Watershed boundary*
= Major watershed boundary (solid, by Pierce County)*
= Sub-watershed boundary (dashed, by JCA)*

* The "sub-watershed" is a tributary area draining direct surface runoff into or through the site. Note that watershed boundaries are approximate, based on available map information and field investigations.

Map Source: an enlarged portion of the USGS Quadrangle Map from the 2005 Terra Server USA "TOPO!" data base @ 20-foot contour intervals; found at URL http://terraserver-usa.com.

N

1"=1000'

Fig: 4

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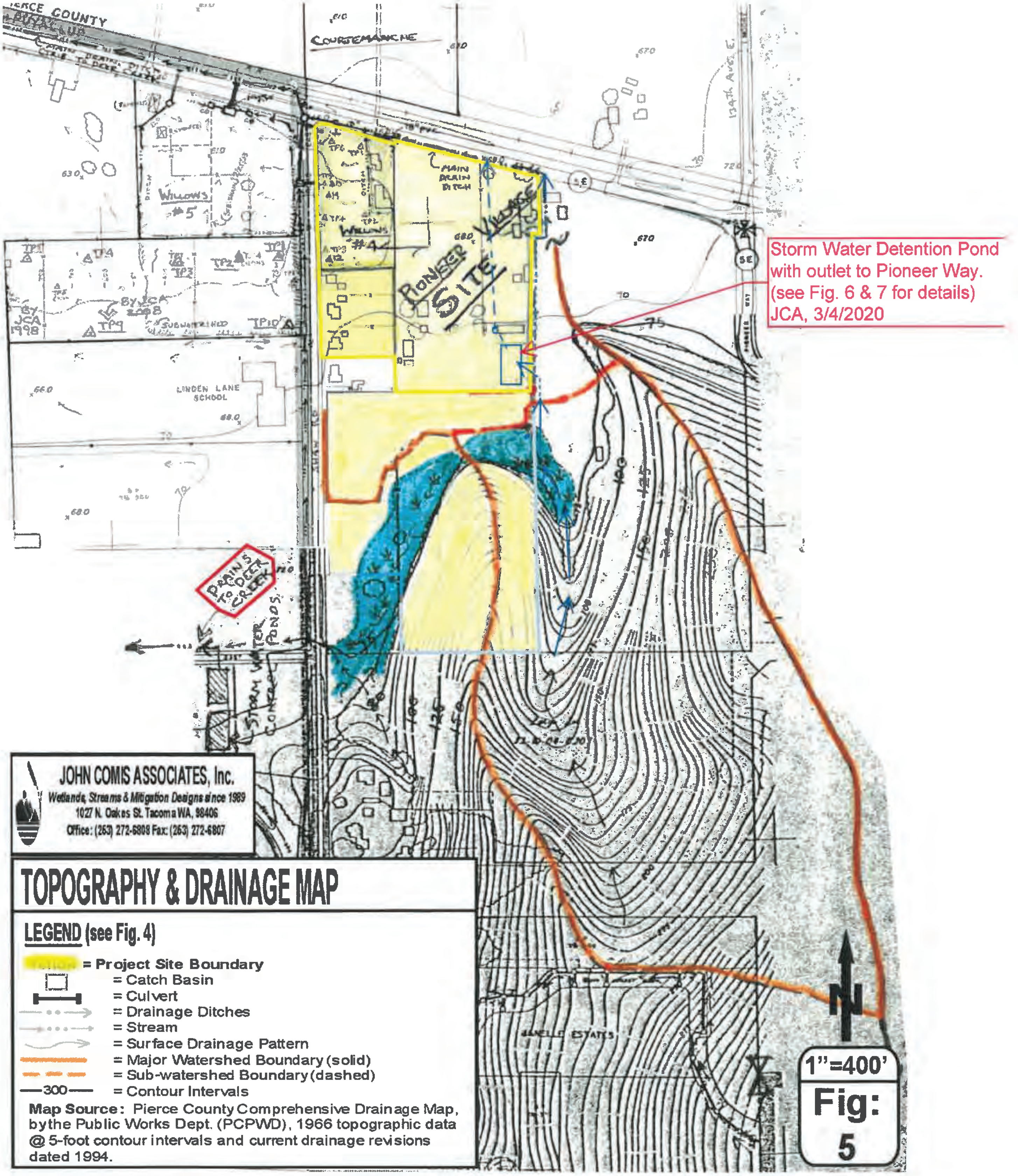

COURTEMANCHE
MAIN DRAIN DITCH
WILLOWS #5
WILLOWS #4
PIONEER VILLAGE SITE
LINDEN LANE SCHOOL
134th AVE. E.
DRAINS TO DEER CREEK
STORM WATER PONDS
STORM WATER CONTROL
Storm Water Detention Pond with outlet to Pioneer Way. (see Fig. 6 & 7 for details) JCA, 3/4/2020
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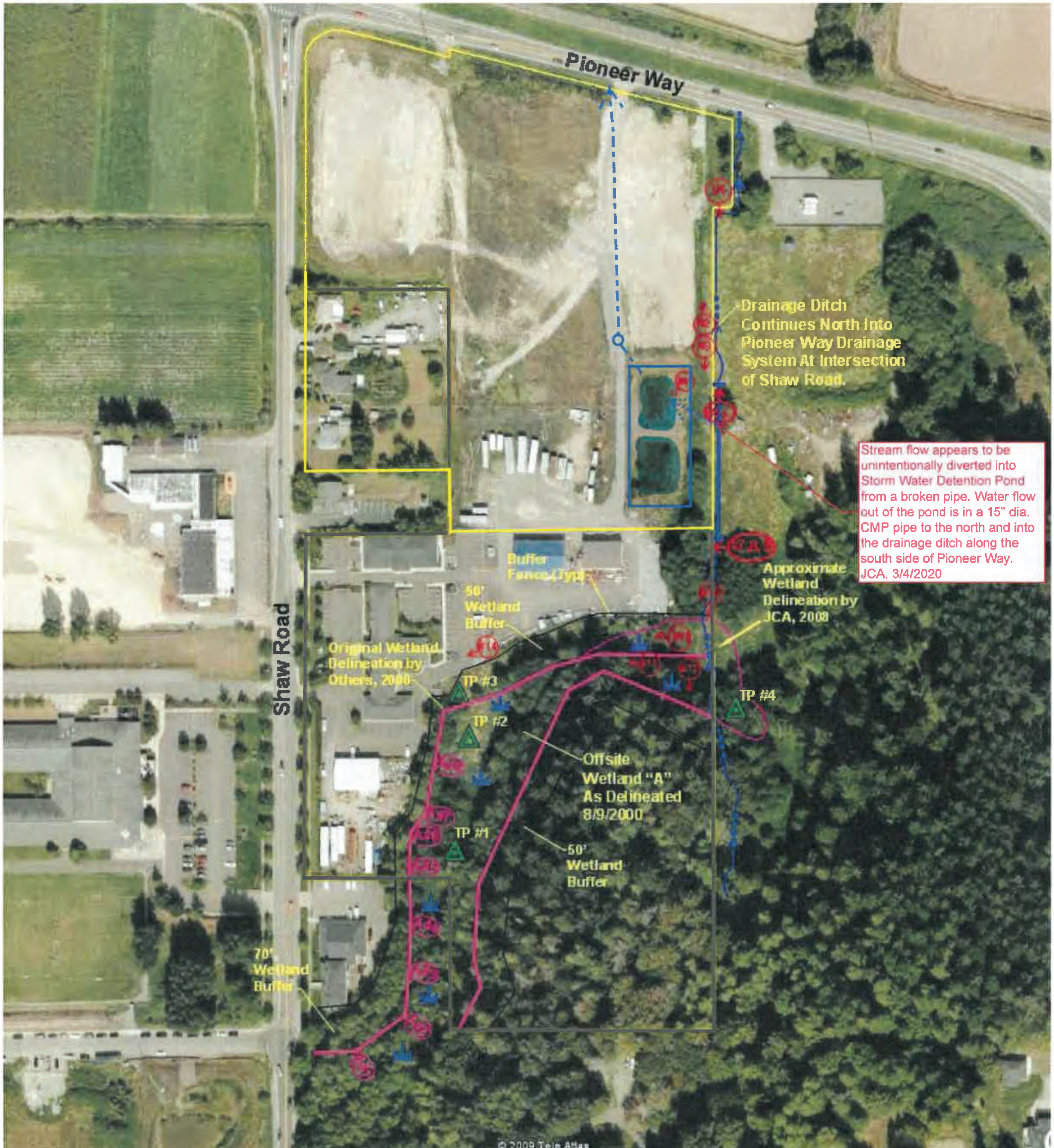
TOPOGRAPHY & DRAINAGE MAP
LEGEND (see Fig. 4)
= Project Site Boundary
= Catch Basin
= Culvert
= Drainage Ditches
= Stream
= Surface Drainage Pattern
= Major Watershed Boundary (solid)
= Sub-watershed Boundary (dashed)
—300— = Contour Intervals
Map Source: Pierce County Comprehensive Drainage Map, by the Public Works Dept. (PCPWD), 1966 topographic data @ 5-foot contour intervals and current drainage revisions dated 1994.
N
1"=400'
Fig: 5



AERIAL PHOTO WITH WETLAND DELINEATION

LEGEND

- = Project Site Boundary
- = Wetland Symbol
- = Test Plot
- = Wetland Delineation Point
- = Photo Point

0 100 200

N

1"=200'

Fig: 6

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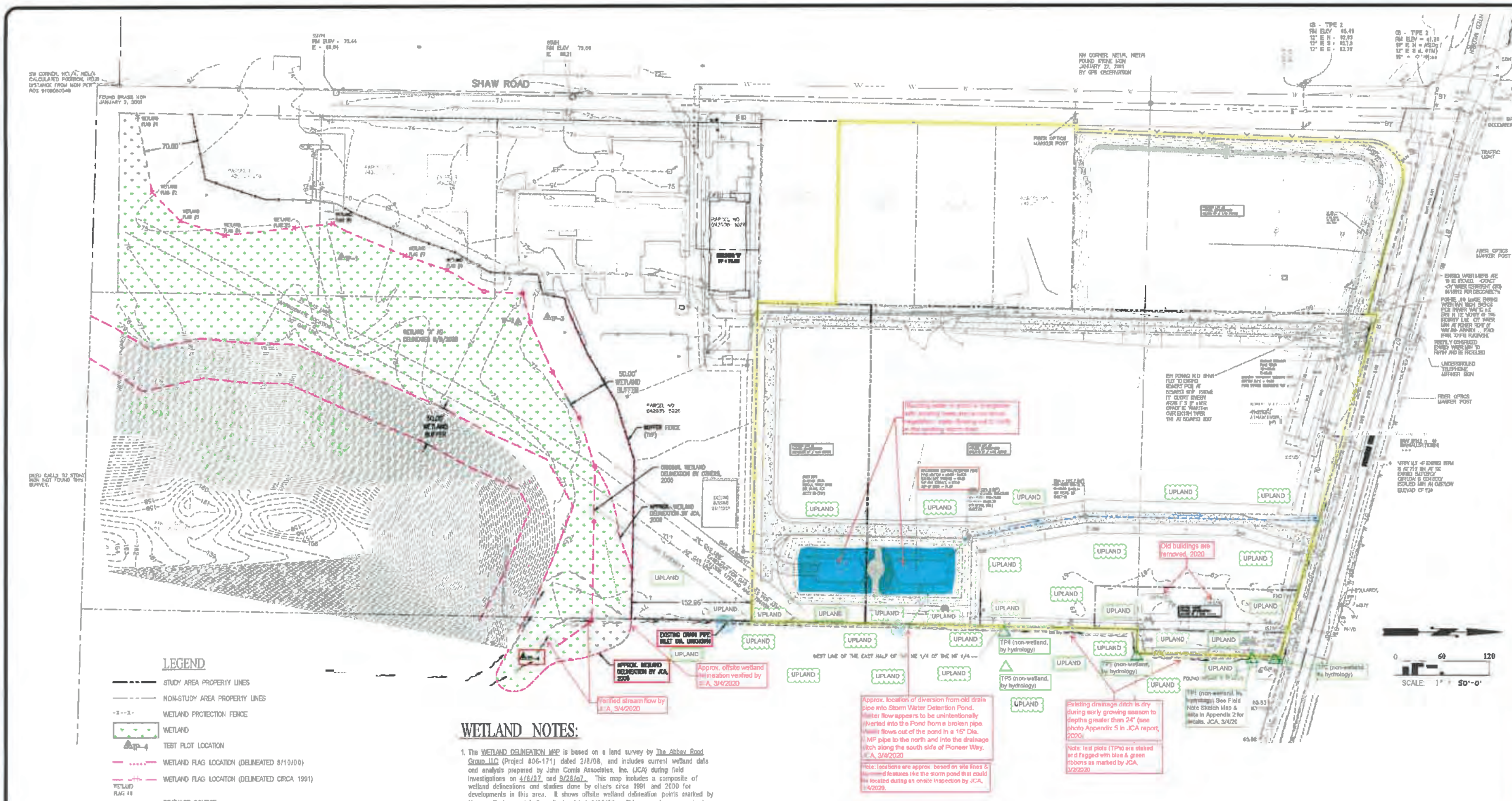


LEGEND

- STUDY AREA PROPERTY LINES
- NON-STUDY AREA PROPERTY LINES
- WETLAND PROTECTION FENCE
- WETLAND
- TP-4 TEST PLOT LOCATION
- WETLAND FLAG LOCATION (DELINEATED 8/10/00)
- WETLAND FLAG #8 WETLAND FLAG LOCAITON (DELINEATED CIRCA 1991)
- DRAINAGE COURSE
- OFF SITE WETLAND BOUNDARY (BY JCA)

SURVEY NOTES:

1. WETLAND DELINEATION DATA BY "HERRERA ENVIORNMENTAL CONSULTANTS"
2. EXISTING CONDITIONS SITE SURVEY DATA BY "ABBEY ROAD GROUP LLC", 2/08/07

WETLAND NOTES:

1. The WETLAND DELINEATION MAP is based on a land survey by The Abbey Road Group LLC (Project #06-171) dated 2/8/08, and includes current wetland data and analysis prepared by John Comis Associates, Inc. (JCA) during field investigations on 4/6/07 and 9/28/07. This map includes a composite of wetland delineations and studies done by others circa 1991 and 2000 for developments in this area. It shows offsite wetland delineation points marked by Herrero Environmental Consultants dated 8/10/00. This map shows a revised offsite wetland delineation in the area closest to the project site and plotted to scale based on current field data by JCA.

2. No regulated wetlands are found within the site boundary. Offsite wetlands are delineated as shown on this map based on the *Washington State Wetlands Identification and Delineation Manual*, March 1997 (WDOE Pub #96-94), using detail routine onsite and approximate offsite methods. Where wetlands are located nearest to the property boundary and/or near to a building site, the determination of a wetland boundary is based on detailed examination of field indicators for the presence of all 3 wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. Offsite areas are evaluated within 300 feet using best available data including delineations done by others, Wetland Inventory maps, Aerial Photos, Soil Surveys, Flood Study, Topography and Drainage maps (see figures included with this report for details).

3. *Wetland A* (offsite) is rated Category II by JCA in accordance with the City of Puyallup Municipal Code (PMC) for Environmentally Critical Areas Management Regulations, Chapter 21.06 (Ord. 2859 1, 2006), and based on the WDOE <<: This rating is based on field observations for a "depressional" wetland and conditions that exist at the time of this study. (See WDOE Wetland Rating Form completed by JCA in Appendix 2 for details).

4. Wetland buffer widths are required to be 100 feet for a Category II wetland (PMC 21.06.930). The closest distance from offsite Wetland A to the south boundary of the project site is measured to be 153 feet. Therefore, the wetland buffer does not extend into the project site.

Wetland Specialist Certification

This map correctly represents the wetland delineation made by me or under my direct supervision at the request of The Abbey Road Group, LLC (Project #06-171), for the "Pionur DeVBlopment Mixed USU DeVBlopment", located at 2902 East Pioneer, Puyallup, Washington 98372, Parcel Nos. 0420264021, 0420264053, 0420264054, 0420351066; situated in the City of Puyallup, in the SE 1/4 of SE 1/4 of Section 26-T20N-R4E, and the NE 1/4 of NE 1/4 of Section 35-T20N-R4E-T20N-R4E, WM, Pierce County, Washington.

John G. Comis, PWS
Certified Wetlands Specialist

Date

APPRV.	DATE	REVISION

JOHN COMIS ASSOCIATES
For Wetlands, Streams & Mitigation Designs since 1989

DSGN.:	J. COMIS
DRWN.:	J. CARR
CHKD.:	J. COMIS
DATE:	02/08/08

Scale:
1"=60'-0"

Figure:
7

APPENDIX 1

METHODOLOGY USED FOR WETLAND DETERMINATION, DELINEATION, REGULATION AND BUFFER STANDARDS

METHODOLOGY

A. Manual Methods Used for Wetland Determination and Delineation

The identification of "wetlands" by JCA for this analysis was consistent with applicable manual methods and in accordance with the City of *Puyallup Municipal Code* (PMC) requirements (see Section E in this appendix for details and excerpts from the PMC). JCA used the most recent editions of the federal and state wetland manuals and applicable regional supplements as approved and adopted by the Washington State Department of Ecology (WDOE). This appendix describes the methods used including key definitions, criteria, abbreviations, regulation standards and applicable portions of code requirements used in this analysis.

"Wetlands" are delineated using the updated 2010 US Army Corps of Engineers *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010).[8] The field investigation is limited to a determination of the presence or absence of "regulated wetlands" on or near the project site, including offsite areas within 315 feet [9] of the site boundary. If an offsite wetland or stream is known or suspected to be within 315 feet of the project, then the wetland or stream must be evaluated and delineated based on the best available data for offsite areas. [See report figures for depictions of radii around the wetland unit that were used for this analysis.]

For an area to be determined a "wetland" it must necessarily meet the scientific ***definition and triple parameter criteria***. These criteria which an investigator must use to determine if a sample test plot is in a "wetland" or "non-wetland" area is limited to the presence of all 3 wetland criteria: hydrophytic vegetation, hydric soils, and persistent wetland hydrology. This means that to make a positive wetland determination, all 3 criteria must be present. The absence of one, two, or all three of the criteria should result in a non-wetland determination.

The presence or absence of "field indicators" is used to determine if a criterion is met. If a field indicator is absent, then an indirect indicator may be used. For example, the absence of inundation or saturation during a dry summer field investigation could result in the hydrology criterion not being met. However, the presence or absence of encrusted detritus on twigs or blackened leaves on bare ground in a depression may be used to help verify sufficient inundation during a wetter period of the growing season.

The 2010 *Regional Supplement Manual* stipulates 3 key provisions of the definition of wetlands include:

a. Inundated or saturated soil conditions resulting from permanent or periodic inundation or saturation by ground water or surface water (saturation within 12 inches of the surface for at least 20 to 30 consecutive days during periods in the Mesic growing season [March thru October]). In accordance with the USACE 2010 "*Manual*" (pages 65 & 123): "*This standard requires 14 or more consecutive days of flooding, ponding, or a water table 12 inches (30 cm) or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10 (50% or higher probability) (National Research Council 1995) …*"

b. A prevalence of vegetation typically adapted for life in saturated soil conditions (i.e. dominance of hydrophytic vegetation).

c. The presence of "normal circumstances".

---

8 Wetlands are delineated using the *Washington State Wetlands Identification and Delineation Manual*, prepared by the Washington State Department of Ecology (WDOE Publication #96-94). The WA State Wetlands Manual is required to be used by all state agencies in the application of any state laws and regulations as well as any city or county in the implementation of any regulations under the Growth Management Act. This methodology has been modified to be consistent with the 2010 US Army Corps of Engineers *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010). http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp.pdf

9 The 315-foot distance is the standard buffer width for the highest rated Category 1 wetland, plus 15 feet for a building setback. This represents a reasonable distance from which a "regulated activity" should not impact a "regulated wetland" (per PCC 18E.10.050 (definitions), 18E.20.030 (exemptions) and 18E.30.060 (buffers).

The selection of a specific method and procedure for identifying wetlands may follow one of the following methods:

- the "routine determination method" for undisturbed and non-problem area wetlands;
- the "offsite determination method" for areas within 300' of the site boundary; and/or
- the "disturbed area and problem area wetland determination procedures" for areas with disturbed or atypical vegetation, soils or hydrology. If an area is disturbed, then a higher level of analysis such as a "Comprehensive" determination method may be required.

The preferred and simplest method is the "**ROUTINE** Determination Method" for typical, generally undisturbed areas with normal environmental conditions. The routine method is used in areas where the vegetation, soils and hydrology condition can be readily observed.

For areas that are complex, atypical, disturbed or altered environmental conditions, a "**COMPREHENSIVE** Determination Method" may be used. The comprehensive method employs transect sampling procedures that may require deeper test holes to be dug in areas that have been filled or graded.

Generally, the investigator is looking for a portion of the site (called a test plot) where a "typical condition" exists--where a well-established plant community is present with no evidence of recent clearing, grubbing, filling, grading, or soil drainage activities. This situation should occur during a period when "normal circumstances" are present. That is during periods of the year when normal environmental conditions such as moderate rainfall and average antecedent moisture conditions (AMC) exist within a wetland or a watershed area.

For the hydrophytic vegetation criterion to be met, a dominant number (i.e. more than 50%) of "OBL, FACW and/or FAC" indicator species must be present in the sample plot (see the discussion of these abbreviations in a later section of this appendix). The vegetation analysis is based on the 3-dominant species in each of 4 vegetation layers (or strata: trees, saplings/shrubs, herbs/grasses, and woody vines). Or if only 1 or 2 vegetation layers exist at the test plot, then 5 dominant species are used to make the determination.

If a test plot has no well-established vegetation due to recent clearing and grubbing, or the soils have been severely disturbed due to excavation, filling or grading activities, the test plot is called an "atypical situation". In atypical or disturbed situations, the wetland determination may be based only on soil borings into the undisturbed soil stratum below the fill line and by hydrology criteria. If an area is disturbed, then a higher level of analysis such as a "comprehensive" determination method may be required.

The procedure used for each test plot is indicated on the individual data sheets. The environmental conditions that exist at the site on the day of the field investigations are indicated in field notes and marked in the appropriate "normal" (or not normal) blank at the top of the data sheet. If the vegetation, soils or hydrology are found disturbed, this is explained at the bottom of the sheet. The results for each test plot are recorded on data forms and included with this report in Appendix 2.

B. KEY DEFINITIONS USED

For this study, "wetlands" are defined using the adopted *State of Washington's Growth Management Act* definition in RCW 36.70A.030(21):

> "Wetland" or "wetlands" means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (Corps of Engineers Regulation 33 CFR 328.3, 1988) (Federal Resister 1982), the Environmental Protection Agency

(Federal Register 1985), the Shoreline Management Act (SMA), and the Growth Management Act (GMA)

In addition, the SMA and GMA definitions added: "Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands."

Another key definition used for this study is the "Ordinary High Water Mark" or "Line" (OHWM). As defined in the *Washington Joint Aquatic Resources Permits Application* (JARPA),

"OHWM means the visible line on the banks where the presence and action of water are so common as to leave a mark upon the soil or vegetation: Provided that in any area where the ordinary high water line cannot be found the ordinary high water line adjoining saltwater shall be the line of mean higher high water and the ordinary high water line adjoining freshwater shall be the elevation of the mean annual flood."

Other key definitions may also apply that are in the adopted City of *Puyallup Municipal Code* (PMC), 2015, *Environmentally Critical Areas Management*, Chapter 21.06 (Ord. 3170 § 1, 2018; Ord. 3101 §9, 2015, Ord. 3076 §4, 2014, Ord. 2859 §1, 2006). Please refer to Section E in this appendix for more details about applicable FMC regulations.

C. WETLAND IDENTIFICATION AND DELINEATION CRITERIA

By Vegetation:

When "normal circumstances" exist on the site, vegetation is used where plants are established and relatively undisturbed. These circumstances are considered "typical" situations as compared to "atypical salutations" where one or more of the 3 parameters (vegetation, soil, and/or hydrology) have been sufficiently altered or disturbed. The legal definition of wetlands [10] contains the phrase "under normal circumstances," which was included because there are instances in which the vegetation in wetlands may have been inadvertently or purposely removed or altered as a result of recent natural events or human activities. "Recent" is defined to mean that period of time since legal jurisdiction of an applicable law began.

Field Data Form is used for "routine wetland determination" when the 3-parameters (vegetation, soil and/or hydrology) have not been sufficiently altered by recent human activities or natural events to preclude the presence of wetland indicators.[11] Test plot in which vegetation, soils, and/or hydrology have not been significantly altered are indicated on the forms by YES for "Do normal circumstances exist?" and by NO for "Is the site significantly disturbed (Atypical situation)?"

Do normal circumstances exist on the site?	Yes☒ No☐
Is the site significantly disturbed (Atypical situation)?	Yes☐ No☒
Is the area a potential problem area?	Yes☐ No☒

"Problem areas" apply to certain wetland types (or difficult conditions) that may make application of field indicators of one or more parameters difficult to determine, at least at certain times of the year. These are not considered to be "atypical situations". Instead they are types of wetlands in which an indicator(s) of one or more parameters may be periodically lacking due to **normal environmental conditions or** seasonal

10 WDOE 1997 *Manual*, paragraph 25a, page 9, Definition (from Federal Register, SMA and GMA)

11 Based on WDOE 1997 *Manual*, Appendix A, Glossary definition for "Atypical situation"

or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events. [12]

For this study, vegetation is used as a primary field indicator, documented at 5 individual test plots (TP's) and recorded on Field Data Forms (see Appendix 2). The interpretation of data for determining areas as "wetland" or "non-wetland" is based on dominance of hydrophytic vegetation, which means that the presence of hydrophytes is more than 50% of the listed indicator species at each test plot.

If vegetation is not used as a primary field indicator, it is due to disturbances and "atypical" conditions that have been established by past agricultural activities, or that occurred due to clearing, tilling and/or mowed meadow areas within or adjacent to the site. We only used vegetation for wetland delineation where the plant community has reverted to "obligate" (OBL) indicator species and the plants have become rooted within shallow depressions in areas shown on aerial photos, site plan or topographic maps (see Field Data Forms for remarks and details).

A plant species is considered dominant in a test plot if more than 10% of the plants growing in that area appear to be the same species. This is an estimate of the relative density of a species in a sample area. By routine methods, this is usually made by visual inspection of the dominant plants in a representative sample area. As defined in the USACE 2010 *Manual*, a dominant species exerts a controlling influence on or defines the character of a plant community. Dominance on the other hand is used as a descriptor of vegetation that is related to the standing crop of a species in an area, usually measured by height, aerial cover, or basal area (for trees). This should not to be confused with a vegetation class that must comprise more than 30% of the aerial cover in the entire wetland (or upland).

The TP locations are shown on the *Wetland Delineation Map* (Figure 7) and on the Field Note Sketch Map (FNSM, Appendix 2). Onsite data are extrapolated to adjacent offsite areas where applicable. The upland or non-wetland areas are indicated as "UPLAND" or "non-wetland" on the maps provided in the report (see Figure 7 and FNSM in Appendix 2).

Plant indicator species are listed on the Field Data Forms in all the areas where vegetation is relatively well established and can be identified. Onsite vegetation is not significantly disturbed and are generally used for "wetland" and "non-wetland' determination. If more than 50% (i.e. 51 or more percent) of the dominant plant species in a test plot are OBL, FACW and FAC, then the hydrophytic vegetation criteria is said to be met and it is marked "yes" on the field data form.

The specie identifications are based on available plant keys such as Hitchcock and Cronquist's *Flora of the Pacific Northwest* (1973). To determine whether plant species exhibit hydrophytic adaptations, if they are native or non-native (introduced), and which strata (tree, shrub, herb) they normally occupy, we use the *National List of Plant Species That Occur in Wetlands: Northwest (Region 9)*, published by the US Fish and Wildlife Service, May 1988. The indicator statuses for the various species found in the area are determined based on the National List together with the December 1993 supplement for the Northwest Region.

The indicator status describes the estimated probability of a plant species occurring in wetlands. Parenthesis ( ) around an indicator signifies the status is assigned by JCA. A question mark (?) after an indicator signifies it is tentative based on JCA field experience & observations. Indicators are:

OBL = Obligate Wetland species: "almost always occurs", >99% probability
FACW = Facultative Wetland species: "usually occurs", 67-99% probability
FAC = Facultative species: "equally likely to occur", 34-66% probability
FACU = Facultative Upland species: "usually occurs in non-wetlands", 67-99% probability
UPL = Upland species: "almost always occurs in non-wetlands", >99% probability

[12] WDOE 1997 *Manual*, paragraph 77, page 81, Section G: Problem Areas

NI = No Indicator assigned: if a species does not occur in wetlands in any region of the National List, then "no indicator is assigned".
+ = Slightly *more* frequently found in wetlands
- = Slightly *less* frequently found in wetlands
* = Tentative assignment based on either limited information or conflicting reviews from the 1993 Northwest Supplement of the National List.

By Soils:

For wetland (or "hydric") soil determinations, we use the hydric soil criterion prescribed in Part III of the 1993 Washington State Wetland Manual. Hydric soils are defined as *"a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part"* (USDA-NRCS 1995, Federal Register, 7/13/94, Vol. 59, No. 133, pp. 35680-83). The National Technical Committee for Hydric Soils (NTCHS) has established the 'criteria' for soil classification and 'field indicators' for hydric soil determination (see Reference in Appendix 7). In general, a hydric soil determination is made based on primary soil color indicators and secondary indicators in representative sample test plots that we examine onsite in the upper 12" to 16" of the soil profile. If a soil is saturated long enough, then that soil may be determined as hydric based on its color indicators.

Notice that the hydrology criteria usually mean that the soil remains saturated for at least 20 or more consecutive days during the early growing season when soil temperatures are above biologic zero (41oF) as measured at a depth of 16" below the soil surface.

In general, "organic hydric soils" develop as a result of prolonged anaerobic conditions with long periods of saturation impeding decomposition (peat or muck) and have greater than 16" of organic matter in the surface layer (Histosols). "Mineral hydric soils" have less than 16" of organic matter (if some is present, then it may have a 'histic epipedon'). They are saturated for more than 15 consecutive days during the growing season (the period when soil temperatures are above biologic zero, 41^{O}F, as defined by "*Soil Taxonomy*", 1975; usually March-October), and contain dominant gleying and/or redoximorphic features.

The soil color and/or presence of *redoximorphic features* [13] or gleying in a sample are primary field indicators of whether a mineral soil is either hydric or non-hydric soil. Non-hydric soils are generally a dark brown to rusty red or yellowish brown in their matrix color. Hydric soils are generally black, very dark brown, grayish brown to gray, or washed out in color. A field indicator for a saturated organic hydric soil is a rich black matrix color of say 2/1 or 2/2. A field indicator for a saturated mineral soil is a leached matrix color of say 3/1 or 4/1 or 5/1 or 6/1). A hydric mineral soil may have a low chroma color feature (at least 1 if no redoximorphic features are present or a chroma 2 if prominent redox features are present in the soil matrix).

Gleying and prominent redoximorphic features are color indicators of prolonged saturation and indicate that anaerobic conditions probably exist for sufficient periods of time to develop wetland soils. Gleyed soils are generally bluish-green to grayish-green in color throughout the soil mass or in mottles (spots or streaks) interspersed within the dominant soil color (matrix color) in a layer (soil horizon). Gleying results from the leaching of the dissolved (reduced) iron and manganese minerals out of the soil matrix. Soils gleyed to the surface or to the surface layer of organic material are generally considered hydric. Soils that are saturated throughout the year are usually uniformly gleyed to the surface (Tiner and Veneman 1987).

Redoximorphic features or "mottles" are generally yellow to reddish brown blotches or spots accumulating in mineral soil due to a fluctuating water table during the growing season. The size, number and color of redox features reflect the duration of soil saturation and thus whether the soil is hydric. Redox features in

[13] "Redoximorphic features" are formed by the processes of reduction, translocation, or oxidation of Fe and Mn oxides (formerly called *mottles* and low chroma colors). Redox concentrations (reddish mottles) occur as pore linings along root channels and ped faces (Vepraskas, 1994). "Distinct" and "prominent" are defined in the glossary of the reference text *Field Indicators of Hydric Soils in the United States*.

hydric soils should be "distinct" or "prominent" in the upper horizon. Mineral soils that have a dark grayish matrix color (chroma 2 or less) with distinct or prominent redox features are hydric if the features are not relic. Mineral soils with a predominantly brown or yellow matrix color (chroma of 3 or more) and light gray redox features are not usually hydric. [14]

The National Technical Committee for Hydric Soils has developed criteria for identifying hydric soils and a list of the Nation's hydric soils is maintained by the National Resource Conservation Service (NRCS [formerly Soil Conservation Service, SCS], 1987). A federal manual has also been published by the USDA-NRCS that describes current methods and limitations for identifying hydric soils for the National and State lists.

The NRCS maintains the list of hydric soil map units for each county in the US. The list is used for identifying which soils are hydric based on the local soil series descriptions. These soil series descriptions for soil map units are indicated by this study as within or associated with the project site. The soil descriptions for the mapped areas may be found in the 1979 [NRCS] *Soil Survey of Pierce County* (see the References appendix for information about the *Pierce County Soil Survey Report*).

By Hydrology:

Hydrology observations at each sample plot are indicated on the Field Data Forms provided with this report in Appendix 2. The saturation and water level data together with the respective date that the measurement was made are shown on the data form.

For wetland hydrology determination, we use the "*USACE Manual, 2010*" for wetland hydrology indicators. The presence of inundation and/or saturation for a sufficient "hydroperiod" is determined based on the depth to saturation including capillary fringe. This depth must be 12" or less as measured from the ground surface. In wetland margins this may also include observations or assumptions based on the presence or absence of hydric soils and hydrophytic vegetation when there is a general lack of saturation or standing water due to observations made during dry periods during the water year.

Other field indicators are also used to help determine the presence or absence of sufficient hydrology for positive or negative wetland determinations. These indicators include topographic features and elevations, encrusted detritus or debris, silt lines, hydraulic gradients, free-water in a pit or soil probe hole, and tributary area analysis of onsite and offsite drainage.

If the saturation level is determined to be below 12" for more than 7 consecutive days during the growing season, then the primary indicator for saturation may not sufficient for a positive wetland determination. If the saturation level falls below 12" during the period before or after the 12" measurement is made, then the test plot is determined to be non-wetland by hydrology.

After a wetland determination is made, the wetland area is analyzed to determine if it is a high quality wetland or if it has any of several irreplaceable ecological functions. The wetland is then analyzed for any significant habitat values such as size, classifications, plant species diversity, structural diversity, special habitat features, buffer conditions, and connection to streams or other habitat areas.

D. WETLAND CLASSIFICATION (NON-TIDAL)

CATEGORIES

Different types of wetlands are separated from one another on the basis of wetland class and wetland category. Wetland class is a scientific system based upon dominant plant communities, substrate conditions, hydrologic regime, and location in the watershed. Wetland classification is a categorization system used to regulate land uses adjacent to wetlands.

14 Hydric Soils Guidebook, Washington State Department of Ecology, Pub #90-20, July 1990

Wetland Class: a science-based classification system is used based on a U.S. Fish and Wildlife Service publication titled _Classification of Wetlands and Deep-Water Habitats of the United States_ that was edited by Lewis M. Cowardin, et al, and published in December 1979. Cowardin divides wetlands into five systems (Marine, Estuarine, Riverine, Lacustrine, and Palustrine), eight subsystems (Subtidal, Intertidal, Tidal, Lower Perennial, Upper Perennial, Intermittent, Limnetic, and Littoral), 10 classes, and numerous modifiers. A combination of the system name, subsystem, name, class, and a modifier code are used to designate the wetland class.

WDOE expanded the term wetland class by incorporating use of the Hydrogeomorphic Method (HGM) classification into the "*Washington State Wetland Rating System for Western Washington: 2014 Update*" (WDOE Publication No. 04-06-029). The HGM is based on the "landscape" location of a wetland or portion of a wetland. The HGM classes are Depressional, Riverine, Lake-fringe, Slope, Flats, and Freshwater Tidal.

Wetlands identified by this study are classified using a hierarchical multi-level approach developed by the US Fish and Wildlife Service for their scientific classification system. The classification system is published in the report titled _Classification of Wetlands and Deep-Water Habitats of the United States_, FWS/OBS-79/31, by Cowardin, et al. (December 1979).

The system of classification divisions is based on habitats that share the influence of similar hydrology, geomorphology, chemical, or biological factors. The wetland systems involved in the project site are generally limited to "*Palustrine*" systems. Palustrine wetlands (these are the only wetlands identified within this study area) are divided into 9 classes with 24 different subclasses. These are determined by either the substrate material or the 'dominance vegetation' associated with a respective non-tidal area. The classes of non-tidal palustrine systems are as follows:

CLASS [NON-TIDAL]
(RB) Rock Bottom
(UB) Unconsolidated Bottom
(AB) Aquatic Bed
(US) Unconsolidated Shore
(ML) Moss-Lichen
(EM) Emergent
(SS) Scrub-Shrub
(FO) Forested
(OW) Open Water (unknown bottom)

The subclasses are not identified in this study area but if assigned they would be based on the substrate material or 'dominance vegetation' associated with the non-tidal area. 'Dominance types' may also be characterized within freshwater *Palustrine* Systems based on different invertebrate fauna that typically inhabit these areas.

Water regimes are assigned for each class based on the hydroperiod or duration of flooding (inundation) or saturation associated with the non-tidal area. These are defined for non-tidal (freshwater) areas as follows:

WATER REGIME [NON-TIDAL]
(A) Temporarily flooded: flooded (inundation by surface water) for brief periods during growing season but the water table is otherwise well below the soil surface
(B) Saturated: substrate is saturated for an extended period during growing season but surface water is seldom present
(C) Seasonally flooded: flooded for extended periods during the growing season, but usually no surface water by the end of the growing season
(D) Seasonally flooded/well drained

(E) Seasonally flooded/saturated: flooded for periods, but usually saturated by groundwater at or near the surface thru most of the growing season
(F) Semipermanently flooded: flooded throughout growing season in most years, when surface water is absent, water table is at or near the surface
(G) Intermittently exposed: flooded throughout year except in years of extreme drought
(H) Permanently flooded: flooded (water covers land surface) throughout the year in all years
(J) Intermittently flooded: surface is usually exposed with surface water present for variable periods with no seasonal pattern
(K) Artificially flooded
(W) Intermittently flooded/temporary
(Y) Saturated/semi-permanent/seasonal
(Z) Intermittently exposed/permanent
(U) Unknown

SPECIAL MODIFIERS
(b) beaver
(d) partially drained/ditched
(f) farmed
(h) diked/impounded
(r) artificial substrate
(s) spoil
(x) excavated

Other modifiers for water chemistry and soil may also be employed to more adequately describe the wetland and deepwater habitats. These may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

The class of a particular wetland describes its general appearance in terms of either the dominant vegetation or the substrate. When over 30% cover by vegetation is present, a vegetation class is used (e.g., "*emergent*", "*scrub-shrub*" and/or "*forested*"). When less than 30% of the substrate is covered by vegetation, then a substrate class is used (e.g., "*unconsolidated bottom*", "*aquatic bed*", or "*moss-lichen*"). Typical demarcations of these classes of *palustrine* wetland systems are shown in the Cowardin report. [Also, reference is made to the current (1988) National Wetlands Inventory (NWI) map and legend.]

Wetlands that have a single vegetation species that dominate 90% of the total wetland area are called a "mono-type". This may occur where more than the one species is present but the total area of their coverage is less than 10%. If another vegetation class or species dominates more than 10% of the wetland, then it has higher habitat diversity. This can be based on the number of plant species found in a class, the number and quality of the structural layers and the interspersion of classes which creates increased "edge effect" and habitat diversity. This may also result in a higher wetland "rating".

E. CITY OF PUYALLUP WETLAND REGULATION AND BUFFER STANDARDS

The regulation of wetlands is made in accordance with the City of *Puyallup Municipal Code* (PMC), 2015, *Environmentally Critical Areas Management*, Chapter 21.06 (Ord. 3170 § 1, 2018; Ord. 3101 §9, 2015, Ord. 3076 §4, 2014, Ord. 2859 §1, 2006). The standards are applied to areas that are "regulated wetlands". The Puyallup Code Articles I thru XIV include statements of purpose, definitions, application to regulated activities, exemptions, permit process and technical study requirements for wetlands and other critical areas such as streams (surface water systems) and wildlife habitat areas. There are also performance standards and procedural and miscellaneous provisions which are applicable to all of the critical areas as necessary.

Wetlands are defined in the PMC 21.06.210, Definitions, as amended by Ord. 3130:
(139) "Wetlands" means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically

adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, retention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands include those artificial wetlands intentionally created to mitigate wetland impacts. [Highlight added by JCA]

If a wetland has a large enough area or high enough rating requiring regulation, then appropriate measures for buffering or impact mitigation shall be required for a new development. Generally, for the City of Puyallup, the minimum threshold size for an "isolated" Category III wetland is 2,500 square feet, and a Category IV wetland is 10,000 square feet.

If the total size of a wetland unit is greater than or equal to a threshold size, then the wetland unit is regulated. The size of a wetland unit is determined after a wetland specialist completes a detailed delineation of the wetland boundary. The size of smaller areas may be measured by onsite methods such as hip chain or tape measure by the wetland specialist. A measurement by more detailed methods such as a land survey may be required to determine a precise size for a wetland that is at or near the threshold size.

An "isolated wetland" is defined in the PMC 21.06.210 (75), to mean: "a wetland that is hydrologically isolated from other aquatic resources, as determined by the United States Army Corps of Engineers (USACE). Isolated wetlands may perform important functions and are protected by state law (Chapter 90.48 RCW) whether or not they are protected by federal law. Generally, this means a wetland that is not connected directly to another wetland in a system of definite channels or by hydric soils. This is also determined by reference to the definition of a "stream" in PMC 21.06.210 (126), and the standards for the classification of surface water systems (see Chapter 21.06.910).

After the wetland boundary is delineated and the size is measured, then the wetland unit is "rated" or categorized for regulatory purposes using the 4-tiered system, defined by the most current Washington Department of Ecology (WDOE) *Washington State Wetlands Rating System for Western Washington: 2014 Update*" (WDOE Pub #04-06-029). This document contains the methods for determining the wetland category based on criteria for Category I, II, III, and IV wetlands. The rating and buffer requirements for wetlands used in this study are specifically made in accordance with PMC 21.06.910, *Designation, mapping, and rating*, and PMC 21.06.930, *Performance standards – Wetland buffer widths* (see excerpts below).

JCA used the 2014 updated rating manual by the WDOE. The manual is primarily based on water regimes. The boundaries between contiguous or connected wetlands are set at the point where the volume, flow, or velocity of the water changes significantly.[15] Furthermore, the manual describes criteria used for establishing wetland boundaries where they are not obvious such as along margins of open water bodies, along small or large streams, and where they are separated by open water bodies or by uplands that form a patchwork on the landscape (wetland mosaic), and situations where the boundaries of wetlands may overlap or be contiguous along a stream (i.e. riparian) corridor.

21.06.910 Wetland designation, mapping, and rating

(1) Wetlands are those areas identified through any and all technical wetland delineation manuals as required by RCW 36.70A.175. Wetland delineations will be conducted in accordance with the current manual(s) required to be utilized by the Department of Ecology, including federally approved Army Corps of Engineers manual(s) and regional supplements. All areas within the city meeting the criteria in the approved federal manual and applicable regional supplements, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this chapter. Ponds and other open water bodies shall also be subject to the provisions of this chapter.

15 It is noted in the manual that property lines should not be used as wetland boundaries for assessment unless they coincide with changes in hydrology.

(2) The approximate location and extent of previously identified wetlands are shown on the city's adopted critical area maps. These maps are to be used as a guide for the city, project applicants and/or property owners, and shall be updated as new wetlands are identified. The city's maps do not represent to show all possible wetlands within city boundaries. The actual location of a wetland's boundary shall be determined through field investigation by a qualified professional applying the methods and procedures in the approved federal manual and applicable regional supplements.

(3) Wetlands shall be rated and regulated according to the categories defined by the most current Washington Department of Ecology *Wetland Rating System for Western Washington*. This document contains the methods for determining the wetland category based on the following criteria:

(a) Category I. Category I wetlands are: (1) relatively undisturbed estuarine wetlands larger than one acre; (2) wetlands of high conservation value that are identified by scientists of the Washington Natural Heritage Program/DNR; (3) bogs; (4) mature and old-growth forested wetlands larger than one acre; (5) wetlands in coastal lagoons; (6) interdunal wetlands that score eight or nine habitat points and are larger than one acre; and (7) wetlands that perform many functions well (scoring 23 points or more). These wetlands: (1) represent unique or rare wetland types; (2) are more sensitive to disturbance than most wetlands; (3) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or (4) provide a high level of functions.

(b) Category II. Category II wetlands are: (1) estuarine wetlands smaller than one acre, or disturbed estuarine wetlands larger than one acre; (2) interdunal wetlands larger than one acre or those found in a mosaic of wetlands; or (3) wetlands with a moderately high level of functions (scoring between 20 and 22 points).

(c) Category III. Category III wetlands are: (1) wetlands with a moderate level of functions (scoring between 16 and 19 points); (2) can often be adequately replaced with a well-planned mitigation project; and (3) interdunal wetlands between one-tenth and one acre. Wetlands scoring between 16 and 19 points generally have been disturbed in some ways and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.

(d) Category IV. Category IV wetlands have the lowest levels of functions (scoring fewer than 16 points) and are often heavily disturbed. These are wetlands that we should be able to replace, or in some cases to improve. However, experience has shown that replacement cannot be guaranteed in any specific case. These wetlands may provide some important functions, and should be protected to some degree.

(4) All wetlands shall be regulated and subject to the provisions of this chapter regardless of size, except for Category III wetlands less than 2,500 square feet if the wetland is not associated with a riparian corridor or part of a wetland mosaic and Category IV wetlands less than 10,000 square feet. Impacts will be allowed to Category III wetlands between 2,500 square feet and 3,000 square feet, if the following criteria are met as detailed in an approved critical area report demonstrating:

(a) The wetland is not associated with a riparian corridor;

(b) The wetland is not part of a wetland mosaic;

(c) The wetland does not score 20 points or greater for habitat in the Western Washington Wetland Rating System form; and

(d) The wetland does not contain habitat identified as essential for local populations of priority species identified by the Washington Department of Fish and Wildlife; and

(e) The impacts are fully mitigated in accordance with any conditions from the state Department of Ecology and/or U.S. Army Corps (USACE). This exemption does not relieve the applicant/property owner from permits required by the state Department of Ecology and/or U.S. Army Corps (USACE). The applicant/property owner shall provide proof of applicable approvals, exemptions and/or permits obtained from the state Department of Ecology and/or U.S. Army Corps (USACE) prior to the city approving any construction permits for the subject fill action.

(Ord. 3170 § 1, 2018; Ord. 3101 §7, 2015; Ord. 3076 §3, 2014; Ord. 2859 §1, 2006)

21.06.930 Performance standards – Wetland buffer widths.

(1) Wetland buffer areas shall be established for all development proposals and activities adjacent to wetlands to determine the need for the buffer to protect the integrity, function and value of the wetland. The director shall determine appropriate buffer widths based upon the wetland rating form and critical area report prepared pursuant to PMC 21.06.950. Wetland buffers shall be measured perpendicular to the wetland edge as marked in the field. Except as otherwise permitted by this chapter, buffers shall consist of an undisturbed area of native vegetation.

(2) The standard buffer widths required by this chapter are considered to be the minimum required and presume the existence of a dense native vegetation community in the buffer zone adequate to protect the wetland functions and values at the time of the proposed activity. The standard buffer widths assume that the buffer area contains no more than 20 percent invasive plant coverage in the buffer area. If the vegetation is inadequate, then the buffer width shall be increased and/or the buffer managed (e.g., invasive plant removal and monitoring) and planted to maintain or improve the buffer functions. The following standard buffer width requirements are established:

(a) Wetland buffer widths shall be determined based on the adjacent land use activities as follows:

Level of Impact from Proposed Land Use	**Types of Land Use Based on Common Zoning Designations**
High	• Commercial development • Industrial development • Institutional • Retail sales • Residential (more than 4 units/acre) • Conversion to high intensity agriculture (dairies, nurseries, greenhouses, growing and harvesting crops requiring annual tilling and raising and maintaining animals, etc.) • High intensity recreation (golf courses, ball fields, etc.) • Hobby farms
Moderate	• Residential (4 units/acre or less) • Moderate intensity open space (parks with biking, jogging, etc.) • Conversion to moderate intensity agriculture (orchards, hay fields, etc.) • Paved trails • Building of logging roads • Utility corridor or right-of-way shared by several utilities and including access/maintenance road
Low	• Forestry (cutting of trees only) • Low intensity open space (hiking, bird-watching, preservation of natural resources, etc.) • Unpaved trails • Utility corridor

(b) Width of buffers needed to protect **Category I** wetlands (for wetlands scoring 23 points or more for all functions or having the "special characteristics" identified in the rating system):

Wetland Characteristics	**Buffer Widths by Impact of Proposed Land Use (apply most protective if more than one criterion is met)**
Natural Heritage Wetlands	Low – 125 ft Moderate – 190 ft High – 250 ft

Wetland Characteristics	**Buffer Widths by Impact of Proposed Land Use (apply most protective if more than one criterion is met)**
Bogs	Low – 125 ft Moderate – 190 ft High – 250 ft
Forested	Buffer width to be based on score for habitat functions or water quality functions
Estuarine	Low – 100 ft Moderate – 150 ft High – 200 ft
Wetlands in Coastal Lagoons	Low – 100 ft Moderate – 150 ft High – 200 ft
High level of function for habitat (score for habitat 8 – 9 points)	Low – 150 ft Moderate – 225 ft High – 300 ft
Moderate level of function for habitat (score for habitat 5 – 7 points)	Low – 75 ft Moderate – 110 ft High – 150 ft
High level of function for water quality improvement (8 – 9 points) and low for habitat (less than 5 points)	Low – 50 ft Moderate – 75 ft High – 100 ft
Not meeting any of the above characteristics	Low – 50 ft Moderate – 75 ft High – 100 ft

(c) Width of buffers needed to protect **Category II** wetlands (for wetlands scoring 20 to 22 points for all functions or having the "special characteristics" identified in the rating system):

Wetland Characteristics	**Buffer Widths by Impact of Proposed Land Use (apply most protective if more than one criterion is met)**
High level of function for habitat (score for habitat 8 – 9 points) *	Low – 150 ft Moderate – 225 ft High – 300 ft
Moderate level of function for habitat (score for habitat 5 – 7 points)	Low – 75 ft Moderate – 110 ft High – 150 ft

Wetland Characteristics	Buffer Widths by Impact of Proposed Land Use (apply most protective if more than one criterion is met)
High level of function for water quality improvement and low for habitat (score for water quality 8 – 9 points; habitat less than 5 points) **	Low – 50 ft Moderate – 75 ft High – 100 ft
Estuarine	Low – 75 ft Moderate – 110 ft High – 150 ft
Interdunal	Low – 75 ft Moderate – 110 ft High – 150 ft
Not meeting above characteristics	Low – 50 ft Moderate – 75 ft High – 100 ft

* Maintaining connections to adjacent and continuous habitat or wildlife corridors shall be considered.

** No additional discharge of untreated storm water permitted.

(d) Width of buffers needed to protect **Category III** wetlands (for wetlands scoring 16 to 19 points for all functions):

Wetland Characteristics	Buffer Widths by Impact of Proposed Land Use
Moderate level of function for habitat (score for habitat 5 – 7 points) * *If wetland scores 8 – 9 habitat points, use buffers for Category II.	Low – 75 ft Moderate – 110 ft High – 150 ft
Not meeting above characteristic	Low – 40 ft Moderate – 60 ft High – 80 ft

(e) Width of buffers needed to protect **Category IV** wetlands (wetlands scoring less than 16 points for all functions):

Wetland Characteristics	Buffer Widths by Impact of Proposed Land Use
Score for all three basic functions is less than 16 points	Low – 25 ft Moderate – 40 ft High – 50 ft

(3) The standard buffer widths of subsection (2) of this section may be decreased through the reduction measures of this section.

(a) The buffer widths recommended for land uses with "high intensity" impacts to wetlands can be reduced to those recommended for "moderate intensity" impacts under the following conditions:

(i) A relatively undisturbed vegetated corridor at least 100 feet in width is established, enhanced and/or protected (if adequate vegetation exists) between the wetland and any other upland priority habitats adjacent to the wetland as defined by the Washington State Department of Fish and Wildlife. The corridor shall be protected by a native growth protection easement or some other legal mechanism providing permanent protection.

(ii) A buffer enhancement plan, consistent with applicable mitigation report and monitoring requirements of this chapter, is submitted and approved in order to improve the functions of the buffer area to the maximum extent possible.

(iii) All applicable measures to minimize the potential impacts of different land uses on wetland habitat functions, as summarized in the following table, are applied to the development:

Examples of Disturbance	**Examples of Measures to Minimize Impacts**	**Activities That Cause the Disturbance**
Lights	Direct lights away from wetland	Parking lots, warehouses, manufacturing, high density residential
Noise	Place activity that generates noise away from the wetland	Manufacturing, high density residential
Toxic Runoff	Route all new untreated runoff away from wetland Covenants limiting use of pesticides within 150 feet of wetland Integrated pest management programs	Parking lots, roads, manufacturing, residential areas, application of agricultural pesticides, landscaping
Change in Water Regime	Infiltrate or treat, detain and disperse into buffer new runoff from surfaces	Any impermeable surface, lawns, tilling
Pets and Human Disturbance	Fence around buffer Plant buffer with "impenetrable" natural vegetation appropriate for region	Residential areas
Dust	BMPs for dust	Tilled fields

(b) For all wetlands that score less than 20 points for habitat, the buffer width can be reduced to those required for moderate land use impacts if measures to minimize the impacts of different land uses on wetlands as summarized in the table above are applied.

(4) The director has the authority to "average" buffer widths on a case-by-case basis where a qualified professional demonstrates that all the following criteria are met:

(a) The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer;

(b) The buffer averaging does not reduce the functions or values of the wetland;

(c) The portion of the buffer subject to buffer averaging is less than 20 percent of the total buffer length on a project site; provided, that:

(i) The director may waive the 20 percent limitation when there are specific topographic conditions adjacent to the wetland that render portions of the buffer nonessential or ineffective in protecting wetland functions, and

(ii) The director finds that the averaging occurs parallel to the existing wetland boundary;
(d) The wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation;
(e) The buffer width for Category I and II wetlands is not reduced to less than 25 percent of the standard width; and
(f) The buffer width of a Category III or IV wetland with moderate habitat functions (five to nine points for habitat) may be reduced to no less than 33 percent of the standard buffer width. The buffer width of a Category III or IV wetland with low habitat functions (less than five points for habitat) may be reduced to 35 feet.
(g) In any case where a reduced buffer width is applied consistent with the subsections above, the buffer shall be composed of a dense native plant community; if the buffer area contains over 20 percent coverage by invasive plant species, the applicant shall provide a vegetation management plan to remove those invasive plants, supplement the buffer area with native trees and shrubs and monitor the buffer area for a period of no less than three years to ensure eradication of invasive plants and establishment of new native plants from the buffer area. The enhanced functions must be documented to the satisfaction of the director through a functions and values analysis prepared by a qualified professional.

(5) The director may have the authority to increase the standard buffer width for any category of wetland on a case-by-case basis when such increase is necessary to protect the function and value of the wetland, protect significant habitat, or protect lands adjacent to the wetland from erosion and other hazards. The standard buffer widths assume a dense native plant community is present with less than 20 percent invasive plant coverage in the buffer area. In determining if buffer width increases are warranted, the director shall consult with the Departments of Ecology and/or Fish and Wildlife and shall consider the following information to be provided in a critical area report:
(a) The specific plant and animal composition of the wetland and subject buffer area; the project wetland biologist shall implement wider buffer areas where the buffer is composed of invasive plants that cover more than 20 percent of the buffer area, unless buffer management and enhancement actions are proposed to remove the invasive plants and manage the establishment of new native trees and shrubs over a three-year period through a buffer vegetation enhancement plan;
(b) The sensitivity of the plant and animal species in the wetland to disturbance from existing and proposed land uses;
(c) The extent to which the wetland buffer is relied on to perform water quality functions such as sediment trapping and pollutant removal;
(d) Whether the wetland supports wetland-dependent wildlife species or wildlife that require large dispersal areas or access to upland habitats for critical life stage needs;
(e) The risk of altering the existing wetland functions if the standard buffers are used; and
(f) Other information that the director deems pertinent to the subject wetland.

(6) The edge of the buffer area shall be clearly staked, flagged, and fenced prior to any site clearing and construction. The buffer boundary markers shall be clearly visible, durable, and permanently affixed to the ground. Site clearing shall not commence until the applicant has submitted written notice to the department that buffer requirements of this chapter are met. Field-marking shall remain until all construction and clearing phases are completed, and removal of the markers has been granted by the city.

(7) Impervious surfaces shall not be constructed in wetland buffers within 50 feet of the wetland boundary except as provided for in this chapter. (Ord. 3170 § 1, 2018; Ord. 3101 § 9, 2015; Ord. 3076 § 4, 2014; Ord. 2859 § 1, 2006)

[Skipped: **21.06.940, 21.06.950, 21.06.960, 21.06.970, 21.06.980**]

21.06.1010 Stream designation, mapping and rating

(1) Fish and wildlife habitat areas are those areas identified as being of critical importance to the maintenance of fish, wildlife, or plant species. All areas within the city meeting these criteria, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this chapter.

(2) The approximate location and extent of previously identified fish and wildlife habitat areas are shown on the critical area maps adopted by the city, as most recently updated. These maps are to be used as a guide for the city, project applicants and/or property owners, and may be updated as new fish and wildlife habitat areas are identified. The city's maps may not represent to show all the fish and wildlife habitat areas within the city. The actual location of a fish and wildlife habitat area shall be determined through field investigation by a qualified professional applying the best available science.

(3) For purposes of this chapter, fish and wildlife habitat areas shall include the following:

(a) Streams and their associated riparian habitat areas. Streams shall be designated Type I, Type II, Type III, and Type IV according to the following criteria:

(i) Type I streams are those streams identified and regulated as "Shorelines of the State" pursuant to WAC 173-18-310 and the City of Puyallup Shoreline Master Program. Within the city's corporate limits and the urban growth area, Type I streams are the Puyallup River and Clarks Creek, below Maplewood Springs;

(ii) Type II streams are those natural streams that are not Type I streams and are either perennial or intermittent, and have known or potential use by anadromous or resident fish species, significant recreational value, or significant wildlife habitat functions. Potential use shall be determined based upon species life cycle requirements, habitat suitability, presence or lack of natural barriers, and a reasoned evaluation of current, historic, and future fish use by a qualified professional. Within the city's corporate limits and the urban growth area, known Type II streams including but not limited to Deer Creek, Diru Creek, Meeker Ditch, Rody Creek, Silver Creek, Wildwood Creek, Woodland Creek, and Wapato Creek;

(iii) Type III streams are those streams with perennial or intermittent flow and are not used by anadromous fish; and

(iv) Type IV streams are those intermittent or ephemeral streams with channel width less than two feet taken at the ordinary high water mark, that are not used by anadromous fish or resident fish.

(b) Nonriparian habitat areas that support or have a primary association with:

(i) State or federally designated endangered, threatened, and sensitive species;

(ii) State priority habitats and areas associated with state priority species; or

(iii) Habitats and species of local importance including habitat corridors connecting habitat blocks and open spaces. (Ord. 2859 §1, 2006)

21.06.1050 Performance standards – Stream and riparian buffer widths

(1) Stream buffers shall be established landward of the ordinary high water mark adjacent to streams to protect the integrity, functions and values of the resource. Buffers shall consist of an undisturbed area of native vegetation and shall reflect the sensitivity of the stream and the type and intensity of the adjacent human use or activity.

(2) The standard buffer widths required by this chapter are considered to be the minimum required and presume the existence of a relatively intact native vegetation community in the buffer zone adequate to protect the stream functions and values at the time of the proposed activity. If the vegetation is inadequate, then the buffer width shall be increased or the buffer planted to maintain and improve the buffer functions. The following standard buffer width requirements are established:

(a) Type I: 150 feet;

(b) Type II: 100 feet;

(c) Type III: 50 feet; and

(d) Type IV: 35 feet.

(3) The director has the authority to "average" buffer widths on a case-by-case basis where a qualified professional demonstrates that all the following criteria are met:

(a) The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer;

(b) The buffer averaging does not reduce the functions or values of the stream or riparian habitat;

(c) The portion of the buffer subject to buffer averaging is less than 20 percent of the total buffer length on a project site;

(d) The site contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation;

(e) The buffer width for Type I and II streams is not reduced to less than 50 percent of the standard width;

(f) The buffer width of a Type III or IV stream may not be reduced under any circumstance.

(4) The director may increase the minimum size of a riparian buffer width on a case-by-case basis when it can be demonstrated by a critical area report that such increase is necessary to:

(a) Protect the functions and values of the stream;

(b) Protect significant habitat;

(c) Protect lands adjacent to a stream from erosion or channel migration;

(d) Provide flood protection; or

(e) Provide protection from erosion, landslide, or other geologic hazards.

(5) The edge of the buffer area shall be clearly staked, flagged, and fenced prior to any site clearing and construction. The buffer boundary markers shall be clearly visible, durable, and permanently affixed to the ground. Site clearing shall not commence until the applicant has submitted written notice to the department that buffer requirements of this chapter are met. Field-marking shall remain until all construction and clearing phases are completed, and final approval has been granted by the city.

(6) Structures shall be set back in accordance with PMC 21.06.840 such that construction activities and outdoor living areas do not infringe upon the required buffer edge.

(Ord. 2859 §1, 2006)

APPENDIX 2

FIELD NOTE SKETCH MAP (FNSM) AND FIELD DATA (2020)

Completed by John Comis Associates (JCA)
Date: 3/4/2020

Source: US Army Corps of Engineers *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010).

INTRODUCTION:
For test plot locations, see Figure 7 in the report and the Field Note Sketch Map (FNSM) in this appendix. The sample test plot data are recorded to verify the "wetland" and "non-wetland" conditions identified by JCA for regulatory purposes using the updated 2010 US Army Corps of Engineers *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010).[16] This information is included to support a determination made by JCA in accordance with current *Puyallup Municipal Code* requirements.

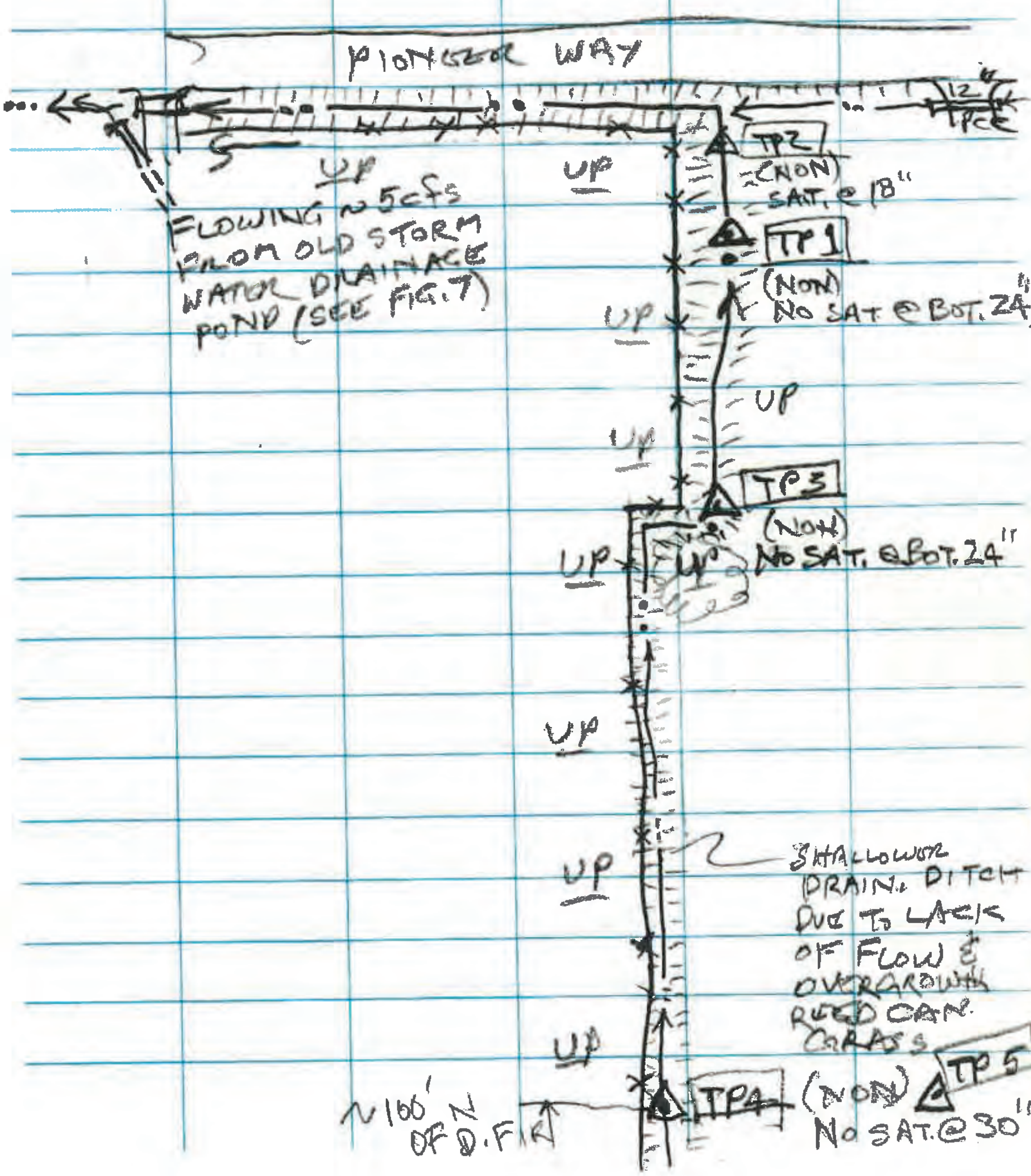
[16] Wetlands are delineated using the *Washington State Wetlands Identification and Delineation Manual*, prepared by the Washington State Department of Ecology (WDOE Publication #96-94). The WA State Wetlands Manual is required to be used by all state agencies in the application of any state laws and regulations as well as any city or county in the implementation of any regulations under the Growth Management Act. This methodology has been modified at this time to be consistent with the 2010 US Army Corps of Engineers *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast* Region (USACE 2010). http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp.pdf

3/4/20
ABBY RD. GROUP
SITE @ PIONEER &
SHAW RD.

WEATHER: P. CLOUDY
- DRIZZLE LAST 24hr.
- RAIN PAST WEEK
- WET SITE CONDITIONS (EARLY GROW. SEASON)

BY J. COMIS, PWS
& S. SMITH, ASSIST.

AMC = 3.0, TEMP. = 52°F



Field Note Sketch Map by JCA, 3/4/2020

Appendix 2a

APPENDIX 3

WETLAND RATING FORM

Completed by John Comis Associates (JCA)
Dated: 2007 and 2020

Source: Washington State Department of Ecology (WDOE), "*Washington State Wetlands Rating System, Western Washington, 2014 Update*", WDOE Pub #04-06-029

INTRODUCTION:
This categorization (or rating) of the wetland area that is associated with the project site is done for regulatory purposes based on the 4-tiered system as required and specified by the *City of Puyallup Municipal Code* (PMC). This rating is applicable to buffer standards and setback requirements. The current WDOE *Wetland Rating Form* is used and completed by JCA to support this rating, which may be approved by the City in accordance with the Code requirements.

This appendix includes a copy of maps used by JCA for this analysis, which are noted and highlighted to show various features. These maps are:

- **W1,** Cowardin Vegetation Classes with Hydroperiods
- **W2,** 1 Km Radius around Wetland Unit "A"
- **W3,** 150' & 330' Radius around Wetland Unit "A"
- **W4,** WDOE 303(d) List Map

Certain data requirements are called out in various parts of the rating form and described in detail in the 2014 WDOE rating manual. The list of figures on page 2 of the rating form indicate what maps are required and which maps are used for that information. See the List of Figures on Page 2 of the rating form for more details.

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Offsite Wetland "A" @ ARG-ETownCrossing Date of site visit: 3/4/2020

Rated by John Comis, PWS Trained by Ecology? X Yes ___No Date of training 2005,2007, 2014

HGM Class used for rating Depressional Wetland has multiple HGM classes? x Y ____N

NOTE: Form is not complete without the figures requested *(figures can be combined)*.

Source of base aerial photo/map Pierce County GIS data with wetland and hydro. feature overlays; Goggle Earth with Adobe GIS overlay data on "Wetland Delineation Map", Fig.7

OVERALL WETLAND CATEGORY II (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_______**Category I** – Total score = 23 - 27

X **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	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	**TOTAL**
Score Based on Ratings	9	7	5	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	X

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	W1
Hydroperiods	D 1.4, H 1.2	W1, 6&7
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	6&7, see Photos
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	W3
Map of the contributing basin	D 4.3, D 5.3	4&5
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	W2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	W4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	(none)

~~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?
X The wetland is on a slope (*slope can be very gradual*),
x 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,
X The water leaves the wetland **without being impounded**. (sloped portion of offsite wetland along the hillside)

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?
X The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
X 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.* (the portion of offsite Wetland "A" just south of the project site and directly associated with the slope portion)

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

WL - A

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

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)* Yes = 4 No = 0	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	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland (just the area around the inlet of points = 2 Area seasonally ponded is < ¼ total area of wetland the 18" culvert pipe, see D4.2) points = 0	2
Total for D 1 Add the points in the boxes above	13

Rating of Site Potential If score is: x 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	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source________________ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	3

Rating of Landscape Potential If score is: x 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? (Tributary to Deer Creek, situated about 1/2 mile west of site) (See 303(d) map in Appendix 3) Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality *(answer YES if there is a TMDL for the basin in which the unit is found)*? (no TMDL found listed) Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	2

Rating of Value If score is: x 2-4 = H ___1 = M ___0 = L *Record the rating on the first page*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS **Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation	
D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 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	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 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 (36.7 acres/0.76 acres points = 5 The area of the basin is 10 to 100 times the area of the unit = 52.8 times) 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	3
Total for D 4 Add the points in the boxes above	8

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

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	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: X **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. (Deer Creek, about 1/2 mile downstream from this sub-basin) 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* (See City of Milton FEMA Flood map for critical flood hazard areas.) 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	0
Total for D 6 Add the points in the boxes above	1

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

* 18" culvert pipe under the private road (1st Street SE) was checked by JCA on 11/25/17, water appears to back up into only the lower part of Wetland "A" (south 1/5th).

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 0.76 ac. 4 structures or more: points = 4
_X_ Emergent 3 structures: points = 2
_X_ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
_x_ Forested (areas where trees have > 30% cover) 1 structure: points = 0

If the unit has a Forested class, check if:

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

4

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
_x_ Occasionally flooded or inundated 2 types present: points = 1
_x_ Saturated only 1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland
_x_ 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

1

H 1.4. Interspersion of habitats

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

None = 0 points **Low** = 1 point **Moderate** = 2 points

3

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

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.*

_X_ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).

_X_ Standing snags (dbh > 4 in) within the wetland

____ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)

____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)*

_X_ 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*)

3

Total for H 1 — Add the points in the boxes above: 14

Rating of Site Potential If score is: ____15-18 = H _x_ 7-14 = M ____0-6 = L *Record the rating on the first page*

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

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).

Calculate: % undisturbed habitat 9.6 + [(% moderate and low intensity land uses)/2] 0.6 = 10.2 %

74.23ac./776*ac.=0.096=9.6%

10ac./776ac.=0.013=1.3%

9.6%+[1.3%/2]=0.096+0.006=0.102=10.2%

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

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat 30 + [(% moderate and low intensity land uses)/2] 12.0 = 42 %

- 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

(includes newer development to west of Shaw Road & to north)

-2

Total for H 2 — Add the points in the boxes above: 0

Rating of Landscape Potential If score is: ____4-6 = H ____1-3 = M _X_ < 1 = L *Record the rating on the first page*

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

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

Site meets ANY of the following criteria: — points = 2

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

Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1

Site does not meet any of the criteria above — points = 0

1

Rating of Value If score is: ____2 = H _x_ 1 = M ____0 = L *Record the rating on the first page*

* $A=pi*r^2$

$A=3.14*3280^2/43,560$

A=775.5 acres

Wetland name or number A

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

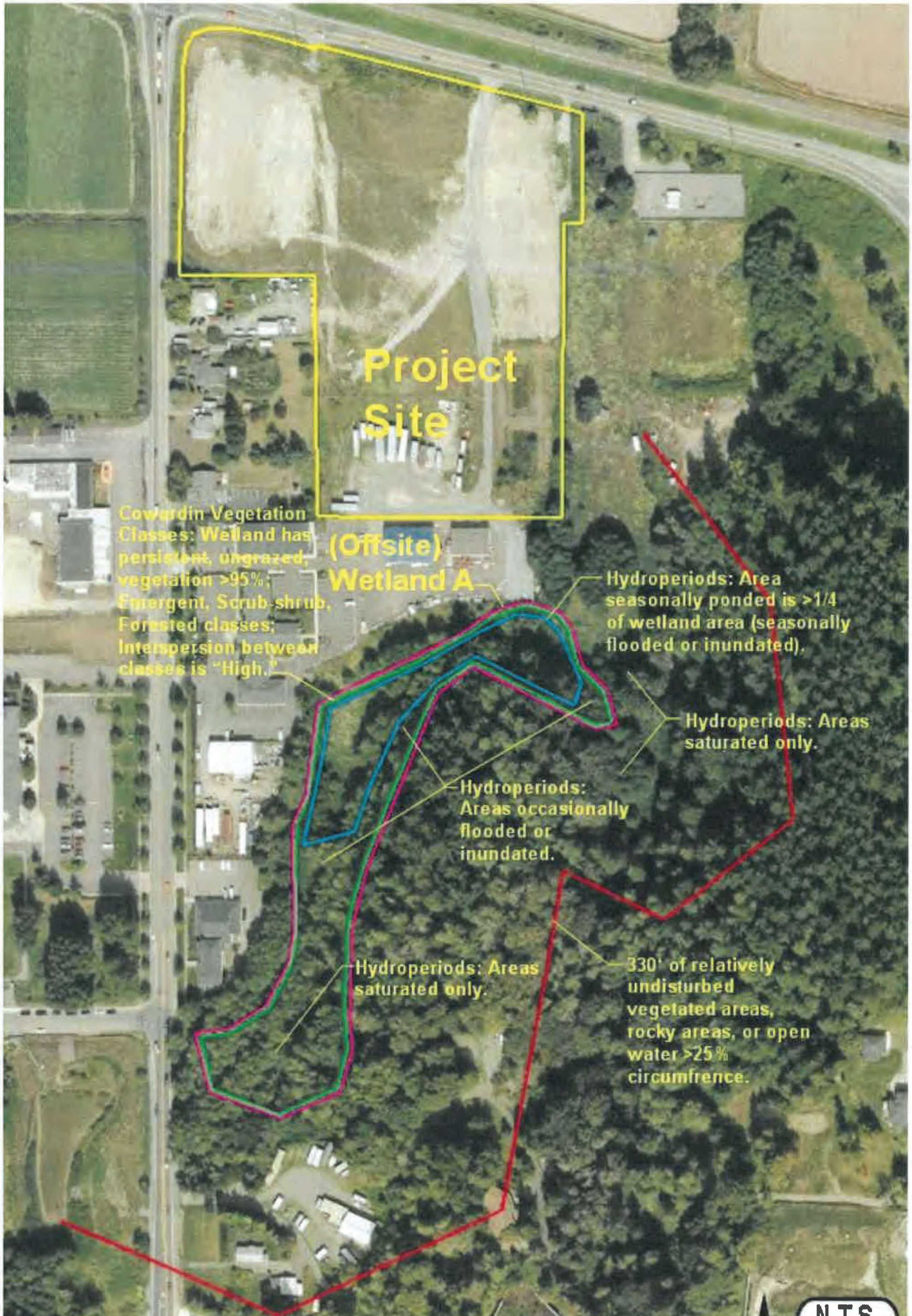
— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

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

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

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

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



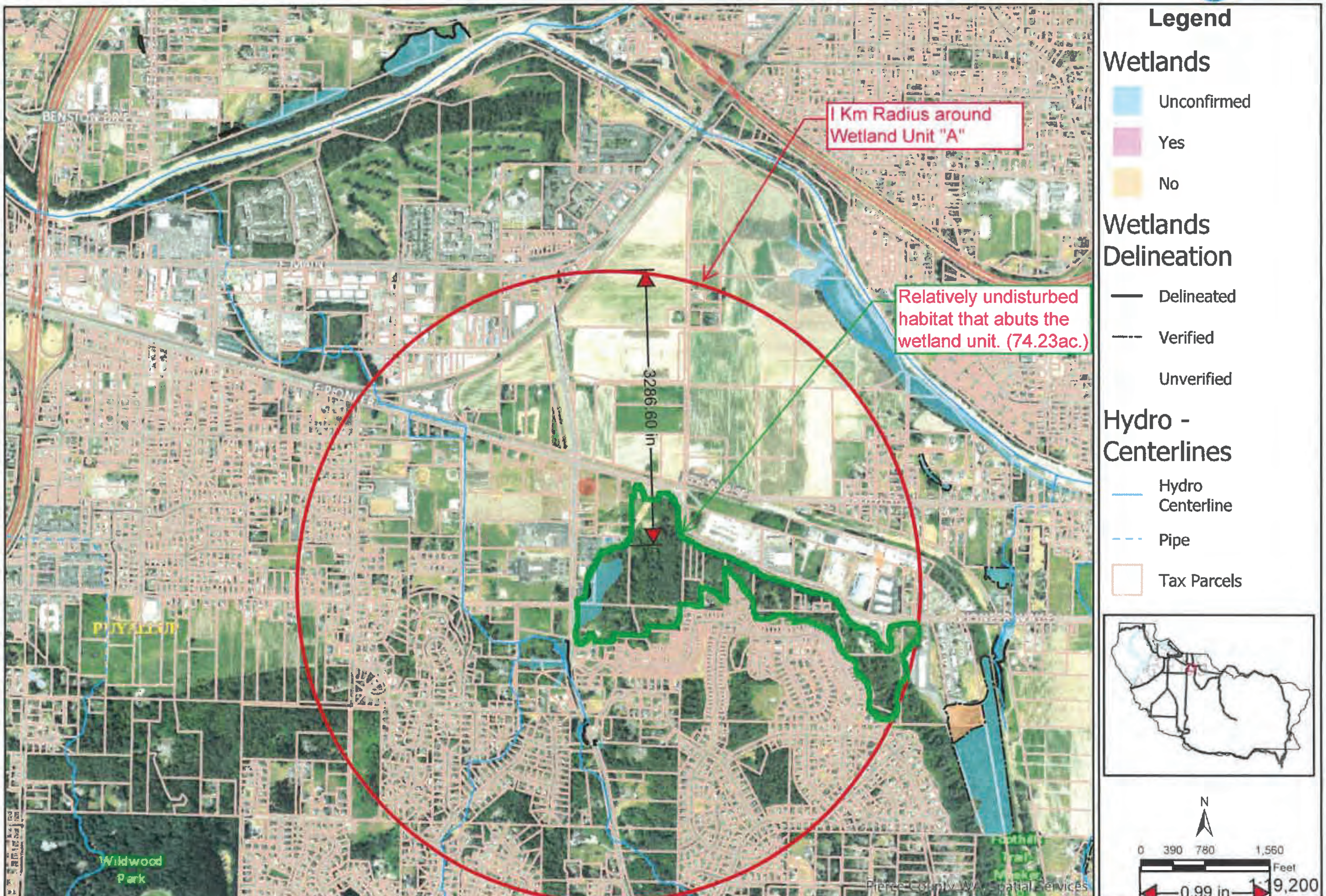
JOHN COMIS ASSOCIATES
Wetlands, Streams & Mitigation Designs since 1989
222 East 26th Street, #103 Tacoma, WA 98421
Office: (253) 272-6808 Fax: (253) 272-6807

WETLAND RATING FORM MAP

N.T.S.

App. W1

PublicGIS



Disclaimer: The map features are approximate and have not been surveyed. Additional features not yet mapped may be present. Pierce County assumes no liability for variations ascertained by formal survey.

Date: 3/24/2020 02:22 PM

W2

1 Km Radius around Wetland Unit "A"

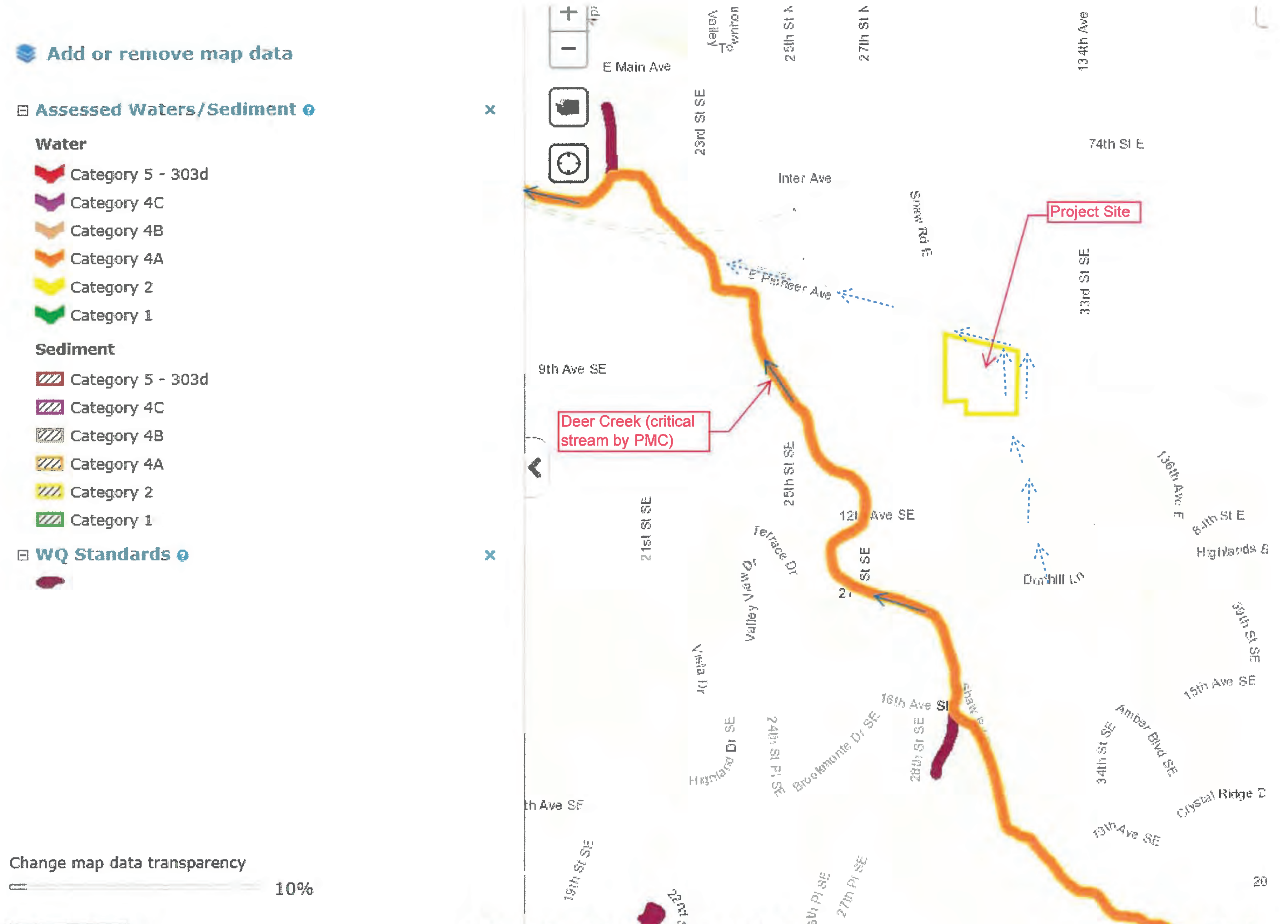
PublicGIS

Disclaimer: The map features are approximate and have not been surveyed. Additional features not yet mapped may be present. Pierce County assumes no liability for variations ascertained by formal survey.

Date: 3/24/2020 02:27 PM

150' & 330' Radius around Wetland Unit "A"

W3



WDOE 303(d) List Map

Appendix 4

PHOTOGRAPHS OF 2008 ONSITE AND OFFSITE AREAS

By John Comis Associates
(Taken: 4/6/07 and 9/28/07)

INTRODUCTION:
Photos were taken by John Comis Associates (JCA) on April 6, 2007 and September 28, 2007 at photo points around the onsite and adjacent offsite areas, along the small drainage ditch that flows to the north along the east side of the site, and at the offsite Wetland "A" south of this project site. The location of each photo point is shown on the *Aerial Photo with Wetland Delineation* (Figure 6). The numbered arrows show the position and direction from which the photos were taken. The digital photos are on file at JCA together with additional photographs that were also taken in these areas.

Photo #1: Looking south from the northeast portion of the property at the location where the silt fence jogs east about 25 ft. The water standing in the ditch at this time appears to flow north from the southeastern corner of the site along the east property line. (Taken 9/28/07)

Photo #2: Looking north along the ditch-line pictured in photo #1. The ditch flows along (just outside) the east property line. The silt fence runs along the property line to protect the ditch from onsite surface runoff in accordance with the City of Puyallup requirements for the approved site development permit.

Photo #3: Looking south from the central portion of the site along the silt fence at the east property line. Notice the dominant reed canary grass and Himalayan blackberry along the adjacent offsite area. The ditch is piped thru this adjacent offsite area. (Taken 9/28/07)

Photo #4: Looking southwest toward the northern cell of the storm detention pond located in this part of the site. The southern cell is just left of the berm and culvert pipe shown in this photo. (Taken 9/28/07)

Photo #5: Looking directly down into the small, overgrown drainage ditch just east of the property line. The location of this portion of the ditch is near the central part of this property. Note the slow flow out of this area is due to clogging by dense vegetation (Reed Canary Grass). (Taken 9/28/07)

Photo #6: Looking north at slowly flowing water in the small drainage ditch as shown in Photo #8 is due to clogging by dense vegetation (Reed Canary Grass). (Taken 9/28/07)

Photo #7: Looking at a blue flag marking the "center-line at end of ditch = upstream end of culvert." This is located offsite and just north of the southeast property corner. (Taken 9/28/07)

Photo #8: Looking directly down at the submerged end of the culvert that is located directly beneath the flag shown in Photo #7. At this time the water is flowing slowly north in the ditch and into the upstream end of the culvert. This area requires maintenance and possibly a larger culvert. (Taken 9/28/07)

Photo #9: Looking west from the same location as at Photo #8 about 30 ft. south of the southeast property corner. Notice the dense vegetation (reed canary grass, Himalayan blackberries and red alder trees overgrowing the ditch and culvert pipe in this area. (Taken 9/28/07)

Photo #10: Looking south along the old fence line that extends thru offsite Wetland "A" located about 150 feet south of the subject property (see next photos for more about offsite Wetland "A"). (Taken 9/28/07)

Photo #11: Looking west across offsite Wetland "A" located approximately 150 ft. south of the southeast property corner. Notice the dominant overgrown Reed Canary Grass (FACW indicator species) and cattail (OBL indicator species) in this part of Wetland "A". (Taken 9/28/07)

Photo #12: Looking south from a location approximately 230' south of the southeast property corner in offsite Wetland "A". Note the metal pole in the photo was found but not placed by JCA. A stream was flowing thru this part of Wetland "A" out of a ravine from the southeast (see Fig. 6). (Taken 9/28/07)

Photo #13: Looking west from the metal pole in Photo #12 toward the forested and shrub part of Wetland "A". The stream flows around to the west and then north into the ditch section from this location. Some skunk cabbage (OBL) was found growing along the stream. (Taken 9/28/07)

Photo #14: Looking southwest toward the forested portions of offsite Wetland "A" from the parking lot about 150 feet south of the subject site. There is a 25' buffer between the edge of the parking lot and the edge of the original wetland. The wetland extends to the east along the parking lot. (Taken 9/28/07)

APPENDIX 5

PHOTOGRAPHS OF 2020 ONSITE AND OFFSITE AREAS

By John Comis Associates (JCA)
Taken: 3/4/2020

INTRODUCTION:
The photographs in this appendix are taken at the Project site by JCA during a site visit on March 4, 2020. These photos document conditions within and adjacent to the site showing existing vegetation features along the existing drainage ditch and stream course, topography in the southeastern parts of the site, soils in the dug test holes, and other drainage features such as the existing overgrown storm water detention pond. The location and direction that each photo was taken is described in the caption under that photograph, together with what of note was observed by JCA at this time. The image (IMG) numbers after each description match the digital photos on file at JCA. Additional photos were taken by JCA at that time and may be obtained from JCA upon request if they are needed.

Photo #1: Looking south from the downstream end of the drainage ditch along the eastern side of the project site. Note the higher ground on the right in this photo is the NE corner of the project site. The lower ground on the left is offsite, overgrown meadow with Reed Canary Grass and found to be upland throughout the entire area. (IMG-002, 3/4/20)

Photo #2: Looking west from the downstream end of the drainage ditch along the eastern side of the project site. Note the NE corner of the project site is on the left in this photo, and the drainage ditch along the south side Pioneer Way has very little surface water flowing at this time downstream from this point to the driveway crossing in the background. (IMG-004, 3/4/20)

Photo #3: Looking down at the first sample test plot (TP1) that was dug by shovel in the bottom of the drainage ditch and found to be non-wetland by a lack of hydrology at a depth of 24". Note the soil material in the background was removed from the test hole and found to be non-hydric based on field color indicators. (IMG-012, 3/4/20)

Photo #4: Looking down into the bottom of test hole at TP1 that has no seepage or groundwater evident at 24" deep. Note the soil color was also indicating non-wetland by field color indicators. (IMG-008, 3/4/20)

Photo #5: Looking at TP3 while checking the field color indicators for the soil that was dug from this sample test plot. (IMG-021, 3/420)

Photo #6: Looking down into the bottom of TP3 with no saturation or groundwater evident at this time in the lowest part of the old drainage ditch that had flowed along the eastern side of the project site. (IMG-020, 3/4/20)

Photo #7: Looking south at the overgrown drainage ditch that is supposed to be flowing water to the north along the eastern side of the project site. Note the lower ground on the left is offsite, overgrown meadow with Reed Canary Grass that is found to be upland throughout the entire area. (IMG-032, 3/4/20)

Photo #8: Looking down at TP5 that was dug in the lower part of the adjacent overgrown Reed Canary Grass meadow on the offsite property to the east of the drainage ditch and TP4. Note the non-wetland determination was primarily due to the lack of hydrology at the bottom of the hole dug 30" deep. (IMG-028, 3/420)

Photo #9: Looking down into the bottom of test hole at TP5. Note the lack of any saturation or groundwater seepage in the bottom at 30". (IMG-029, 3/4/20)

Photo #10: Looking at the soil dug from TP5 that indicates non-hydric conditions based on matrix color = **10yr** 3/3 to 15" deep, and none to faint redox features above 15" deep, many fine roots, etc. (IMG-030, 3/4/20)

Photo #11: Looking north from within the eastern part of the project site along the gravel road that is constructed in the surveyed location shown on Figure 7. Note the 12" CMP storm drain from the storm pond (see Photo #13) is buried under the existing roadway through to Pioneer Way. (IMG-031, 3/4/20)

Photo #12: Looking south from within the eastern part of the project site along the gravel road that is constructed in the surveyed location shown on Figure 7. Note the storm water detention pond is on the left in the photo, and the fenced area in the background is within the project site. (IMG-032, 3/4/20)

Photo #13: Looking down at the 12" CMP outlet from the storm water detention pond that is constructed in the surveyed location shown on Figure 7. Note the standing water is actually flowing out at this time due to the diverted stream flow into the pond. (IMG-033, 3/4/20)

Photo #14: Looking down at what appears to be the inlet end of an old buried drain pipe (see Figure 7) that is flowing under head pressure due to water level in pool (noted small whorl pool in water >2' deep). (IMG-037, 3/4/20)

Photo #15: Looking upstream (south) at the stream flowing toward the inlet end of the old buried drain pipe (see Figure 7). Note the stream flows from the outlet of the wet meadow at the northeastern end of offsite Wetland "A". (IMG-039, 3/4/20)

Photo #16: Looking upstream (south) at the stream flowing through the northeastern end of offsite Wetland "A". Note the stream flows out of the canyon on the left and through the wet meadow at old JCA Test Plot #4 (see Figure 7 for stream and TP4 location). (IMG-048, 3/4/20)

APPENDIX 6

RESUMES
FOR WETLAND AND WILDLIFE
CONSULTANTS

Resumes for Consultants: Wetland Delineations, Mitigation Plans & Landscape Designs, Mitigation Monitoring & Wildlife Biology

JOHN G. COMIS

Professional Wetland Scientist (PWS, Certification No. 000810, dtd Nov 27, 1995)
Wetlands Specialist (Listed as Certified "Wetlands Specialist" by Pierce County, since 1992)

EDUCATION: Bachelor of Science, Environmental Bioengineering,
University of Washington, Seattle, 1973

EMPLOYMENT HISTORY:

Consoer, Townsend & Associates, junior engineer, 1974-77
Pierce County Public Works, civil engineer II, planning & drainage engineer, 1977-89
John Comis Associates, principal as a sole proprietorship, 1989-2005
JCA, **Incorporated** (Inc.), 2005 to 2010
JCA, **Limited Liability Corp.** (LLC), 2010 to present

QUALIFICATIONS: Mr. Comis has worked a total of 46 years in both public sector surface water management (15 years) and private sector wetland consulting (31 years). Mr. Comis' education, research, and experience combine the highly technical fields of water biology and water engineering. John has applied his experience and knowledge to preparing wetland delineations and mitigation plans for clients for all manner of large and small-scale projects.

Private projects have dealt with all aspects of wetland consulting including identification, delineation, mitigation, restoration, and simply setback avoidance for new developments. Wetland projects include over 800 sites and developments in Pierce, King, Kitsap, Lewis, Thurston and Grays Harbor Counties, including work that was done within the Cities of Algona, Auburn, Bellevue, Bothell, Bonney Lake, Buckley, Enumclaw, Edgewood, Federal Way, Fife, Fircrest, Issaquah, Kent, Lakewood, Milton, Olympia, Ocean Shores, Pacific, Puyallup, Renton, Sumner, Tacoma and University Place. John has also assisted clients with flood plain and drainage studies including runoff modeling and backwater analysis.

Public sector experience involves many aspects of drainage and surface water management from basin level planning to site specific analysis and design. John has experience with computer models used for estimating runoff, routing stream flows, calculating flood plain elevations and sizing retention/detention facilities. On many projects, John has worked closely with soil scientists, fishery biologists, civil engineers, surveyors, and regulatory agency staffs at all levels of government. He has frequently been involved with interdisciplinary project teams at both the planning and implementation stages of project development.

In academic research, John directed two National Science Foundation projects for an interdisciplinary research team on Kelsey and Coal Creeks, King County, Washington while he was attending the University of Washington. He has conducted drainage and flood studies at all levels of project development. This has provided opportunities to put theory into "on-the-ground" applications for stream studies, FEMA floodplain analysis and mapping, and writing flood plain management regulations together with other aspects of surface water management.

AFFILIATIONS: Member, Society of Wetland Scientists (SWS-PNW Chapter); Society for Ecological Restoration (SER); Washington Native Plant Society (WNPS); National Audubon Society; Association of State Wetland Managers (ASWM)

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<u>CATHERINE A. COMIS</u>

Wildlife Biologist and Native Landscape Designer for **Natural Systems Designs**

EDUCATION: Bachelor of Arts, Near Eastern Studies,
University of Washington, Seattle, 1972
Bachelor of Science, Landscape Architecture (BSLA),
University of Washington, Seattle, 1978

EMPLOYMENT HISTORY:

US Army, Lieutenant, Military Intelligence Corps, 1972-1976
TRA, landscape designs, park plans, and comprehensive master plans, 1978-1982
Richard Haag & Associates, landscape designs, 1983
Edward Chaffee & Associates, residential & commercial landscape designs, 1983-1987
Natural Systems Designs, woman owned business for native landscape designs, wetland restoration and mitigation plans, habitat assessments and small mammal (bat) studies, 1989 to present

QUALIFICATIONS: Kate has continued her studies in wildlife science with courses in **<u>Basic Bird Biology Cornell University (10-week Program), 1995</u>**, and **<u>Master Birding Workshops</u>** for avian identifications and general habitat assessment. Kate has continued to work and study both in the US and abroad with wildlife biologists at **<u>Bat Conservation International (BCI) workshops and sponsored research projects, 1998 thru 2009</u>**. The bat research projects include "*Bats in the Mexican Coffee Agro-ecosystem*", Chiapas, Mexico in 2007; "*Founder's Bat Conservation International Workshop Instructor*", western Uganda in 2008; and "*Vertical Canopy Utilization of Bat Carnivores and Frugivores*", Barro, Panama in 2009. Bat management and research training include protocols for netting, handling, and acoustics identification at the **<u>Bat Grid Workshops in Moses Coulee, WA, June 2010</u>**.

Kate Comis has served as both a designer and project manager for numerous residential and commercial landscape design and comprehensive master plan projects including park projects. She has served as a team member for landscape designs and recreational plans that included studies of wildlife habitats, wetland and stream mitigation and restorations.

Her experience includes stream corridor restoration for park and recreation facility design; multi-use equestrian, pedestrian and bike trails. Preparations of site plans include all aspects of site surveys, cost estimating, construction drawings, specification writing, project inspections and management. She has worked on wildlife studies and consulted with other project biologists doing habitat evaluations and enhancements on Public Utility District (PUD) projects.

Various parks and recreation projects in eastern Washington State include the Chelan County "Entiat Park", "Lincoln Rock Park" and "Daroga Park Master Plan" at the Rocky Reach Reservoir. She has worked on the Chelan County PUD projects for "Mason Park" at Lake Chelan and "Douglas County River Park" at Rock Island Reservoir. These parks were established as a minimum requirement for recreational area development along the reservoirs after damming of the Columbia River.

She also worked for private clients on designs for recreational projects such as Camp Benbow @ Lake Tanwax, Pierce County Jewish Camping Association; Camp Orkila @ Orcas Island, YMCA of Greater Seattle; and Camp Sealth @ Vashon Island, Seattle-King County Campfire Council.

AFFILIATIONS: Society for Ecological Restoration; National Audubon Society; the Wildlife Society, Bat Conservation International (BCI), American Society of Mammologists and Acta Chiroptera.

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APPENDIX 7

REFERENCES FOR WETLAND & WILDLIFE HABITAT ANALYSIS

PROJECT-SPECIFIC REFERENCES

1. City of *Puyallup Municipal Code* (PMC), 2015, *Environmentally Critical Areas Management*. Chapter 21.06 (Ord. 3170 § 1, 2018; Ord. 3101 §9, 2015, Ord. 3076 §4, 2014, Ord. 2859 §1, 2006). The standards are applied to areas that are "regulated wetlands". [See Appendix 1, part E for excerpts and details]

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WETLAND DELINEATION REPORT

EAST TOWN CROSSING

PARCELS 0420351026, 0420351029, 0420351030, 0420264021, 0420264053, 0420264054, and 0420351066

CITY OF PUYALLUP #P-21-0034

2902 East Pioneer
City of Puyallup, Pierce County, Washington

prepared for

Mr. Greg Hellie
@ East Town Crossing
1001 Shaw Road
Puyallup, Washington 98371

prepared by

HABITAT TECHNOLOGIES
P.O. Box 1088
Puyallup, Washington 98371-1088
253-845-5119

OCTOBER 14, 2021

Table of Contents

INTRODUCTION

This document details the culmination of activities and onsite evaluations undertaken to complete an assessment and characterization of potential onsite wetland areas as an element of the planning for future proposed development actions and the required repair of existing stormwater detention facilities located within the southeastern corner associated with the proposed **East Town Crossing Multi-Family Residential Community** (City of Puyallup #P-21-0034). The project site consisted of seven (7) existing parcels of record (Parcels 0420351026, 0420351029, 0420351030, 0420264021, 0420264053, 0420264054, and 0420351066) located at the southeastern corner of the intersection of Pioneer Way East and Shaw Road East within the City of Puyallup, Pierce County, Washington (Figure 1). The goal of this assessment and characterization approach is to ensure that planned site development does not result in adverse environmental impacts to potential wetlands areas or their associated protective buffers.

This document is designed to accompany an associated assessment and characterization of specific critical areas (drainage corridors/ natural waters, critical fish and wildlife habitat areas) within and immediately adjacent to the project site presented within *CRITICAL AREAS ASSESSMENT - Surface Water Drainages and Fish and Wildlife Habitat Conservation Areas* – dated July 13, 2021.

The onsite assessment and evaluation of wetland areas within and immediately adjacent to the project site was completed following the methods and procedures defined in the *Corps of Engineers Wetland Delineation Manual* (United States Army Corps of Engineers, 1987) with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (United States Army Corps of Engineers, 2010); the Washington State *Wetland Rating System for Western Washington: 2014 Update* Publication #14-06-029 (Hruby, 2014), the State of Washington Department of Natural Resources (WDNR) Forest Practice Rules (WAC 222-16-030), and the City of Puyallup Chapter 21.06 - *Critical Areas*. Please note that this assessment did not include an analysis of steep slopes, septic suitability, erosion hazard areas, or stormwater considerations.

PROJECT SITE DESCRIPTION

The project site was approximately 11-acres in size and irregular in shape. The project site had undergone prior permitted land use actions generally associated with future proposed site development actions. These prior permitted land use actions included the development of stormwater detention facilities, the removal of existing old homesites and outbuildings, clearing and grading, and the placement of imported fill materials to facilitate future proposed site development actions.

The project site was located within a quickly, more intensely developing area along the Shaw Road and Pioneer Way Corridors generally changing from prior single-family homesites on moderately sized parcels into commercial developments to meet the growing needs of the City of Puyallup and other local communities.

Directions to Project Site: From the City of Puyallup City Hall turn north onto 2nd Street SE and continue to East Pioneer. Turn east onto East Pioneer and continue generally easterly to Shaw Road East. The project site is located at the southeastern corner of the intersection of Pioneer Way East and Shaw Road East.

BACKGROUND INFORMATION

NATIONAL WETLAND INVENTORY

The *National Wetland Inventory (NWI) Mapping* completed by the U.S. Fish and Wildlife Service was reviewed as a part of this assessment (Figure 2). This mapping resource did not identify any wetlands or surface water drainages within or immediately adjacent to the project site.

STATE OF WASHINGTON PRIORITY HABITATS AND SPECIES

The State of Washington *Priority Habitats and Species (PHS) Mapping* was reviewed as a part of this assessment (Figure 3). This mapping resource did not identify any priority habitats or species within the project site. This mapping resource did identify a wetland and a biodiversity area/corridor offsite to the southeast of the project site. This biodiversity area/corridor was generally associated with an offsite forested hillside.

STATE OF WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

The State of Washington Department of Fish and Wildlife (WDFW) *SalmonScape Mapping* was reviewed as a part of this assessment (Figure 4). This mapping resource did not identify any wetlands or surface water drainages within or immediately adjacent to the project site.

STATE OF WASHINGTON DEPARTMENT OF NATURAL RESOURCES

The State of Washington Department of Natural Resources (WDNR) *Water Type Mapping* was reviewed as a part of this assessment (Figure 5). This mapping resource did not identify any surface water drainages or wetlands within or immediately adjacent to the project site. This mapping resource did identify a surface water drainage and a wetland area well offsite to the southwest of the project site. downslope to the north of the eastern boundary of the project site.

CITY OF PUYALLUP MAPPING

The City of Puyallup *Mapping Inventory* was reviewed as a part of this assessment (Figure 6). This mapping resource identified two (2) verified and one (1) unverified wetlands within the project site. This mapping resource also identified a stream entering a stormwater pond facility at the very southeastern corner of the project site.

SOILS MAPPING

The *Soil Mapping Inventory* completed by the Natural Resource Conservation Service was reviewed as a part of this assessment (Figure 7). This mapping resource identified the soils throughout the northern portion of the project site as Briscot loam (6A). This soil series is defined as poorly drained, as formed in alluvium, and as “hydric” in character.

This mapping resource identified the soil within the southern portion of the project site as Puyallup fine sandy loam (31A). This soil series is defined as well drained, as formed in sandy mixed alluvium, and as not “hydric” in character.

PRIOR ASSESSMENTS

A series of prior wetland assessments have been completed and documented by John Comis Associates, Inc. for this project site. These assessments identified that the entire project site exhibited upland characteristics and did not contain areas that met all three of the established wetland criteria (John Comis Associates 2020 and 2021). A similar assessment completed in 2008 also identified that the project site did not contain areas that met all three of the established wetland criteria (John Comis Associates 2008). The 2008 assessment did identify a wetland offsite to the south of the project site.

A previous assessment of wetland characteristics was completed throughout the project site in 2000 by Herrera Environmental Consultants (Herrera Environmental Consultants 2001). This wetland assessment did not identify any areas meeting the wetland criteria within the project site. This wetland assessment did identify a City of Puyallup Category III Wetland directly to the south of the project site.

AERIAL PHOTOS

A series of historical aerial photos was reviewed as a part of this assessment. These photos showed that through 2002 the majority of the central and northern portions of the project site were managed for the production annual agricultural crops and that single-family homesites were located at the northeastern corner of the project site, near the northwestern corner of the project site, and within the southern portion of the project site (Figure 8). During the 2002-2005 period the majority of the northern, central, and southeastern portions of the project site were filled. During these filling actions stormwater detention facilities associated with development offsite to the south were created within the southeastern portion of the project site (Figure 8a).

As depicted in Figure 8b the project site had continued to be managed for future development. With the exception of one of the original homesites all of the previously present homesites had been removed. This last original homesite was subsequently removed in the late spring of 2021.

ONSITE ANALYSIS

CRITERIA FOR WETLAND IDENTIFICATION

This assessment focuses on the assessment and characterization of potential specific wetland areas which may be located within the project site. This document is designed to accompany an associated assessment and characterization of specific critical areas (drainage corridors/ natural waters, critical fish and wildlife habitat areas) within and immediately adjacent to the project site presented within *CRITICAL AREAS ASSESSMENT - Surface Water Drainages and Fish and Wildlife Habitat Conservation Areas* – dated July 13, 2021.

Wetlands are transitional areas between aquatic and upland habitats. In general terms, wetlands are lands where the extent and duration of saturation with water is the primary factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface (Cowardin, et al., 1979). Wetlands are generally defined within land use regulations as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (United States Army Corps of Engineers, 1987).

Wetlands exhibit three essential characteristics, all of which must be present for an area to meet the established criteria (United States Army Corps of Engineers, 1987 and United States Army Corps of Engineers, 2010). These essential characteristics are:

1. **Hydrophytic Vegetation:** The assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence. Hydrophytic vegetation is present when the plant community is dominated by species that require or can tolerate prolonged inundation or soil saturation during the growing season.

2. **Hydric Soil:** A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper parts. Most hydric soils exhibit characteristic morphologies that result from recent periods of saturation or inundation. These processes result in distinctive characteristics that persist in the soil during both wet and dry periods.

3. **Wetland Hydrology:** Permanent or periodic inundation, or surface soil saturation, at least seasonally. Wetland hydrology indicators are used in combination with indicators of hydric soil and hydrophytic vegetation to define the area. Wetland hydrology indications provide evidence that the site has a continuing wetland hydrology regime. Where hydrology has not been altered vegetation and soils provide strong evidence that wetland hydrology is present.

WETLAND: A "wetland" is defined by the City of Puyallup as those areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands include those artificial wetlands intentionally created to mitigate wetland impacts.

STUDY METHODS

Habitat Technologies completed a series of onsite assessments from March through mid-October 2021. In addition, Habitat Technologies has completed similar assessments for adjacent parcels over the past few decades. The project site was generally flat and had been modified since 2005 by clearing, grading, and the placement of clean gravelly fill. This site modification actions had been undertaken as a part of site preparation for future development consistent with City of Puyallup permitting.

Onsite activities were completed in accordance with criteria and procedures established in the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) with the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (2010 Supplement); the *Washington State Wetlands Rating System* (WDOE 2014 version); the State of Washington Department of Natural Resources (WDNR) Forest Practice Rules (WAC 222-16-030); and the City of Puyallup *Critical Areas Ordinance*.

FIELD OBSERVATION

The project site was accessed via an existing driveway connection to Shaw Road East along the western boundary of the project site and by an existing driveway connection to Pioneer Way East along the northern boundary of the project site. The entire project site has been previously graded and leveled for proposed future site development planning. As a part of prior City of Puyallup permitted actions a stormwater detention pond had been created in the southeastern corner of the project site. This stormwater detention pond presently services the developed areas to the south-southwest and the outlet for this stormwater detention pond is confined within a buried pipe to outlet into a previously created ditch system associated with Pioneer Way East. Representative sample plots are shown on Figure 9 and field data worksheets are provided within Appendix A.

- **Soils**

The soil characteristics throughout the project site had been altered by prior permitted land use actions. These permitted actions were completed consistent with City of Puyallup permitting approvals and generally focused on the removal of existing homesites and the placement of imported clean gravelly loam fill materials obtained from an approved surface mine area. The location and amount imported clean gravelly loam fill materials utilized onsite was designed to facilitate future site planning and development actions. As a result of these actions the surface soil throughout the project site often to a depth greater than 48-inches was dominated by clean gravelly loam, was often well compacted, appeared to drain moderately well, and did not exhibit “hydric” soil characteristics.

One area was identified onsite to exhibit characteristics more typical of native soil that had not been impacted by fill placement. This area was best defined as a remanent property line swale between prior parcels with the area to the north having been filled between 2002-2005 with several feet of imported clean gravelly loam and a once managed prior homesite within the west central portion of the project site. The soil within this remanent property line swale exhibited characteristics typically associated with the Puyallup fine sandy loam soil series. As defined by **SP4** located within this swale the soil did not exhibit prominent redoximorphic features typically associated with “hydric” soil characteristics.

Created stormwater detention facilities were present within the southeastern portion of the project site. The surface soil layer within the bottom of these facilities was dominated by fine alluvium and organic materials (leaves, roots, grasses/herbs) typical of these types of facilities. The surface soil layer was underlain with imported gravelly loam fill materials.

- **Hydrology**

As noted above, the project site had been somewhat recently modified by the placement of clean imported gravelly loam fill materials consistent with City of Puyallup permitting approvals as a part of future site development planning and completion. No portion of the project site was identified to exhibit characteristics typically associated with wetland hydrology or the concentrated movement of seasonal surface water runoff.

Created stormwater detention facilities were present within the southeastern portion of the project site. These facilities were created in association with the development of the parcel directly to the south and surface water from these facilities is conveyed via a buried system to the ditch associated with Pioneer Way East along the northern boundary of the project site.

The assessment and characterization of hydrology patterns immediately adjacent to the project site are provided within *CRITICAL AREAS ASSESSMENT - Surface Water Drainages and Fish and Wildlife Habitat Conservation Areas* – dated July 13, 2021.

- **Vegetation**

The plant community throughout the project stie has been altered by prior permitted clearing, grading, homesite removals, and the placement of clean imported gravelly loam fill materials. Observed species onsite included sapling red alder (*Alnus rubra*), sapling black cottonwood (*Populus trichocarpa*), evergreen blackberry (*Rubus laciniatus*), Himalayan blackberry (*Rubus armeniacus*), trailing blackberry (*Rubus ursinus*), Scots broom (Cytisus scoparius), rose (Rosa spp.), snowberry (Symphoricarpus albus), rye (*Lolium* spp.), bluegrass (*Poa* spp.), bentgrass (*Agrostis tenuis*), orchardgrass (*Dactylis glomerata*), quackgrass (*Agropyron repens*), fescue (*Festuca* spp.), sweet vernal grass (*Anthoxanthum odoratum*), velvet grass (*Holcus lanatus*), reed canarygrass (*Phalaris arundinacea*), bracken fern (*Pteridium aquilium*), buttercup (*Ranunculus repens*), cats-ear (*Hypochaeris radicata* and *Hypochaeris lanatum*), clover (*Trifolium* spp.), daisy (*Bellis* spp.), mustard (*Brassica campestris*), plantain (*Plantago major*), Queen Annes lace (*Daucus carota*), dandelion (*Taraxacum officinale*), geranium (*Geranium* spp.), curled dock (*Rumex crispus*), sheep sorrel (*Rumex acetosella*), ivy (*Hedera* spp.), tansy (Tanacetum vulgare), morning glory (*Impomaea purpurea*), bull thistle (*Cirsium vulgare*), and Canadian thistle (*Cirsium arvensis*). A number of ornamental plants were also present within the areas of the prior homesites particularly within the southwestern portion of the project site.

The plant community associated with the created stormwater detention facilities within the southeastern corner of the project site was dominated by young deciduous trees and shrubs. Observed species included black cottonwood, red alder, Pacific willow (*Salix lasiandra*), Sitka willow (*Salix sitchensis*), Douglas spiraea (*Spiraea douglasii*), blackberries, and reed canarygrass.

- **Fish and Wildlife**

The assessment and characterization of fish and wildlife habitats within and immediately adjacent to the project site are provided within *CRITICAL AREAS ASSESSMENT - Surface Water Drainages and Fish and Wildlife Habitat Conservation Areas* – dated July 13, 2021.

CRITICAL AREAS DETERMINATION

As documented above, **no areas** within the project site were identified to exhibit all three established criteria for designation as "wetland." The created stormwater detention facilities present within the southeastern portion of the project site are best defined as intentionally created features from a nonwetland sites. These facilities were also created consistent with City of Puyallup permitting approvals.

SELECTED DEVELOPMENT ACTION

The *Selected Development Action* for the project site (Parcels 0420351026, 0420351029, 0420351030, 0420264021, 0420264053, 0420264054, and 0420351066) focuses on the development of a new multi-family residential community within the western portion of the project site. The development of this new multi-family residential community would be consistent with the City of Puyallup Comprehensive Plan, local zoning, the character of the neighborhood, and the provisions of the City of Puyallup Chapter 21.06. As documented above, the development of this new multi-family residential community would **not** require and adverse impact to identified "wetlands."

STANDARD OF CARE

This report has been completed by Habitat Technologies for the use by **Mr. Greg Hellie.** Prior to extensive site planning the findings documented in this report should be reviewed, verified, and approved by City of Puyallup and potentially other resource and permitting agency(s) staff. Habitat Technologies has provided professional services that are in accordance with the degree of care and skill generally accepted in the nature of the work accomplished. No other warranties are expressed or implied. Habitat Technologies is not responsible for design costs incurred before this document is approved by the appropriate resource and permitting agencies.

Bryan W. Peck

Bryan W. Peck
Senior Wetland Biologist

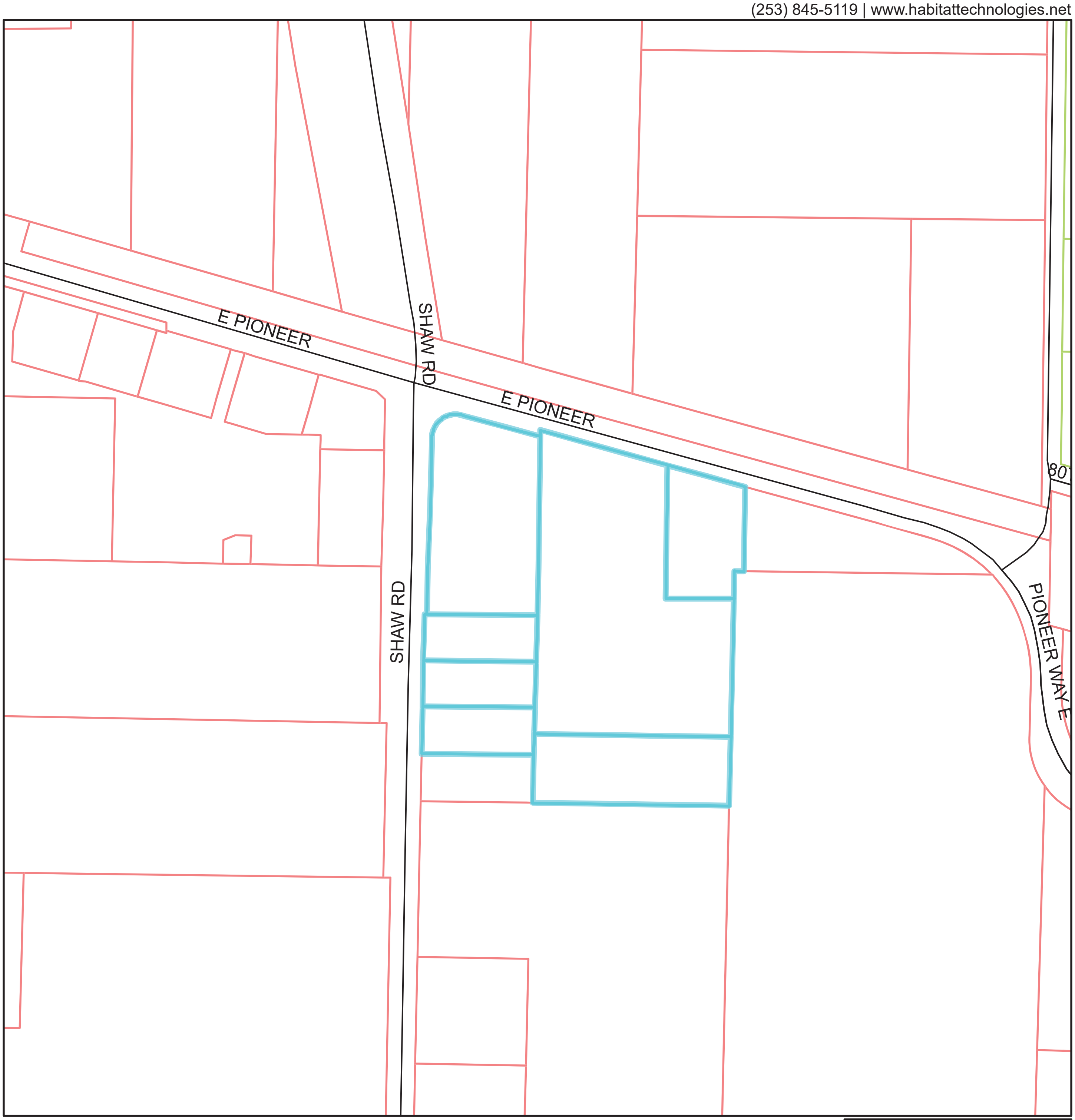
Thomas D. Deming

Thomas D. Deming, SPWS
Habitat Technologies
(Appendix B)

FIGURES

Figure 1 Site Vicinity

Habitat Technologies
P.O.Box 1088
Puyallup, WA 98371
(253) 845-5119 | www.habitattechnologies.net

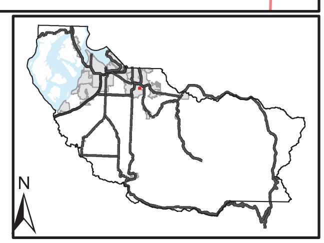


Legend

Roads
Condominium
Other

Tax Parcels

Base Parcel



0 80 160 320 Feet

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The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 6/7/2021 01:25 PM

Figure 2 NWI Mapping

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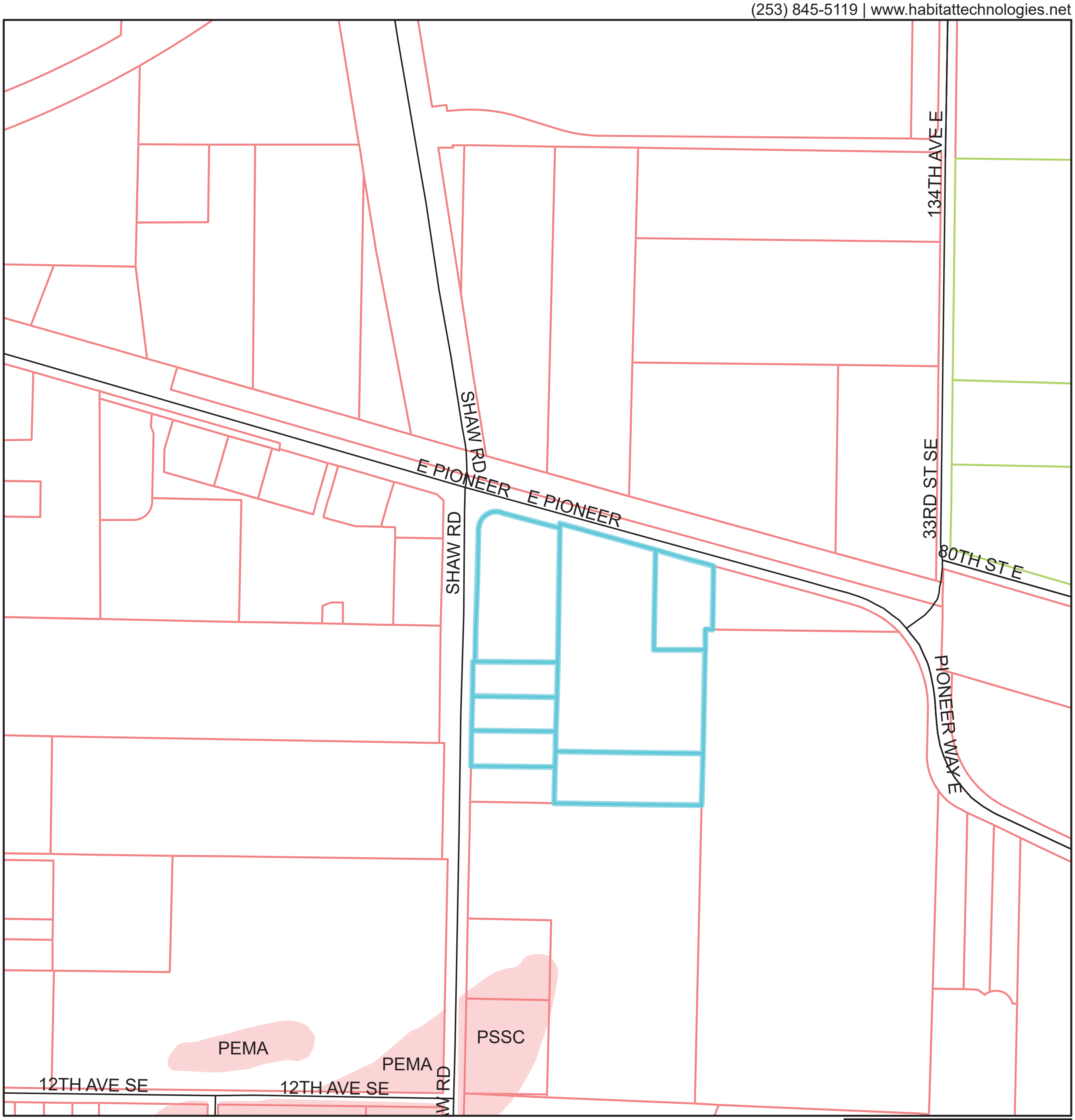


Legend

Roads

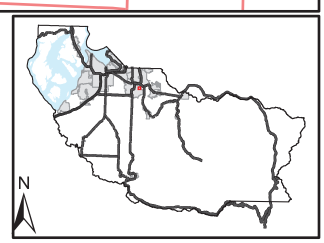
Condominium

Other

National Wetlands Inventory

Tax Parcels

Base Parcel



1:4,800

0 105 210 420 Feet

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 6/7/2021 01:26 PM

Figure 3 PHS Mapping

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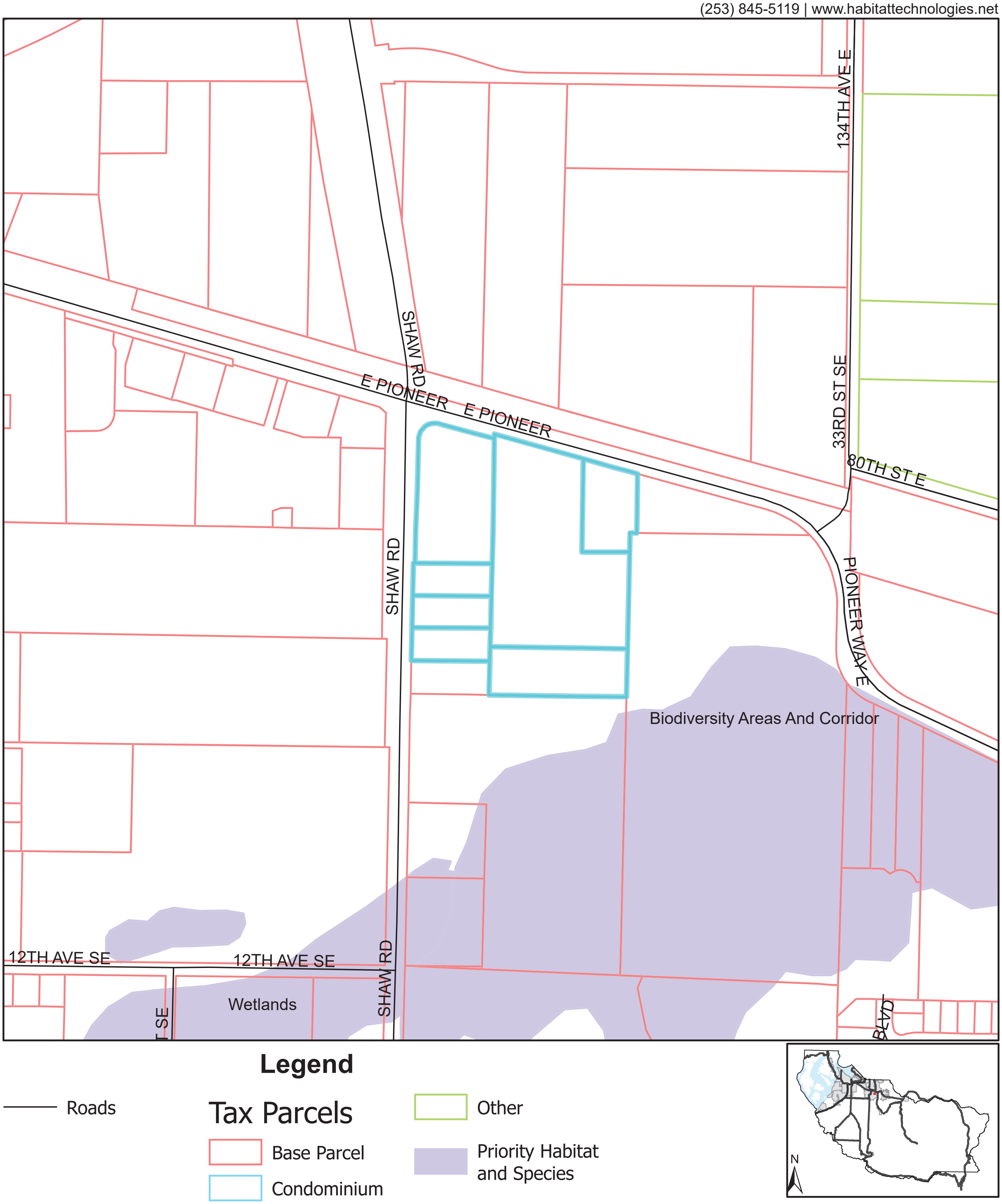

1:4,800

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 6/7/2021 01:27 PM

Figure 4 WDFW Salmonscape Mapping

June 7, 2021

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

All SalmonScape Species

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, USGS/NHD, Dale Gombert (WDFW), WDFW

Forest Practices Water Type Map

Map Symbols	Additional Information	Legal Description
New Stream Proposed Water Type Stream Removal Break between water types Start and End Point of Surveyed Reach Natural Fish Barrier Manmade Barrier End of Fish or Last Fish		**S35 T20.0N R04.0E, S51 T20.0N R04.0E** **S26 T20.0N R04.0E, S36 T20.0N R04.0E** **S40 T20.0N R04.0E, S25 T20.0N R04.0E**
WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	Extreme care was used during the compilation of this map to ensure its accuracy. However, due to changes in data and the need to rely on outside information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties that accompany this material.	0 0.1 Miles Date: 6/7/2021 Time: 12:55:04 PM

Figure 6 Puyallup Mapping

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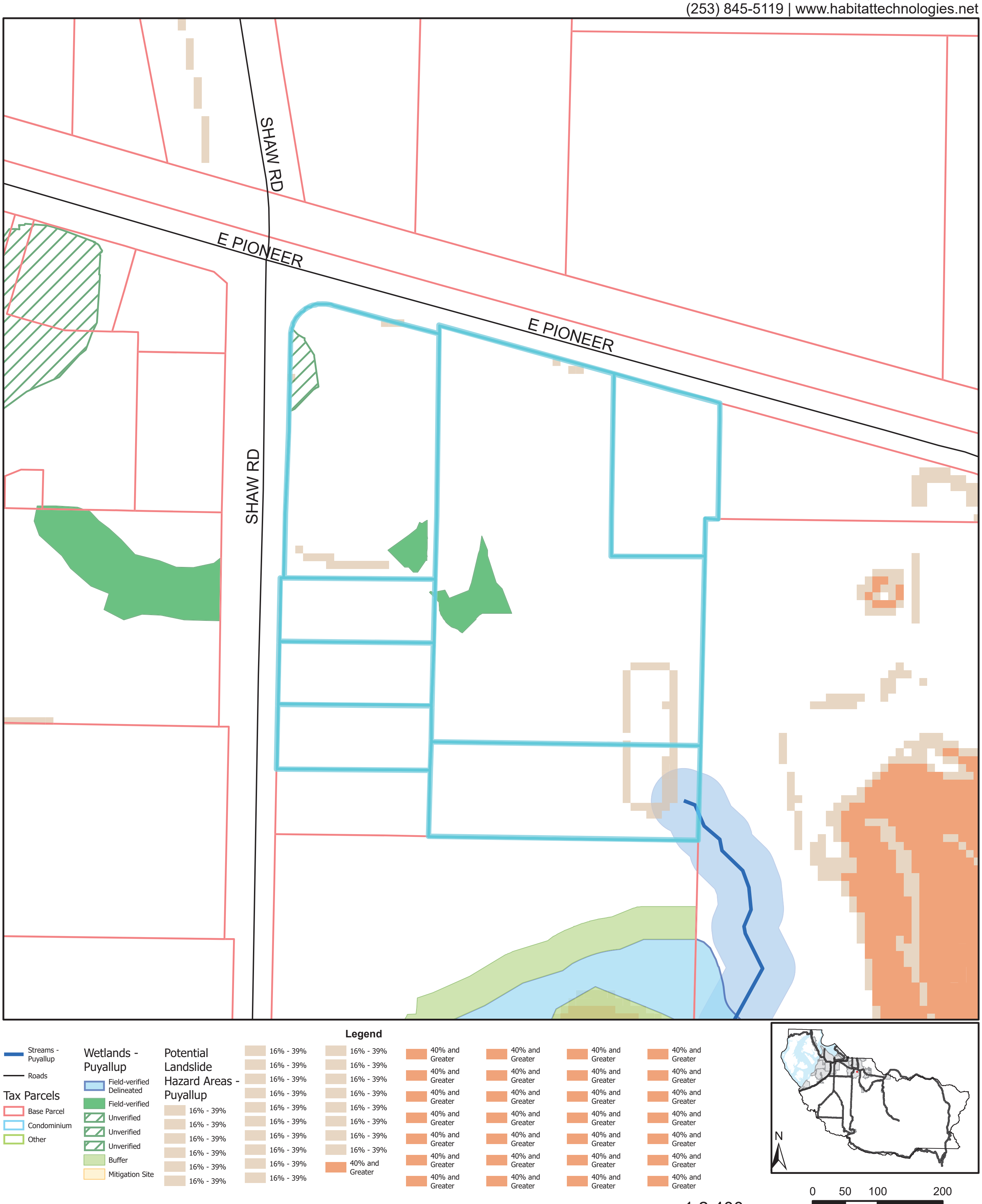

1:2,400

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 6/7/2021 02:06 PM

Figure 7 Soils Mapping

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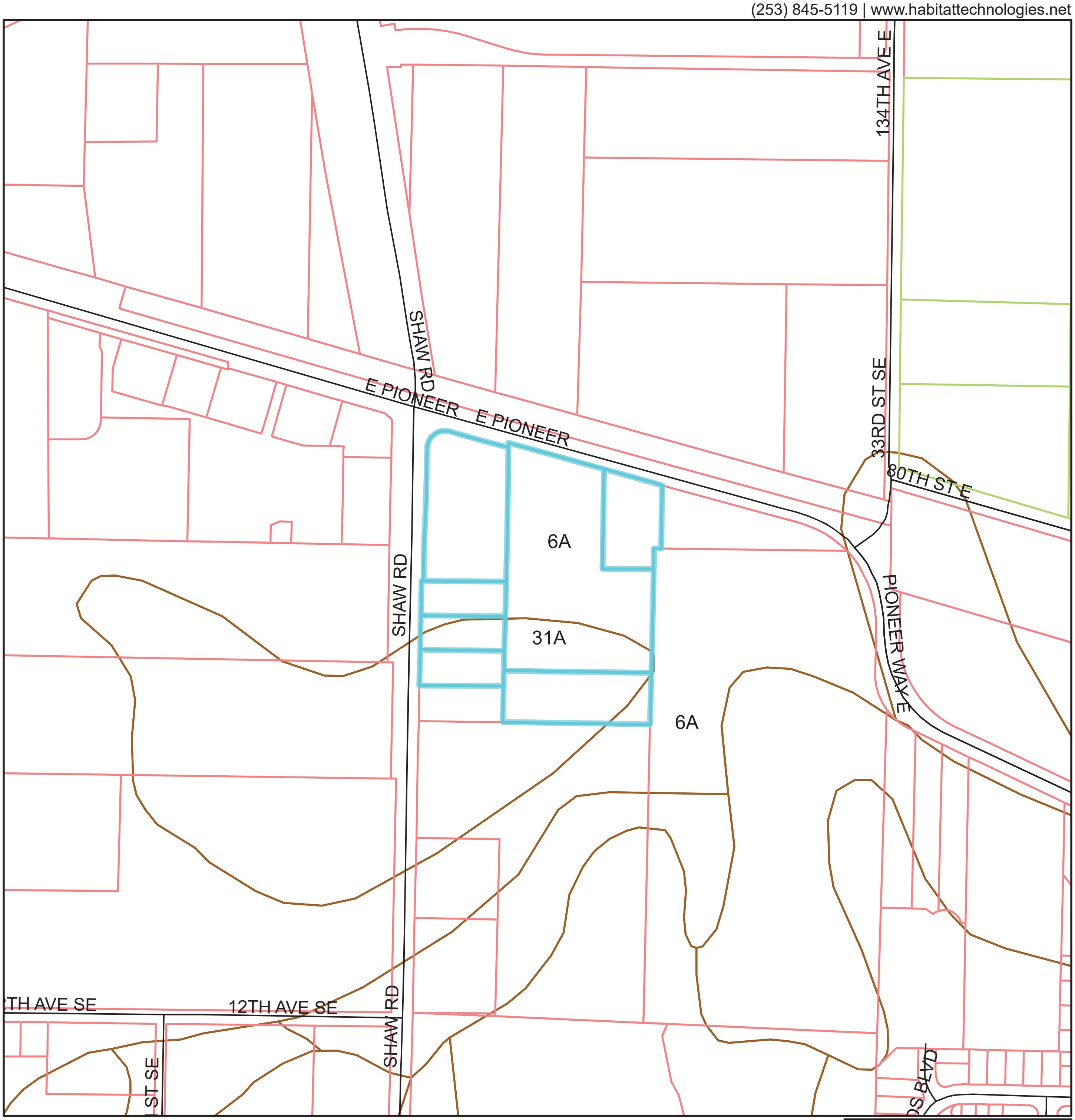
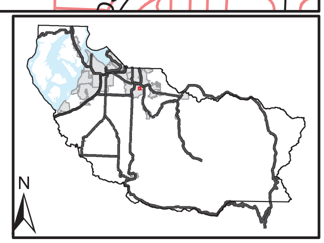


Legend

- Roads
- Tax Parcels
  - Base Parcel
  - Condominium
- Other
- Soils



0 105 210 420 Feet

1:4,800

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 6/7/2021 02:04 PM

Figure 8 1998 Aerial Photo

Habitat Technologies
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Legend

Tax Parcels

- Base Parcel
- Condominium
- Other
- Roads

County - 1998 Ortho

1:1,800

0 37.5 75 150 Feet

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 10/14/2021 04:11 PM

Figure 8a 2005 Aerial Photo

Habitat Technologies
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Legend

Tax Parcels

Base Parcel

Condominium

Other

Roads

County - 2005 Ortho

1:1,800

0 37.5 75 150 Feet

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 10/14/2021 04:15 PM

Figure 8b 2020 Aerial Photo

Habitat Technologies
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Legend

Tax Parcels

Base Parcel

Condominium

Other

Roads

0 37.5 75 150 Feet

County - 2020 Ortho

1:1,800

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 10/14/2021 04:16 PM

ExpertGPS

Figure 9 Site Graphic

REFERENCE AND BACKGROUND LIST

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Washington State Department of Fish and Wildlife Priority Habitats and Species Maps 2016 http://wdfw.wa.gov/mapping/phs/

Washington State Department of Fish and Wildlife SalmonScape Mapping System, 2016 (for fish presence): http://apps.wdfw.wa.gov/salmonscape/map.html

Washington State Department of Natural Resources FPARS Mapping System, 2016 (for stream typing): http://fortess.wa.gov/dnr/app1/fpars/viewer.htm

APPENDIX A – Field Data

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 14 OCT 21

Applicant/Owner: ______ State: Washington Sampling Point: SP-1

Investigator(s): Habitat Technologies Section, Township, Range: S35/26, T20N, R04E

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): flat Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot NWI classification: somewhat poorly

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: Entire project site filled and leveled with several feet of imported gravelly sandy loam imported fill between 2002 and 2005

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	<2	no	FAC
2. Cytisus scoparius	<2	no	UPL
3. Populus trichocarpa - seedlings	<1	no	FAC
4.			
5.			
= Total Cover	<4		
Herb Stratum (Plot size: 15ft radius)			
1. Agrostis tenuis	85	yes	FAC
2. Hypochaeris lanatum	trace	no	FACU
3. Plantago major	trace	no	FACU
4. Daucus carota	trace	no	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	85		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
= Total Cover	0		

% Bare Ground in Herb Stratum 0

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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: dominated by a typically used seeded erosion contorl grass

SOIL

Sampling Point: SP-1

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
0-2	10YR 3/3	100					SL	
2-24	10YR 4/2	100						very gravelly sandy loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:____________________

Depth (inches):____________________

Hydric Soil Present? Yes ☐ No ☒

Remarks: NO prominent field indicators of hydric soils. Compacted imported fill

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: NO prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 14 OCT 21

Applicant/Owner: ______ State: Washington Sampling Point: SP-2

Investigator(s): Habitat Technologies Section, Township, Range: S35/26, T20N, R04E

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): flat Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot NWI classification: somewhat poorly

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: Entire project site filled and leveled with several feet of imported gravelly sandy loam imported fill between 2002 and 2005

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	trace	no	FAC
2. Cytisus scoparius	trace	no	UPL
3. Populus trichocarpa - seedlings	<1	no	FAC
4. Rubus laciniatus	trace	no	FACU
5.			
	<2	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Agrostis tenuis	10	yes	FAC
2. Hypochaeris lanatum	trace	no	FACU
3. Plantago major	trace	no	FACU
4. Daucus carota	trace	no	FACU
5. Tanacetum vulgare	90	yes	FACU
6. Poa spp.	trace	no	FAC
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	0	= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (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:

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: dominated by Tansy and a typically used seeded erosion contorl grass

SOIL

Sampling Point: SP-2

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
0-24	10YR 4/2	100						very gravelly sandy loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:__________

Depth (inches):__________

Hydric Soil Present? Yes ☐ No ☒

Remarks: NO prominent field indicators of hydric soils. Compacted imported fill

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: NO prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 14 OCT 21

Applicant/Owner: ______ State: Washington Sampling Point: SP-3

Investigator(s): Habitat Technologies Section, Township, Range: S35/26, T20N, R04E

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): flat Slope (%): ____

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot NWI classification: somewhat poorly

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: Entire project site filled and leveled with several feet of imported gravelly sandy loam imported fill between 2002 and 2005

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	trace	no	FAC
2. Cytisus scoparius	trace	no	UPL
3.			
4. Rubus laciniatus	trace	no	FACU
5.			
= Total Cover	<2		
Herb Stratum (Plot size: 15ft radius)			
1. Agrostis tenuis	85	yes	FAC
2. Hypochaeris lanatum	trace	no	FACU
3. Plantago major	trace	no	FACU
4. Daucus carota	trace	no	FACU
5. Tanacetum vulgare	<2	no	FACU
6. Poa spp.	<5	no	FAC
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
= Total Cover	0		

% Bare Ground in Herb Stratum 0

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: 0 (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:

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

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

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

Remarks: dominated by a typically used seeded erosion contorl grass

SOIL

Sampling Point: SP-3

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
0-36	10YR 4/2	100						very gravelly sandy loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:____________________

Depth (inches):____________________

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

Remarks: NO prominent field indicators of hydric soils. Compacted imported fill.

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): ____

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

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

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

Remarks: NO prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 14 OCT 21

Applicant/Owner: ______ State: Washington Sampling Point: SP-4

Investigator(s): Habitat Technologies Section, Township, Range: S35/26, T20N, R04E

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): flat Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Puyallup NWI classification: moderately well

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: Entire project site filled and leveled with several feet of imported gravelly sandy loam imported fill between 2002 and 2005

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	trace	no	FAC
2.			
3.			
4. Rubus laciniatus	trace	no	FACU
5.			
= Total Cover	<2		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
= Total Cover	0		

% Bare Ground in Herb Stratum 0

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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: edge of several feet of fill to the north and a prior homesite to the south.

SOIL

Sampling Point: SP-4

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 %	Type[1]	Loc[2]	Texture	Remarks
1-14	10YR 2/2	100						dense roots and fine sandy loam
14-30	10YR 3/2	100						loamy fine sand

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:______________________

Depth (inches):______________________

Hydric Soil Present? Yes ☐ **No** ☒

Remarks: NO prominent field indicators of hydric soils.

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): ____

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

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

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

Remarks: NO prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 14 OCT 21

Applicant/Owner: ______ State: Washington Sampling Point: SP-5

Investigator(s): Habitat Technologies Section, Township, Range: S35/26, T20N, R04E

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): flat Slope (%): ____

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Puyallup NWI classification: moderately well

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: Entire project site filled and leveled with several feet of imported gravelly sandy loam imported fill between 2002 and 2005

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus trichocarpa - young	95	yes	FAC
2.			
3.			
4.			
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	25	yes	FAC
2. Cytisus scoparius	<2	no	UPL
3.			
4. Rubus laciniatus	<10	no	FACU
5.			
	<40	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Agrostis tenuis	20	yes	FAC
2. Hypochaeris lanatum	<10	no	FACU
3. Plantago major	<10	no	FACU
4. Daucus carota	trace	no	FACU
5. Tanacetum vulgare	<10	no	FACU
6. Poa spp.	<10	no	FAC
7. Dactylis glomerata	20	yes	FACU
8.			
9.			
10.			
11.			
	<70	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (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:

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

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

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

Remarks: grove of even aged (10-12 year old) black cottonwood grove

SOIL

Sampling Point: SP-5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100						gravely loam fill
4-24	10YR 4/2	100						very gravelly sandy loam fill

[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: NO prominent field indicators of hydric soils. Compacted imported fill.

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): ____

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: NO prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 14 OCT 21

Applicant/Owner: ______ State: Washington Sampling Point: SP-6

Investigator(s): Habitat Technologies Section, Township, Range: S35/26, T20N, R04E

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): flat Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot NWI classification: somewhat poorly

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: Entire project site filled and leveled with several feet of imported gravelly sandy loam imported fill between 2002 and 2005

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus trichocarpa - young	30	yes	FAC
2.			
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	<10	no	FAC
2. Cytisus scoparius	<2	no	UPL
3.			
4. Rubus laciniatus	<10	no	FACU
5.			
	<20	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Agrostis tenuis	50	yes	FAC
2. Hypochaeris lanatum	<10	no	FACU
3. Plantago major	<5	no	FACU
4. Daucus carota	<2	no	FACU
5. Tanacetum vulgare	<2	no	FACU
6. Poa spp.	<10	no	FAC
7.			
8.			
9.			
10.			
11.			
	<70	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	0	= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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	______	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:

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

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

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

Remarks: dominated by a typically used seeded erosion contorl grass

SOIL

Sampling Point: SP-6

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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100						gravely loam fill
6-24	10YR 4/2	100						very gravelly sandy loam fill

[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: NO prominent field indicators of hydric soils. Compacted imported fill.

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): ____

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

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

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

Remarks: NO prominent field indicators of wetland hydrology.

APPENDIX B – Habitat Technologies Key Staff

HABITAT TECHNOLOGIES

In a nutshell, Habitat Technologies provides an expanded scope of environmental services for a diverse realm of clients over a wide range of project types. Our clients included private citizens, private companies (large and small), public and Tribal agencies, and local citizen groups. Our projects range from the single-family homeowner, through modest to very large commercial/industrial and residential developments, into public utilities installation and public port/industrial commission economic developments. Also included within this list of projects are local parks and environmental restoration actions undertaken by volunteer citizens, and programs undertaken by community groups.

Habitat Technologies provides estuarine, wetland, and stream identification and delineation; populations and physical habitat assessments; wetland functional value analysis; limiting factor evaluations; impact mitigation, restoration, and monitoring; water quality and hydrology analysis; analysis of threatened and endangered plants and animals; environmental permitting/resource agency interactions; and expert testimony critique/presentation. Habitat Technologies has actively planned, designed, and monitored the restoration, creation, and relocation of estuarine and freshwater wetlands, and stream/riparian corridors. These projects have involved the sampling and analysis of resource information, onsite evaluation and delineation, documentation of present fish and wildlife populations, and projection of future fish and wildlife habitat benefits. Such onsite work leads to the development of project elements which ensures the avoidance, minimization, and compensation of environmental impacts.

Other projects completed target the onsite evaluation of aquatic and terrestrial species utilization and available habitats. These projects involved formal and informal fish, bird, reptile, amphibian, and mammal surveys, with special emphasis given to raptors and threatened and endangered plants, fish, and wildlife.

An essential primary component of each project is the coordination of proposed project activities with local, state, and federal permitting and resource agencies, Indian tribes, and local private interests. Habitat Technologies targets permitting activities early in the project planning process to assure that the time required to obtain required environmental permits and costs associated with potential project design modifications are held to a minimum. We continue our coordination of these permitting activities through the entire process should public hearings or further actions be required.

Habitat Technologies has initiated several wetland mitigation projects which entail the creation of freshwater and estuarine wetlands from non-wetlands or degraded wetland areas. These creation activities target the enhancement of fish and wildlife habitats, as well as, the creation of plant communities native to the local area. One of the beneficial elements of such wetland creations is the establishment of a relatively low maintenance wetland area which provides essential habitats for native plant, fish, and wildlife species. Such creations can also become a very valuable amenity to the overall project.

HABITAT TECHNOLOGIES

Office Location: Habitat Technologies, 606 East Main, Suite C2, Puyallup, WA 98372
Mailing Address: Habitat Technologies, P.O. Box 1088, Puyallup, WA 98371

Contact Persons: Thomas D. Deming and Bryan W. Peck
Voice 253-845-5119
E-mail tom@habitattechnologies.net / bryan@habitattechnologies.net

Key Staff: **Thomas D. Deming** obtained a Bachelor of Science Degree in Fisheries Science in 1978, a Bachelor of Science Degree in Wildlife Science from Oregon State University in 1978, and a Juris Doctor Degree from the University of Puget Sound School of Law in 1987. Mr. Deming is a Certified Professional Wetland Scientist through the Society of Wetland Scientists since the inception of the certification program in 1995. Mr. Deming is also listed as an approved "wetland specialist," approved "wildlife biologist," and approved "fishery biologist" kept by Pierce County and a number of other local permitting jurisdictions.

Mr. Deming routinely provides site-specific assessments of wetlands, streams, fish/wildlife habitats and species presence, and endangered/threatened species to address proposed project related impacts within the federal, state, tribal, and local permitting processes. These assessments include a review of impact avoidance and impact mitigation associated with proposed actions and habitat restoration.

These assessments have included formal wetland boundary delineation using the *Corps of Engineers Wetland Delineation Manual* (1987 Manual); the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (2010 Supplement); the *Washington State Wetlands Rating System* (2004, 2008, 2014 versions); and local critical areas ordinances. These assessments have included onsite and offsite wetland and habitat evaluations, the review of existing reports, the preparation of associated mapping, the documentation of field observations and field assessment data within appropriate data forms, and the preparation of wetland rating worksheets following the criteria established within the Washington Department of Ecology Wetland Rating System for Western Washington. Mr. Deming has also completed an analysis of pre- and post-hydrology patterns associated with project related impacts, an analysis of existing and proposed plant community characteristics, an analysis of soil characteristics, and a wide variety of seasonal hydrology monitoring programs within existing wetlands and in created mitigation wetlands.

Mr. Deming has prepared permit application submittal materials (i.e. local critical areas ordinances, SEPA, NEPA, JARPA) to meet specific projects and has prepared compensatory mitigation plans and implementation/monitoring programs to address permitting requirements at the local, state, tribal, and federal levels. Mr. Deming has also been active in the development of administrative programs and is often called upon to provide expert witness testimony within court proceedings and public hearings.

Mr. Deming has both received and provided instruction in a wide variety of training in the use of the various federal and state manuals to accurately identify, define, and evaluate wetland, stream, wildlife, and estuarine/marine resources. Prior to starting Habitat Technologies Mr. Deming spent more than 10 years as an environmental biologist with the Puyallup Indian Tribe, as well as a number of prior short-term positions with the U.S. Fish and Wildlife Service, the U.S. Forest Service, the U.S. National Marine Fisheries Service, the Oregon Department of Fish and Wildlife, and as a commercial fisherman.

Mr. Deming has prepared and implemented restoration and enhancement programs to address wetlands, streams, and wildlife mitigation programs. These restoration and enhancement programs utilize native plants and natural habitat features to ensure project success and suitability to the project area. Mr. Deming has also undertaken a number of projects which focus on the development of local jurisdiction resource protection and stormwater management issues.

Key Staff: <u>**Bryan W. Peck**</u> obtained his work experience through on-the-job assessments and professional training since 1999. Mr. Peck is identified as an approved "wetland specialist" by Pierce County along with a number of other local jurisdictions, and has completed numerous site-specific assessments of wetland, stream, wildlife, and endangered/threatened species issues associated with a wide variety of proposed site development actions and habitat restoration projects. These assessments also addressed project related impact avoidance and unavoidable impact mitigation within the federal, state, and local permitting processes.

Mr. Peck has completed a variety of formal wetland boundary delineations using the *Corps of Engineers Wetland Delineation Manual* (1987 Manual); the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (2010 Supplement); the *Washington State Wetlands Rating System* (2004, 2008, 2014 versions); and local critical areas ordinances. These assessments have included onsite and offsite evaluations, the review of existing resource mapping data, the preparation of associated mapping, the documentation of field observations and field assessment data within appropriate data forms, and the preparation of wetland rating worksheets following the criteria established within the Washington Department of Ecology Wetland Rating System for Western Washington. Mr. Peck also provides an analysis of pre- and post-hydrology patterns associated with project related impacts, provides an analysis of existing and proposed plant community characteristics along with soil characteristics.

Along with the onsite defining of wetland boundaries and field data plot locations Mr. Peck has also undertaken seasonal hydrology monitoring programs to define wetland boundaries and characteristics, and completed soil monitoring to define soil profiles especially within areas of review soil modification. Mr. Peck has identified the ordinary high water mark associated with seasonal wetlands, permanently flowing and intermittent streams, and intertidal areas.

Mr. Peck has prepared permit application submittal materials to meet specific projects and has prepared compensatory mitigation plans and implementation/monitoring programs to address permitting requirements at the local, state, and federal levels.

PHOTOS

Generally view westerly across the northern portion of the project site.

General view of Sample Plot #2 in the northwestern portion of the project site.

View of the depth of fill in the central portion of the project site – SP#3.

General view westerly at SP#4. Edge of fill to right and prior homesite area to left.


Small grove of black cottonwood saplings in the southern portion of the project site.


General view northerly across the project site.

STREAM CORRIDOR RESTORATION AND ENHNACEMENT PROGRAM

EAST TOWN CROSSING

CITY OF PUYALLUP #P-21-0034
2902 East Pioneer
City of Puyallup, Pierce County, Washington

This document has been revised to incorporate City of Puyallup review comments and recommendations

prepared for

Mr. Greg Hellie
@ East Town Crossing
1001 Shaw Road
Puyallup, Washington 98371

prepared by

HABITAT TECHNOLOGIES
P.O. Box 1088
Puyallup, Washington 98371-1088
253-845-5119

REVISION
NOVEMBER 14, 2022

Table of Contents

INTRODUCTION

This document details the *STREAM CORRIDOR RESTORATION AND ENHNACEMENT PROGRAM* to be implemented as a part of the overall development of the proposed **East Town Crossing Multi-Family Residential Community** (City of Puyallup #P-21-0034) located at the southeastern corner of the intersection of Pioneer Way East and Shaw Road East within the City of Puyallup, Pierce County, Washington (Figure 1). The goal of this program is to ensure that proposed land use actions do not result in a net loss of environmentally critical areas and associated floodplain issues while also restoring and enhancing the aquatic and riparian physical and biological functions associated with a City of Puyallup Type IV Stream located directly to the east of the project site and a City of Puyallup Type III Stream located within the Pioneer Way East right-of-way along the northern boundary of the project site.

As defined by the City of Puyallup within Chapter 21.06 – *Critical Areas*, the overall compensatory mitigation program document shall identify and demonstrate sufficient restoration, creation, enhancement, and/or preservation measures to maintain the functions and values of the critical area (21.06.620). In addition to the specific criteria outlined for inclusion within a compensatory mitigation program the program is also required to ensure consistency with applicable state and federal permitting requirements. As such, in addition to City of Puyallup permitting provisions the actions proposed within the *compensatory mitigation program* shall also submit the appropriate permits - generally in the form of a *Joint Aquatic Resource Permit Application* (JARPA) package - for review and approval through the Regulatory Branch, U.S. Army Corps of Engineers for Section 404 of the Clean Water Act for placement of fill within a Water of the US; through the Washington Department of Ecology for Section 401 of the Clean Water Act for Water Quality Certification, and through the Washington Department of Fish and Wildlife for a Hydrologic Project Approval (HPA) for work within the ordinary high water marks of a Water of the State.

PROJECT SITE DESCRIPTION

The project site is approximately 11-acres in size and irregular in shape. The project site had undergone prior permitted land use actions generally associated with future proposed site development actions. These prior permitted land use actions included the development of a stormwater detention pond, the removal of existing old homesites and outbuildings, clearing and grading, and the placement of imported fill materials to facilitate future proposed site development actions.

The areas selected for the compensatory mitigation program are located within the ditched right-of-way for Pioneer Way East along the northern boundary of the project site and within the western portion of the once managed agricultural property directly east of the project site.

The project site is located within a quickly, more intensely developing area along the Shaw Road and Pioneer Way Corridors which is generally changing from prior single-family homesites on moderately sized parcels into commercial developments to meet the growing needs of the City of Puyallup and other local communities.

Directions to Project Site: From the City of Puyallup City Hall turn north onto 2nd Street SE and continue to East Pioneer. Turn east onto East Pioneer and continue generally easterly to Shaw Road East. The project site is located at the southeastern corner of the intersection of Pioneer Way East and Shaw Road East.

CRITICAL AREAS DETERMINATION

WETLANDS

ONSITE: A series of assessments and evaluations of potential wetlands within or immediately adjacent to the project site was completed by John Comis Associates (JCA 2020, 2021). The wetland findings documented within these assessments failed to identify any onsite wetlands and these assessments have been submitted to the City of Puyallup for review and verification.

A series of additional assessments of potential wetlands within the project site were completed during the summer of 2021 by Habitat Technologies. These assessments were completed following the methods and procedures defined in the *Corps of Engineers Wetland Delineation Manual* (United States Army Corps of Engineers, 1987) with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (United States Army Corps of Engineers, 2010); the Washington State *Wetland Rating System for Western Washington: 2014 Update* Publication #14-06-029 (Hruby, 2014), the State of Washington Department of Natural Resources (WDNR) Forest Practice Rules (WAC 222-16-030), and the City of Puyallup Chapter 21.06 - *Critical Areas* (see *Wetland Delineation Report – East Town Crossing* dated October 14, 2021). These assessments documented that **no areas** within the project site were identified to exhibit all three established criteria for designation as "wetland." The created stormwater detention facilities present within the southeastern portion of the project site are best defined as intentionally created features from a non-wetland sites. These facilities were also created consistent with City of Puyallup permitting approvals.

OFFSITE: As outlined below, the proposed *Stream Corridor Restoration and Enhancement Program* would restore presently degraded habitats associated with a Type IV Stream and its associated buffer within the area directly to the east of the project site. The area associated with this Type IV Stream had been managed and manipulated for the production of agricultural crops associated with a previously existing single-family homesite for several decades. In addition, a buried interstate natural gas transmission corridor and associated monitoring facility had also been installed and maintained within this offsite area.

Additional Offsite Assessment: Following the presentation of the *CONCEPTUAL STREAM CORRIDOR RESTORATION AND ENHNACEMENT PROGRAM* dated May 23, 2022, the City of Puyallup requested additional information about the character of the offsite area to be used for the proposed Type IV Stream and buffer corridor restoration and enhancement program. As such, between the middle of July through early November 2022, Habitat Technologies completed a series of assessments of this offsite area following the methods and procedures defined in the *Corps of Engineers Wetland Delineation Manual* (United States Army Corps of Engineers, 1987) with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (United States Army Corps of Engineers, 2010); the Washington State *Wetland Rating System for Western Washington: 2014 Update* Publication #14-06-029 (Hruby, 2014), the State of Washington Department of Natural Resources (WDNR) Forest Practice Rules (WAC 222-16-030), and the City of Puyallup Chapter 21.06 - *Critical Areas*.

The offsite area immediately to the east of the project site was generally dominated by very dense reed canarygrass (*Phalaris arundinacea*) intermixed with dense thickets of blackberries (*Rubus* spp.) generally along property boundary fence lines. This area appeared to have been well managed at one time to include internal and property boundary drainage ditching which directed seasonal surface water runoff northward into a roadside ditch associated with Pioneer Way East. However, more recently this ditching had not been regularly managed and the recent failure of the eastern boundary of the stormwater pond within the southeastern corner of the project site has allow the identified Type IV Stream to enter the stormwater pond rather than to continue northward along the eastern boundary of the project site.

The assessment of this offsite area identified that the soil throughout the area exhibited characteristics typically associated with either the Briscot loam soil series (a typically poorly soil) or the Puyallup fine sandy loam soil series (a typically well drained soil). Those area exhibiting soils more typical of the Briscot loam soil series were generally along the western edge of this offsite area and generally associated with the prior western property boundary ditch. Those areas generally to the east and south of the western portion of the offsite area exhibited soil characteristics more commonly associated with the Puyallup soil series (representative field data are provided in Appendix A).

As defined in the *Corps of Engineers Wetland Delineation Manual* (United States Army Corps of Engineers, 1987) with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (United States Army Corps of Engineers, 2010) a wetland must exhibit three essential characteristics:

1. **Hydrophytic Vegetation:** The assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence.

2. **Hydric Soil:** A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper parts.

3. **Wetland Hydrology:** Permanent or periodic inundation, or surface soil saturation, at least seasonally.

Preliminary Findings: As defined between the middle of July through early November 2022, the area immediately to the east of the eastern boundary of the project site exhibited two of the three required characteristics require to define a "wetland." Unfortunately, the third required characteristic – wetland hydrology – was unable to be accurately defined because of the once managed character of the area and the season characteristic of hydrology patterns within this area. For example, the offsite area would be reasonably expected to <u>not</u> exhibit prominent field indicators of wetland hydrology patterns during the summer and early fall periods.

Absent additional assessment of seasonal wetland hydrology patterns to be completed during the late winter and early spring of 2023, the preliminary finding noted above identify that a majority of the area proposed for restoration and enhancement of the Type IV Stream immediately to the east of the eastern boundary of the project site would best be defined as "wetland" (Figure 2). This offsite area was also rated consistent with the Washington State *Wetland Rating System for Western Washington: 2014 Update* Publication #14-06-029 (Hruby, 2014) and identified as preliminarily defined as a City of Puyallup Category III Wetland (Appendix B). The standard buffer for this preliminarily defined wetland would be 80 feet in width as measured perpendicular from the wetland boundary.

STREAMS

As defined by onsite observations completed between March 2021 through early November 2022, along with prior assessments within the general vicinity of the project site dating back to 1983 of adjacent properties, seasonal surface water from the hillside area to the southeast of the project site forms within a shallow depression near the toe of slope. As defined within historical aerial photos, prior land use actions primarily associated with agricultural activities and the development of a pipeline corridor had created excavated ditches to convey seasonal surface water generally to the northeast and then to the north to enter the ditch system associated with the Pioneer Way East Corridor. A pattern of excavated ditches continued generally westerly along the Pioneer Way East Corridor to enter the ditched Deer Creek System and then to continue generally northwesterly to eventually enter the Lower Puyallup River. The Deer Creek System has been documented by Habitat Technologies and by the Puyallup Tribe to provide habitats for a number of fish species to include coho salmon, steelhead/rainbow trout, cutthroat trout, threespine stickleback, bullhead, sculpin, and Western brook lamprey. However, these same assessments (particularly the 1983 assessment completed by the Puyallup Tribe) did not document fish utilization within the ditch system associated with the Pioneer Way East Corridor east of the confluence with Deer Creek.

Even though the drainage corridors offsite to the east and southeast of the project site have been modified by prior and ongoing land use actions generally associated with the management of agricultural ditches and the placement of culverts associated with the existing natural gas transmission corridor these drainage corridors convey naturally occurring surface water from an offsite wetland area and eventually enter the Deer Creek System. As such, these offsite drainage corridors appear best defined as City of Puyallup "streams" consistent with the provisions of the City of Puyallup *Chapter 21.06.* Both of these offsite ditches do not exceed a width of 24-inches and appear to exhibit seasonal surface flow patterns. These two drainage ditches also appear best defined as City of Puyallup Type IV Streams. The standard City of Puyallup buffer for a Type IV Stream is 35 feet in width as measured perpendicular from the ordinary high water mark.

- Type IV Streams are those intermittent or ephemeral streams with channel width less than two feet taken at the ordinary high water mark, that are not used by anadromous fish or resident fish.

These offsite agricultural ditches to the east of the project site eventually lead to the north and enter the ditch system associated with the Pioneer Way East Corridor. As such, the ditch system associated with the Pioneer Way East Corridor would also appear best defined as a City of Puyallup "streams" consistent with the provisions of the City of Puyallup *Chapter 21.06.* The ditch associated with the Pioneer Way East Corridor exhibits a width greater than 24-inches and seasonal surface flow patterns. This roadside drainage ditch also appeared best defined as City of Puyallup Type III Streams. The standard City of Puyallup buffer for a Type III Stream is 50 feet in width as measured perpendicular from the ordinary high water mark.

- Type III Streams are those streams with perennial or intermittent flow and are not used by anadromous fish.

FISH AND WILDLIFE HABITAT CONSERVATION AREAS

The assessments completed by Habitat Technologies during 2021 identified that the project site and adjacent properties had been manipulated and modified by a variety of prior and ongoing land uses. The project site was not identified to exhibit specific City of Puyallup "fish and wildlife habitat conservation areas." The project site did not provide habitats of rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; areas with high relative population density or species richness; or City of Puyallup habitats of local importance. However, two adjacent City of Puyallup stream corridors were identified – one directly to the east and one within the Pioneer Way East right-of-way directly to the north. These two streams were identified to provide limited habitat for local species and to support downstream habitats used by salmonid fish species (see *Wetland Delineation Report – East Town Crossing* dated October 14, 2021, and *CRITICAL AREAS ASSESSMENT - Surface Water Drainages and Fish and Wildlife Habitat Conservation Areas - EAST TOWN CROSSING* dated July 13, 2021 both prepared by Habitat Technologies).

SELECTED DEVELOPMENT ACTION

The *Selected Development Action* for the **East Town Crossing Multi-Family Residential Community** focuses on the development of a new multi-family residential community within the project site. The development of this new multi-family residential community would be consistent with the City of Puyallup *Comprehensive Plan*, local zoning, the changing character of the neighborhood, and the provisions of the City of Puyallup Chapter 21.06. The proposed development would also provide consistency with both the FEMA (Federal Emergency Management Agency) and the City of Puyallup *Floodplain Requirements* and the City of Puyallup Chapter 21.06 through the restoration and enhancement of adjacent environmentally critical areas.

Project site planning has focused on the mandated hierarchy of environmentally critical areas impact reduction: 1) avoidance, 2) minimization, and 3) compensation. These avoidance and minimization strategies included a site design to avoid potential project related impacts to identified environmentally critical areas for their associated protective buffers. As presently identified all onsite development actions would not directly impact environmentally critical areas identified adjacent to the project site. However, onsite development actions would require the modification of identified onsite Zone A0 floodplain areas and a separated final site development plan of actions has been prepared to address potential impacts to flood storage, water quality, detention, treatment, and floodplain storage volume.

To ensure that unavoidable encroachments into the City of Puyallup buffers associated with the identified Type IV Stream and the preliminarily identified Category III Wetland directly to the east of the project site and an identified Type III Stream within the Pioneer Way East right-of-way directly to the north of the project site the proposed project would undertake a *Stream Corridor Restoration and Enhancement Program* along these two streams and the preliminarily identified Category III Wetland to avoid and minimize potential impacts to the extent practicable, to reestablish prior environmental functions and associated habitats, to provide greater protective functions and values to the identified stream corridors, to restore greater protective functions and values to the preliminarily identified Category III Wetland, and to provided increased buffer functions (screening, noise attenuation, dust attenuation, sound attenuation, detrital inputs, and habitats for local species).

The City of Puyallup has identified mitigation standard for fish and wildlife habitat conservation areas as follows (21.06.1080):

(1) **<u>Adverse impacts to riparian and nonriparian habitats shall be fully mitigated in accordance with the approved standards and shall be specified within a mitigation plan.</u>**

Discussion: The stream corridor directly offsite to the north would be restored through reformation to better facilitate access between the project site and Pioneer Way East, to better facilitate public utilities associated with Pioneer Way East, and to restore a protective plant community along the established corridor. The stream corridor and preliminarily identified wetland directly offsite to the east would be restored through reformation which would create a more meandering channel pattern through a larger area, would place habitat features within the restored area, would increase seasonal hydrology patterns within the preliminarily identified wetland, and would establish a viable native plant community along the streams and wetland corridor. These actions are outlined within the mitigation program below.

(2) **<u>Mitigation for alterations to habitat areas shall achieve equivalent or greater biologic functions and shall provide similar functions as those lost.</u>**

Discussion: Both of the identified adjacent stream corridors, the preliminarily identified wetland, and their adjacent riparian areas have been greatly impacted by prior and ongoing land use actions. The proposed *Stream Corridor Restoration and Enhancement Program* would restore and enhance native plant communities, would restore and enhance physical and biological riparian corridor and wetland habitat functions, would increase water quality protections, and would provide greater biological functions for local wildlife and downstream aquatic resources.

<u>Existing Conditions</u>: As defined by the recent environmental assessments completed for the project site, no wetlands, no streams/creeks, and no habitat conservation areas were identified within the project site. However, these assessments did identify a City of Puyallup Type IV Stream (non-fish bearing) and preliminary associated Category III Wetland offsite to the east that led into a City of Puyallup Type III Stream (non-fish bearing) within the Pioneer Way East right-of-way along the northern boundary of the project site.

The Type IV Stream offsite to the east originated within a wetland area well to the south of the project site and was conveyed via buried culverts associated with a regional pipeline corridor immediately to the southeast of the project site. Upon existing the pipeline corridor this non-fish bearing stream was confined within an agricultural ditch generally along the southeastern boundary of the project site. Near the northeastern boundary of the project site the stream re-enters a buried culvert and is conveyed into the ditch along the southern edge of Pioneer Way

East. This agricultural ditch had been created and managed by prior land use actions and was dominated by a dense mono-typic stand of reed canarygrass. The previously manage agricultural lands to the east of the Type IV Stream has been preliminarily identified to exhibit wetland characteristics and was defined as a City of Puyallup Category III Wetland. The western edge of this offsite wetland was noted to coincide with the agricultural ditch once conveying the Type IV Stream.

However, more recently the eastern boundary of the onsite stormwater pond within the southwestern corner of the project site failed during a large storm event. As a result of this failure the surface water within this Type IV Stream no longer moves northerly along the eastern boundary of the project site but now enters the onsite stormwater pond. From the stormwater pond the surface flow enters of buried pipe and is conveyed northward to enter the ditch (Type III Stream) along the southern edge of Pioneer Way East approximately 180 feet east of the previous entry point.

The Type III Stream within the Pioneer Way East right-of-way along the northern boundary of the project site originates at the present culvert entry point of the Type IV Stream and continues westerly to enter a culvert that conveys seasonal surface flow northwesterly into a ditch along the northern side of Pioneer Way East – west of Shaw Road. This Type III Stream conveys stormwater runoff directly from Pioneer Way East and provides very limited biofiltration of the roadway runoff as a result of a channel dominated by reed canarygrass, a variety of other grasses and herbs, and a scattering of Himalayan blackberry. The vegetation along this roadside ditch is also regularly mowed by the City of Puyallup roadway crews.

Functional Lift: Implementation of the *Stream Corridor Restoration and Enhancement Program* outlined below would ensure that there would be no net loss of habitat area, combined with the restoration and enhancement of previously impacted aquatic and riparian habitats. The Type IV Stream along the eastern side of the project site would be relocated out of the onsite stormwater pond and placement within a new meandering channel within the previously managed agricultural area (preliminarily identified as a Category III Wetland) immediately to the east of the project site. The restored Type IV Stream channel would begin at the outlet of the culvert associated with the offsite pipeline corridor and be relocated out of the existing agricultural ditch into a new meandering channel with an approximately 1% to 2% grade through the preliminarily identified wetland. The new stream channel and associated wetland would be planted with a variety of desirable native trees, shrubs, emergent, and herbs. In addition, a variety of habitat features (standing snags and downed logs) would be placed within the channel, associated restored wetland, and adjacent buffer to provide increased habitat opportunities for wildlife feeding, cover, nesting, and perching. The restored channel, wetland, and buffer areas would also provide increase opportunity for detrital transport downstream into associated aquatic habitats resulting in an overall functional lift.

The Type III Stream presently within a roadside ditch associated with the Pioneer Way East Corridor would be re-configured within a restored channel directly to the south of the Pioneer Way East right-of-way. The restored channel would be wider that the present ditch and the side sloped would be gentler. As with the restored Type IV Stream the restored Type III Stream would be channel would be located within a defined buffer area that would be planted with a variety of desirable native trees, shrubs, emergent, and herbs. In addition, a variety of habitat features (standing snags and downed logs) would be placed within the channel and buffer to provide increased habitat opportunities for feeding, cover, nesting, and perching. The restored channel and buffer area would also provide increase opportunity for detrital transport downstream into associated aquatic and terrestrial habitats resulting in an overall functional lift.

<u>Innovative Design</u>: While the implementation of the *Stream Corridor Restoration and Enhancement Program* appears best defined to provide an overall functional lift for the identified Type IV Stream, the Type III Stream, the preliminarily defined Category III Wetland, and their associated buffers the final width of the buffer areas would not comply with the stream and wetland buffer width provisions of 21.06.1050. Where compliance with the buffer width provisions is not possible the City of Puyallup may approve “innovative mitigation programs” that allow linkages between natural systems and have the potential to restore ecological processes or provide unique ecological functions (21.06.640). The total amount of area within this combined *Stream Corridor Restoration and Enhancement Program* is **86,033 square feet (approximately 2 acres).**

The City of Puyallup may approve innovative mitigation projects when all of the following can be clearly demonstrated:

a) The mitigation occurs in WRIA 10, in the middle Puyallup River basin, and preferably in the same subbasin as the impacts

   Discussion: The proposed *Stream Corridor Restoration and Enhancement Program* would occur immediately adjacent to and within the existing project site. <u>This criterion is met</u>.

b) The proposed mitigation site will provide greater improvement of critical area functions and values compared to on-site, in-kind mitigation or other sites within city boundaries

   Discussion: The proposed *Stream Corridor Restoration and Enhancement Program* would restore presently degraded habitats associated with a Type IV Stream, a Type III Stream, and a preliminarily defined Category III Wetland, along with their established buffers. The new channels would be located within a defined preliminarily defined wetland and associated buffer areas that would be planted with a variety of desirable native trees, shrubs, emergent, and herbs. In addition, a variety of habitat features (standing snags and downed logs) would be placed within the channel and buffer of the Type IV Stream and Category III Wetland to provide increased habitat opportunities for feeding, cover, nesting, and perching. The restored channel and buffer areas would also provide increase opportunity for detrital transport downstream into associated aquatic habitats resulting in an overall functional lift. <u>This criterion is met</u>.

c) The proposed mitigation plan is approved by the local jurisdiction wherein the site is located, by state resource agencies, and other agencies and tribes that may have jurisdiction over the proposed activity or the affected resources

Discussion: The proposed *Stream Corridor Restoration and Enhancement Program* is subject to the City of Puyallup regulatory jurisdiction, along with the Seattle District U.S. Army Corps of Engineers, the Washington Department of Ecology, and the Washington Department of Fish and Wildlife. <u>Upon permit approvals this criterion would be met</u>.

d) The proposed mitigation is consistent with the general purposes of this chapter, is in the best interest of Puyallup's citizens, and accomplishes regionally recognized goals for critical area restoration, such as conservation of threatened salmonids; and

Discussion: The proposed *Stream Corridor Restoration and Enhancement Program* is consistent with the purpose of Chapter 21.06 in that this program would protect identified stream corridor and associated buffer areas while also providing a functional lift to the aquatic and terrestrial functions and values of these stream corridors, the preliminarily defined wetland, and established protective buffers. The implementation of this program also allows for the economically beneficial and productive use of the project site.

This program would comply with the Federal Clean Water Act and Washington State water pollution control laws; would prevent adverse and cumulative environmental impacts to critical areas; would protect ground and surface waters, downstream anadromous fish species, and other fish and wildlife and their habitats; and would be consistent with the Federal Endangered Species Act of 1973. <u>Upon permit approvals this criterion would be met.</u>

e) For innovative mitigation projects occurring outside city boundaries, the proponent of the mitigation plan shall provide sufficient documentation to show that there are no more appropriate sites within the city or urban growth area boundaries that provide suitable compensation for the impacts.

Discussion: The proposed *Stream Corridor Restoration and Enhancement Program* is located within the City of Puyallup. The total amount of area within this combined *Stream Corridor Restoration and Enhancement Program* is **86,033 square feet (approximately 2 acres**). Upon permit approvals this criterion would be met.

Public Benefit: In addition to the restoration of the presently degraded Type IV Stream, the Type III Stream, the preliminarily identified Category III Wetland, and their associated buffers the final site development action would also provide essential and were needed workforce housing within a portion of the City of Puyallup that is well served by public roadways and utilities; that is well situated to public transportation and existing major transportation routes; that is well served by public fire, police, and medical response; and that is well situated to supportive shopping areas. The overall project would also provide increased support for the City of Puyallup tax base while also ensuring the fundamental utilization of private property.

(3) **Compensation in the form of habitat restoration or enhancement is required when a habitat is altered as a result of an approved project. Alterations shall not result in net loss of habitat area except when, upon the satisfaction of the director, it is determined that the lost habitat area provides minimal functions, as determined by a critical area report, and other replacement habitats provide greater benefits to the functioning of the affected species.**

Discussion: Implementation of the *Stream Corridor Restoration and Enhancement Program* would ensure that there would be no net loss of habitat area, combined with the functional life associated with the restoration and enhancement of previously impacted aquatic and riparian habitats. In addition, the amount of area to be established within the restored and enhanced corridor associated with the Type IV Stream to the east of the project site would add significantly more area than would be established following the standard stream buffer areas identified by the City of Puyallup.

The *Stream Corridor Restoration and Enhancement Program* would remove existing invasive species and plant a variety of desirable native trees, shrubs, emergent, and herbs within the established stream corridors, the associated wetland, and buffers to provide greater physical and biological support for the stream corridors onsite and within downstream aquatic and terrestrial habitats. In addition, the proposed onsite development would implement a variety of measures to minimize potential impacts to the adjacent streams which include the use of directional lighting, the treatment and detention of onsite stormwater, the placement of noise generating actions away from the stream corridors, where appropriate the fencing of the outer boundary of the established buffers, and the use of best management practices for dust and local water quality protections.

IMPACT ANALYSIS

The City of Puyallup has identified that all feasible and reasonable measures shall be taken to avoid and minimize site development related impacts to onsite and offsite environmentally critical areas. The applicant shall demonstrate that all of the following actions have been considered and implemented in terms of avoidance and mitigation sequencing (21.06.1020):

a) **Avoiding the impact altogether by not taking a certain action or parts of an action;**

   Discussion: The proposed site development action would avoid all adverse impacts to the adjacent Type IV Stream, the preliminarily defined offsite Category III Wetland, and would not require an adverse impact to the identified adjacent Type III Stream. Onsite development actions would also avoid to the greatest extent practicable adverse modifications to the standard buffers associated with these areas.

b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;

   Discussion: The proposed site development action would minimize potential project related adverse impacts to the adjacent streams to the greatest extent practicable through site design and the development of only a single access connection to Pioneer Way East consistent with City of Puyallup public roadway safety designs and criteria. Internal site design would also allow for the minimization of the potential project related impacts to the adjacent offsite eastern stream corridor through the establishment of property boundary set back and the arrangement of future buildings with their backs (areas of least noise and light) facing toward the offsite restored stream corridor.

   The potential impacts of stormwater runoff into the adjacent streams would also be avoided and minimized through the establishment and utilization of best management practices during site development and the creation of stormwater facilities as a part of the overall site development actions consistent with City of Puyallup stormwater regulations.

   <u>Buffer Area Modifications:</u> The standard buffer for the Type IV Stream is 35 feet in width as measured perpendicular from the ordinary high water mark, for the preliminarily defined Category III Wetland is 80 feet in width as measured perpendicular from the wetland boundary, and for the Type III Stream is 50 feet in width as measured perpendicular from the ordinary high water mark. The present buffer along both sides of the Type IV Stream and the preliminarily defined Category III Wetland is dominated by a monotypic stand of reed canarygrass and the very outer portion of the buffer includes a dense stand of Himalayan blackberry with a scattering of sapling red alder. The present buffer along the northern portion of the Type III Stream is dominated by reed canarygrass, a few herbs, and a scattering of blackberries that are routinely managed through mowing by the City of Puyallup roadway maintenance crews. The southern portion of the buffer along the Type III Stream is also dominated by a managed primarily blackberry plant community.

The *Stream Corridor Restoration and Enhancement Program* would recreate a more viable channel and associated wetland structure through meandering the Type IV Stream and by re-sloping the presently steep channel along the Type III Stream. Both channels would then be planted with a variety of desirable native plants to create a viable plant community that provided enhanced habitats, enhanced erosion protections, enhanced water quality protections, and enhance thermal protections.

The over length of the Type IV Stream would be increased and there would be not decrease in length of the Type III Stream. The Type III Stream would enter the existing culvert associated with Pioneer Way East to cross to the north and continue westerly along Pioneer Way East.

ACTIVE CHANNEL	TYPE III STREAM	TYPE IV STREAM
PRESENT LENGTH	225 linear feet	748 linear feet
PROPOSED LENGTH	225 linear feet	1,300 linear feet
LENGTH CHANGE	none	+ 552 linear feet

c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

Discussion: The proposed site development action would implement a *Stream Corridor Restoration and Enhancement Program* to repair, rehabilitate, and restore the presently degraded character of the two stream corridors adjacent to the project site. The Type IV Stream and associated preliminarily defined wetland offsite to the east is within and adjacent to a constructed agricultural ditch and dominated by a monotypic dense stand of reed canarygrass. In addition, the majority of the surface flow within this channel presently enters a constructed onsite stormwater pond and mixes with stormwater from adjacent developed areas prior to be conveyed to the north to enter the Type III Stream along Pioneer Way East. The Type III Stream along Pioneer Way East is within a managed roadside ditch and receives untreated stormwater runoff from Pioneer Way East.

Upon implementation the *Stream Corridor Restoration and Enhancement Program* would restore a desirable native plant community along each stream corridor (both onsite and offsite); would include a variety of habitat features for increased habitat opportunities for wildlife feeding, cover, nesting, and perching; would increase stream/wetland corridor thermal cover; and would provide increase opportunities for detrital transport downstream into associated aquatic and terrestrial habitats resulting in an overall functional lift.

d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

Discussion: Potential project related impacts to the adjacent aquatic environments would be reduced or eliminated through the onsite development and continued maintenance of appropriate stormwater treatment and detention facilities consistent with the City of Puyallup stormwater provisions. In addition, the restored stream corridors would be identified with a protective covenant or easement to ensure the long-term protections of these areas.

e) Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or;

Discussion: To ensure the short-term and long-term protection of the aquatic and terrestrial habitats associated with the identified stream corridors the overall site development action would implement a *Stream Corridor Restoration and Enhancement Program* restore a desirable native plant community along each stream corridor, would include a variety of habitat features for increased habitat opportunities for wildlife feeding, cover, nesting, and perching, and would provide increase opportunity for detrital transport downstream into associated aquatic habitats resulting in an overall functional lift. This restoration program would also provide a visual amenity to the proposed residential community.

Stream Corridor Restoration and Enhancement Program outlined below has been prepared in accordance with the provisions of 21.06.610.

f) Monitoring the impact and taking appropriate corrective measures.

Discussion: The implementation of the proposed *Stream Corridor Restoration and Enhancement Program* would also incorporate a **ten-year** monitoring and maintenance program to ensure the overall success of the program as measured by a set of established performance criteria. This project would also include provisions for project contingencies as needed, temporary irrigation, invasive species management, and a financial guarantee.

STREAM CORRIDOR RESTORATION AND ENHANCEMENT PROGRAM

The development of the proposed multi-family residential community avoids direct and indirect adverse impacts to identified Waters of the U.S., Waters of the State, or City of Puyallup critical habitats to the greatest extent practicable. In addition, the development of the new multi-family residential community would include an onsite stormwater collection, detention, and treatment system to avoid potential project related impacts to floodplain area or both local water quality and local water quantity within the receiving waters consistent.

Assess to the new multi-family residential community would be provided via a new driveway connection to Pioneer Way East along the northern boundary of the project site and via a new driveway connection to Shaw Road along the western boundary of the project site. The northern connection to Pioneer Way East would require a crossing of the Type III Stream presently confined within a maintained ditch associated with the Pioneer Way East right-of-way. While the final crossing structure has not yet been fully designed the project team has been coordinating with the City of Puyallup to meet critical areas and public health/safety requirements and with the Washington Department of Fish and Wildlife to meet fish passage requirements to ensure that the final design would not adversely impact fish habitats or the movement of surface water.

The development of the proposed multi-family residential community would also establish and restore a protective stream and buffer corridor composed of native plant species associated with the Type III Stream along the southern side of the Pioneer Way East right-of-way and within a protective stream/wetland and buffer corridor associated with the Type IV Stream to the east of the eastern boundary of the project site (Attachment One).

1. The overall development of the **East Town Crossing Multi-Family Residential Community** would establish a protective stream corridor associated with the Type III Stream along the northern boundary of the project site and the Type IV Stream/Category III Wetland Corridor along the eastern boundary of the project site. The Type III Stream is presently within a managed City of Puyallup stormwater ditch along the Pioneer Way East right-of-way and is dominated by reed canarygrass and blackberry thickets. The Type IV Stream and associated wetland is presently within a managed agricultural field ditch and dominated by a monotypic stand of reed canarygrass. In addition, a portion of the Type IV Stream has eroded the channel and is presently entering a constructed stormwater pond within the southeastern portion of the project site.

2. Assess to the new multi-family residential community would be provided via a new driveway connection to Pioneer Way East along the northern boundary of the project site and via a new driveway connection to Shaw Road along the western boundary of the project site. The northern connection to Pioneer Way East would require a crossing of the Type III Stream presently confined within a maintained ditch associated with the Pioneer Way East right-of-way. The required crossing structure has been designed to meet critical areas protection requirements, public health/safety requirements, and the Washington Department of Fish and Wildlife to meet fish passage requirements to ensure that the new full spanning structure would not adversely impact fish habitats, the movement of aquatic organisms and detritus, or the movement of surface water.

3. The Type IV Stream located directly to the east of the project site would be relocated a short distance to the east into a restored protective corridor through the preliminarily defined Category III Wetland. The area of the restored stream/wetland corridor has been managed for agricultural production for several decades and is presently densely overgrown with reed canarygrass and blackberry thickets. The restored stream/wetland corridor would be cleared of invasive vegetation and tilled. Following the clearing and tilling a new channel would be created to meander through this restored area starting at the location of the ditch repair associated with the adjacent stormwater pond and continuing northward to connect with the Type III Stream along Pioneer Way East. The meandering new channel would incorporate instream woody debris (a minimum of 10 standing snags and 10 downed logs) to increase aquatic and terrestrial habitats and provide channel structure/complexity.

   Area of the stream/wetland corridor and buffer restoration associated with the Type IV Stream immediately to the east of the project site is generally flat and has been managed and manipulated for the production and harvest of annual commodity crops for several decades. More recently this area has gone somewhat fallow and has become dominated by a dense monotypic stand of reed canarygrass with a scattering of dense blackberry thickets. The creation of an enhance stream channel and associated buffer within this area would be undertaken initially by the mowing of the existing reed canarygrass and blackberries and then tilling to minimize the re-establishment of the blackberries. A small excavator would then be used to create the new meandering stream corridor with a bottom width of 12 inches to 18 inches and no greater than a 2 to 1 side slope. All side cast materials from the stream creation would be retained within the adjacent buffer and manipulated to form a scattering of hummock suitable to variations in plant community establishment.

4. The established stream corridor associated with the Type III Stream along the Pioneer Way East right-of-way adjacent to the northern portion of the project site and the restored stream corridor associated with the Type IV Stream along the eastern boundary of the project site would then be planted with a variety of desirable native plant species. The Type IV Stream/Wetland Corridor would also be enhanced through the placement of standing snags and downed logs. These actions would be designed to provide enhanced habitats onsite and offsite; to provide enhanced habitat support downstream; to provide enhanced protections for local water quality; and to provide light, dust, and noise protections for adjacent habitats.

5. Temporary and long-term erosion control measures would be implemented during site preparation and channel/buffer creation. These measures include silt fencing during site preparation and seeding/mulching of exposed soil areas.

6. The onsite portion of the outer boundary of the established stream buffer areas would be posted with standard City of Puyallup buffer signs and fenced with a split-rail or other fence approved by the City of Puyallup to limit intrusion into the final established protective areas.

7. **ALL ONSITE RESTORATION AND ENHANCEMENT ACTIONS WOULD BE COMPLETED AT THE DIRECTION OF THE PROJECT BIOLOGIST AND LANDSCAPE ARCHITECT.**

8. The established stream, wetland, and buffer corridor areas would be protected through the establishment of specific tract, a "protective easement, or other City of Puyallup approved method.

9. Following the completion of the initial establishment, restoration, and enhancement activities the project biologist shall prepare an *Implementation Report* for submittal to the City of Puyallup.

10. Following City of Puyallup's acceptance of the *Implementation Report* a minimum **ten-year** *Performance Monitoring and Maintenance Program* would be undertaken to ensure the success of the *Stream Corridor Restoration and Enhancement Program*.

PROGRAM GOAL

The **GOAL** of the *Stream Corridor Restoration and Enhancement Program* is to ensure that proposed site development actions do not adversely impact identified aquatic resources and that the existing physical and biological functions of these aquatic resources are restored and enhanced. Upon the completion of this program there would be a functional lift in the potential for the established restoration and enhancement stream corridors to create a functional lift to onsite and offsite aquatic and terrestrial habitats. To achieve the defined **GOAL**, the following **PERFORMANCE CRITERIA** have been established:

<u>Performance Criterion #1:</u> 100% of the trees and shrubs initially planted within the restored and enhanced areas would exhibit survival through the end of the first growing season following initial planting.

<u>Performance Criterion #2:</u> 80% of the trees and shrubs initially planted within the restored and enhanced areas would exhibit survival through the end of the second growing season following initial planting.

<u>Performance Criterion #3:</u> The emergent plant community within the restored and enhanced areas would exhibit the following minimum aerial coverage during the fall monitoring periods for a minimum of ten-years following initial planting. For purposes of the aerial coverage determination the emergent plant community would include both planted and desirable volunteer species.

MONITORING YEAR	MINIMUM AERIAL COVERAGE
End of monitoring year one	15%
End of monitoring year two	20%
End of monitoring year three	40%
End of monitoring year five	80%
End of monitoring year seven	80%
End of monitoring year ten	80%

Performance Criterion #4: The scrub/shrub and sapling vegetation class within the restored and enhanced areas would exhibit the following minimum aerial coverage during the fall monitoring periods for a minimum of ten-years following initial planting. For purposes of the aerial coverage determination the scrub/shrub and sapling vegetation class would include both planted and desirable volunteer species.

MONITORING YEAR	MINIMUM AERIAL COVERAGE
End of monitoring year one	5%
End of monitoring year two	10%
End of monitoring year three	20%
End of monitoring year five	30%
End of monitoring year seven	60%
End of monitoring year ten	80%

Performance Criterion #5: The restored and enhanced areas would contain a minimum of five (5) species of native shrubs and trees (combined count) at the end of monitoring year five, along with years seven and ten. Volunteer native species may be included in this count.

Performance Criterion #6: The restored and enhanced areas associated with the Type IV Stream to the east of the project site would be enhanced through the placement of a minimum of 10 standing snags (minimum 20 feet tall and a 10-foot minimum width base root diameter) and a minimum of 10 downed logs (minimum 20 feet in length with or without rootball and a diameter at the mid-length point of 20 inches). These habitat features may exhibit retained limbs or use of the entire tree. These habitat features would be coniferous species.

Performance Criterion #7: Within the restored and enhanced areas invasive species would not exceed 10% aerial coverage at the end of the first, second, third, fifth, seventh, and tenth years following initial planting. Invasive species include reed canarygrass, Canadian thistle, Himalayan blackberry, Scots broom, and other species listed as invasive by the Washington Department of Agriculture.

Performance Criterion #8: Throughout the restored and enhanced areas knotweed (*Polygonum* spp.) would not be present at any time during the monitoring period.

SELECTED PLANT COMMUNITIES

The plants selected for placement within the restored and enhanced areas would be obtained as nursery stock. These selected species are native and commonly occur in the local area. The plant species prescribed are also selected to increase plant diversity, match present offsite communities, increase wildlife habitats, and enhance the aquatic environment. Many of the selected species can be somewhat sensitive to direct sunlight upon initial removal from the nursery and installation within the planting area. Special care would be undertaken by the planting contractor during installation to utilize existing shading and to ensure that plants are handled and installed with some care. Adequate irrigation would also be provided at the time of installation.

COMMON NAME (ID) - SCIENTIFIC NAME	NUMBER	SIZE
Big leaf maple (ACM) - *Acer macrophyllum*	50	2 gallon
Paper birch (BEP) - *Betula papyrifera*	75	2 gallon
Western hawthorne (CRD) - *Crataegus douglasii*	225	2 gallon
Aspen (POT) - *Populus tremuloides*	75	2 gallon
Oregon ash (FRL) – *Fraxinus latifolia*	200	2 gallon
Sitka spruce (PIS) – *Picea sitchensis*	125	2 gallon
Douglas fir (PSM) - *Pseudotsuga menziesii*	75	2 gallon
Cascara (RHP) - *Rhamnus purshiana*	75	2 gallon
Western red cedar (THP) - *Thuja plicata*	125	2 gallon
Western crabapple (PYF) - *Pyrus fusca*	150	2 gallon
Pacific willow (SAL) - *Salix lasiandra*	175	2 gallon
Red alder (ALR) – *Alnus rubra*	50	2 gallon
TOTAL	**1,400**	
Vine maple (ACC) - *Acer circinatum*	175	1 gallon
Tall Oregon grape (BEA) - *Berberis aquifolium*	200	1 gallon
Hazelnut (COC) - *Cornus stolonifera*	175	1 gallon
Red osier dogwood (COS) - *Cornus stolonifera*	400	1 gallon
Sitka willow (SAS) - *Salix sitchensis*	400	1 gallon
Ninebark (PHC) - *Physocarpus capitatus*	300	1 gallon
Twinberry (LOI) - *Lonicera involucrata*	350	1 gallon
Oceanspray (HOD) - *Holodiscus discolor*	150	1 gallon
Red flowering currant (RIS) - *Ribes sanguineum*	150	1 gallon
Wild rose (ROG) - *Rosa gymnocarpa*	150	1 gallon
Nootka rose (RON) - *Rosa nutkana*	350	1 gallon
Snowberry (SYA) - *Symphoricarpus albus*	200	1 gallon
TOTAL	**3,000**	
Slough sedge (CAO) - *Carex obnupta*	1,700	plug
Small fruiting bulrush (SCM) - *Scirpus microcarpus*	1,700	plug

Hardstem bulrush (SCA) - *Scirpus acutus*	1,000	plug
TOTAL	**4,400**	

IMPLEMENTATION INSPECTION

Essential to the success of the *Stream Corridor Restoration and Enhancement Program* is the accurate inspection of onsite activities immediately prior to and during the initial invasive control/removal actions, corridor and channel creation actions, habitat feature placements, and planting phase. These activities include pre-implementation site inspection, onsite inspection and technical direction during implementation activities, and post-planting site inspection and evaluation. The project biologist would complete onsite inspections, verify, and approve the following project tasks (at a minimum):

1. Marking of work areas and access corridors.
2. Marking of desirable plants to be retained.
3. Removal of invasive species and existing garbage.
4. Channel pattern identification.
5. Nursery stock acceptance.
6. Habitat feature acceptance.
7. Modification of plant species and sizes if required.
8. The character and placement of habitat and instream features.
9. Installation of the temporary irrigation system.
10. Installation of buffer boundary signs and buffer fencing.

The pre-implementation site inspection allows the project team and the project biologist to evaluate and, if necessary, adjust the onsite implementation steps. These steps include analysis of project site elevation, project sequencing and timing, final grade analysis, unforeseen required minor modifications to the original establishment plan, and the establishment of environmental protections (silt fences, etc.) required during planting. Onsite technical inspection during implementation and planting activities shall be conducted by the project biologist. The project biologist would perform implementation oversight and address minor unforeseen implementation difficulties to assure that the goal of the mitigation program is met.

The project biologist would be responsible for ensuring that the species and sizes of native plants selected and noted within the final planting plan are utilized during implementation. If selected native species become unavailable, the project biologist or landscape architect would approve, based on City standards, substitute plant species to assure that the goal of the mitigation program is met.

Following the completion of onsite planting activities an *Implementation Report* plan would be prepared and submitted to the City and potentially other involved resource agencies. The *Implementation Report* would include a description of who completed the onsite compensatory actions, a description of the scope of work completed, a description of work specifications, photo documentation of the actions taken, initial plant documentation at each established monitoring plot, and a detailed timeline of completed actions. The *Implementation Report* would also include a project evaluation and photo documentation prepared by the project biologist.

IMPLEMENTATION SCHEDULE

PROJECT TASK	TASK SCHEDULE
Onsite pre-implementation meeting	On or about August 2, 202x
Placement of protective fencing. Final marking and identification of work area and access corridors.	On or about August 6, 202x
Removal of invasive plants within the restoration areas	On or about August 20, 202x
Placement of access connection to Pioneer Way East.	On or about August 25, 202x
Creation of meandering channel for the Type IV Stream and re-sloped channel for the Type III Stream.	On or about August 28, 202x
Placement of habitat features and channel woody debris.	On or about Sept. 10, 202x
City environmental staff review of the planting areas.	On or about Sept. 15, 202x
Planting of stream corridors and associated buffers.	On or about Nov. 15, 202x
Implementation Report to City and potentially other involved resource agencies.	On or about Nov. 29, 202x

based on permit approvals on or before August 1, 202x

PROJECT MONITORING

Following the successful implementation of the *Stream Corridor Restoration and Enhancement Program* and the acceptance of the *Implementation Report* by the City a **ten-year** *Performance Monitoring and Maintenance Program* would be undertaken.

STANDARDS OF SUCCESS

VEGETATION: A minimum of ten (10) 15-foot radius sample plots would be established – three (3) within the Type III Stream Corridor and seven (7) within the Type IV Stream Corridor. The evaluation of the success of the *Stream Corridor Restoration and Enhancement Program* would be based on the defined performance criteria. The defined performance criteria would be applied at the times of yearly monitoring. Sample locations would be shown on the *Implementation Report* graphic and shall correspond to identified photopoints.

1. As a part of monitoring years one and two the project biologist would count the number of live plants which were planted within the identified monitoring plots. Plants would

be identified to species and observations of general plant condition (plant health, amount of new growth) are to be recorded.

2. During each monitoring period and at each identified sample plot the project biologist would determine percent coverage of vegetation for emergent species and for the scrub/shrub and sapling tree species. The project biologist would also document species richness within each sample plot.

3. At identified sample plots the project biologist would count the number - and tag for removal - undesirable invasive species and estimate the aerial coverage (as if the observer were looking straight down from above) of these invasive species.

4. As a part of monitoring years one and two the project biologist would count the number of desirable "volunteer" plants and estimate the aerial coverage of these plants.

5. The project biologist would take photographs that show the *Stream Corridor Restoration and Enhancement Program* area. During the monitoring period photos would be taken in the same direction and at the same location to provide a series of photos. These photos would show plant growth, plant species, and plant coverage.

6. Upon the completion of each monitoring period as noted below the project biologist would prepare a report defining methods, observations, and results along with the date the observations were completed. Each report would be provided to the City of Puyallup and potentially other involved resource agencies.

MONITORING YEAR	PLANT COMMUNITY MONITORING	MONITORING REPORT
YEAR-1	On or about April 15, 202x+1	
	On or about Sept. 15, 202x+1	On or about Oct. 7, 202x+1
YEAR-2	On or about April 15, 202x+2	
	On or about Sept. 15, 202x+2	On or about Oct. 7, 202x+2
YEAR-3	On or about Sept. 15, 202x+3	On or about Oct. 7, 202x+3
YEAR-5	On or about Sept. 15, 202x+5	On or about Oct. 7, 202x+5
YEAR-7	On or about Sept. 15, 202x+7	On or about Oct. 7, 202x+7
YEAR-10	On or about Sept. 15, 202x+10	On or about Oct. 7, 202x+10

* based on a fall 202x implementation

<u>HABITAT FEATURES</u>: A minimum of 10 standing snags (minimum 20 feet tall and a 10-foot minimum width base root diameter) and 10 downed logs (minimum 20 feet in length with or without rootball and a diameter at the mid-length point of 20 inches) would be placed within the Type IV Stream Corridor during initial implementation actions. These habitat features may exhibit retained limbs or use of the entire tree. These habitat features would be coniferous species and the presence and location of these features would be identified within the *Implementation Report.*

<u>STREAM LENGTH</u>: As presently defined the Type IV Stream would be re-configured into a meandering channel with an approximate length of 1,300 linear feet. The total amount of area within this combined *Stream Corridor Restoration and Enhancement Program* is **86,033 square feet (approximately 2 acres).**

<u>FORMAL SURVEY</u>: As presently defined the Type IV Stream would be re-configured into a meandering channel to be approximately 508 linear feet in length from the outlet of the culvert associated with the pipeline corridor at the southeastern corner of the project site to its confluence with the Type III Stream along Pioneer Way East. In addition, the length of the enhanced channel that conveys the Type III Stream along Pioneer Way East from is confluence with the Type IV Stream at the east to the existing culvert crossing to the north under Pioneer Way East at the western end of the channel would continue to be approximately 252 linear feet in length.

> <u>Initial Survey</u>: Upon the completion of the implementation of the *Stream Corridor Restoration and Enhancement Program* a formal professional survey of the program area would be accomplished. This survey would define the project boundaries, the re-configured Type IV Stream, the reshaped Type III Stream, the location of the ten (10) monitoring sample plots, and the location and character of the habitat features. The initial professional survey would be included within the *Implementation Report* and be utilized to ensure consistency with the performance criteria.
>
> <u>Year Five Survey:</u> As a part of the preparation of the *Year-Five Monitoring Report* the program area would be re-surveyed. This survey would define the project boundaries, the Type IV Stream channel, the Type III Stream channel, the location of the 10 monitoring sample plots, and the location and character of the habitat features. This professional survey would be included within the *Year-Five Monitoring Report* and be utilized to ensure consistency with the performance criteria.

VEGETATION MAINTENANCE PLAN

Maintenance of the *Stream Corridor Restoration and Enhancement Program* plant community may be required. Such maintenance would be identified during the monitoring period and would be undertaken at the direction of the project biologist. The overall objective is to establish undisturbed plant communities that do not require maintenance. Activities may include, but are not limited to, the removal of invasive non-native vegetation and the irrigation of selected areas. Established maintenance activities include the removal of any trash within the restoration areas.

REMOVAL OF INVASIVE NON-NATIVE VEGETATION

As a contingency, should the removal of invasive non-native species become necessary, the project proponent would contact the City of Puyallup to establish and define specific actions to be taken. Resultant contingency plan activities shall be implemented when the ongoing vegetation monitoring program indicates that invasive species are becoming dominant in the onsite plant community (invasive species greater than 10% aerial coverage or any presence of knotweed).

The following invasive vegetation maintenance removal program would be implemented to ensure the establishment of desirable plant communities. At the direction of the project biologist additional removal actions (if required) would also be undertaken to ensure the establishment of desirable plant communities. The project proponent would not be responsible for replacement of plants that may be removed or damaged by others.

MONITORING YEAR	FIRST REMOVAL ACTION	SECOND REMOVAL ACTION	THIRD REMOVAL ACTION
YEAR-1	on or about April 15, 202x+1	on or about June 1, 202x+1	on or about August 30, 202x+1
YEAR-2	on or about April 15, 202x+2	on or about June 1, 202x+2	on or about August 30, 202x+2
YEAR-3	on or about April 15, 202x+3	on or about June 1, 202x+3	on or about August 30, 202x+3
YEAR-5	on or about April 15, 202x+5	on or about June 1, 202x+5	on or about August 30, 202x+5
YEAR-7	on or about April 15, 202x+7	on or about June 1, 202x+7	on or about August 30, 202x+7
YEAR-9	on or about April 15, 202x+9	on or about June 1, 202x+9	on or about August 30, 202x+9

* based on a fall 202x implementation

CONTINGENCY PLAN

As a contingency, should the proposed *Stream Corridor Restoration and Enhancement Program* fail to meet the performance criteria, the project proponent would undertake required remedial actions. Where plant survival is the failing component, the project proponent shall replant and ensure the success of this second planting which would be held to the same standard of success as measured by threshold criteria and monitoring processes. Where non-native, invasive shrubs exceed 10% aerial coverage the project proponent would undertake removal actions. Such removal actions shall be completed using hand tools or pulling the plants by hand to remove the invasive vegetation without disrupting the soil profile. All cut or pulled vegetation would be removed from the restoration area and disposed in an approved location. Herbicides shall only be used following approval by the City. If used, all herbicide application shall be completed by a licensed professional. Should additional remedial actions be required the project proponent would meet with the City to establish and define actions to be taken to meet the desired goal of this program.

TEMPORARY IRRIGATION

The project proponent would ensure that a minimum of **one (1) inch of water is supplied each week** to the restoration area between May 1 and October 15 for a least the first three years following initial planting. The calculated amount of required water would include both natural rainfall and temporary irrigation. The need for additional years of irrigation would be determined based on site conditions and overall plant survival. The amount of water supplied to the restoration area would be increased if onsite monitoring defines such a need.

Irrigation would be provided via a temporary system placed on the ground surface within the restoration areas. The system would allow for a minimum of 10% overlap of coverage between sprinklers and the sprinklers would be a minimum of four (4) feet above ground. The project team would employ a landscape contractor to install, operate, and maintain the irrigation system. All actions would also be monitored onsite by the project biologist. When deemed appropriate and with authorization by the City, the temporary irrigation system would be removed and disposed of at an approved facility.

PLANTING NOTES

All plant materials utilized within the restored areas would be native to the Puget Sound Region. The onsite biologist would inspect plant materials to assure the appropriate plant schedule and plant characteristics are met. The project proponent would warrant that all plants would remain alive and healthy for a period of one year following completion of planting activities. The project proponent would replace all dead and unhealthy plants with plants of the same specifications.

FINANCIAL GUARANTEE

The project proponent would provide the City of Puyallup a financial guarantee defined in two parts. Part One (Implementation Guarantee) would be associated with the initial onsite elements of the *Stream Corridor Restoration and Enhancement Program*. Part Two (Performance Guarantee) would be associated with the *Performance Monitoring and Maintenance Program*. These guarantees would be held by the City and be equal to 125% of the actual estimated costs for identified activities. This increased percentage would allow for adequate funds to be available as a contingency should actions be required to meet the goals of these plans. The Implementation Guarantee shall be deemed to be released by the City upon the successful completion of the initial onsite elements and the acceptance if the Implementation Report by the City of Puyallup. The Performance Guarantee would be deemed to be released upon meeting the established performance criteria and acceptance by the City of the required reporting documents.

Implementation Guarantee

TASK	BUDGET
Onsite identification of work areas by surveyor team and placement of protective work area fencing.	$4,500.00
Removal of invasive vegetation and tilling for decompaction	$6,250.00
Silt fencing and installation (approximately 1,250 linear feet)	$7,000.00
Grading to create stream corridors, with associated wetland and buffers	$6,500.00
Obtain and placement of habitat features	$17,000.00
1,400 trees (2 gallon) and installation ($20/each)	$28,000.00
3,000 shrubs (1 gallon) and installation ($12.50/each)	$37,500.00
4,400 emergent plugs and installation ($1.50/each)	$6,600.00
Outer buffer boundary fence and installation ($17/linear foot)	$6,800.00
Temporary irrigation system	$3,400.00
Biologist/landscape architect implementation oversight	$4,000.00
Production of *Implementation Report*	$1,800.00
SUB-TOTAL	$129,350.00
Required 25% contingency	$32,337.50
IMPLEMENTATION GUARANTEE TOTAL	**$161,687.50**

Performance Guarantee

TASK	BUDGET
Year-One onsite monitoring with expenses Two times for plants - Annual report with photos	$3,500.00
Year-Two onsite monitoring with expenses Two times for plants - Annual report with photos	$3,500.00
Year-Three onsite monitoring with expenses One time for plants - Annual report with photos	$2,000.00
Year-Five onsite monitoring with expenses One time for plants - Annual report with photos	$2,000.00
Year-Five survey of mitigation area	$4,750.00
Year-Seven onsite monitoring with expenses One time for plants - Annual report with photos	$2,500.00
Year-Ten onsite monitoring with expenses One time for plants - Annual report with photos	$2,500.00
Temporary Irrigation Program - One inch of water per week between May 1st and October 15th for years one, two, and three.	$7,200.00
Invasive Vegetation Removal - Three times (early April, early June, mid-August) for years one, two, three, five, seven, nine	$9,000.00
SUB-TOTAL	$35,950.00
Required 25% contingency	$11,237.50
PERFORMANCE GUARANTEE TOTAL	**$47,187.50**

STANDARD OF CARE

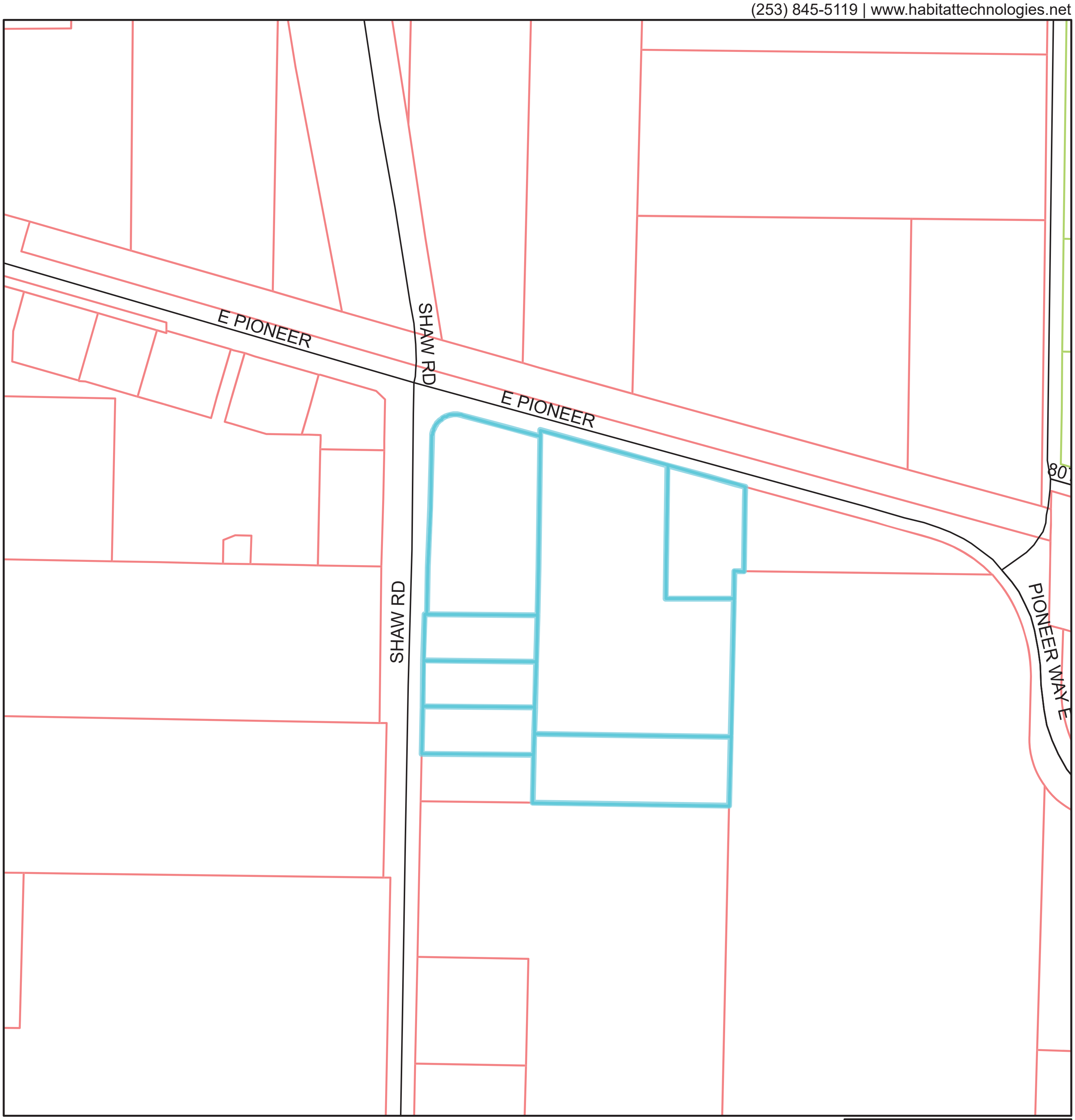
This document has been completed by Habitat Technologies for the use by **Mr. Greg Hellie @ East Town Crossing**. Prior to extensive site planning the findings documented in this report should be reviewed, verified, and approved by City of Puyallup and potentially other resource and permitting agency(s) staff. Habitat Technologies has provided professional services that are in accordance with the degree of care and skill generally accepted in the nature of the work accomplished. No other warranties are expressed or implied. Habitat Technologies is not responsible for design costs incurred before this document is approved by the appropriate resource and permitting agencies.

Bryan W. Peck	Thomas D. Deming
Bryan W. Peck Senior Wetland Biologist	Thomas D. Deming, SPWS Habitat Technologies

FIGURES

Figure 1 Site Vicinity

Habitat Technologies
P.O.Box 1088
Puyallup, WA 98371
(253) 845-5119 | www.habitattechnologies.net



Legend

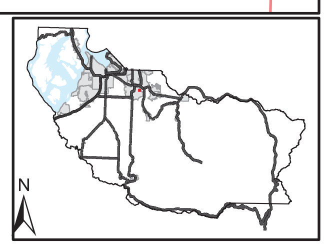
Roads

Condominium

Other

Tax Parcels

Base Parcel



0 80 160 320 Feet

1:3,600

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

Date: 6/7/2021 01:25 PM

ExpertGPS

Figure 2 Preliminary Offsite Wetland Graphic

50 ft

MN
15°13'

REFERENCE AND BACKGROUND LITERATURE

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United States Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey. 2016 http://vewsoilsurvey.nrcs.usda.gov/app/newfeatures.2.3.htm.

US Fish and Wildlife Service. Stream Visual Assessment Manual. https://www.fws.gov.

US Fish and Wildlife Service National Wetland Inventory Mapper, 2016 (for NWI wetland mapping): http://www.fws.gov/wetlands/Data/Mapper.html.

Washington State Department of Ecology. 1997. Washington State Wetlands Identification and Delineation Manual. Publication Number 96-94.

Washington State Department of Fish and Wildlife Priority Habitats and Species Maps 2016 http://wdfw.wa.gov/mapping/phs/

Washington State Department of Fish and Wildlife SalmonScape Mapping System, 2016 (for fish presence): http://apps.wdfw.wa.gov/salmonscape/map.html

Washington State Department of Natural Resources FPARS Mapping System, 2016 (for stream typing): http://fortess.wa.gov/dnr/app1/fpars/viewer.htm

APPENDIX A – Offsite Field Data Worksheets

(Wetland Determination Data Forms)

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO1

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	80	yes	FACW
2. Holcus lanatus	Trace	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	<90	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	25	yes	FAC
2.			
	25	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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		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:

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

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

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

Remarks: reed canary grass in prior managed farmland

SOIL

Sampling Point: SPO1

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
0-6	10YR 3/3	100					Sl	
6-11	10YR 3/3	98	10YR 4/6	2	D	M	Sl	
11-24	10YR 3/2	95	10YR 4/6	5	D	M	Sl	

[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: NO Prominent field indicators of hydric soils.

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

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

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO2

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Alnus rubra	20	yes	FAC
2. Rubus armeniacus	20	yes	FAC
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	80	yes	FACW
2. Equisetum arvense	trace	no	FAC
3. Cirsium arvensis	Trace	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (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:

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

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

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

Remarks: prior farmland

SOIL

Sampling Point: SPO2

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
0-16	10YR 3/3	100					Sl	
16-24	10YR 3/3	98	10YR 4/6	2	D	M	SL	

[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: No prominent field indicators of hydric soils.

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): ________

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

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

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO3

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	15	yes	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	80	yes	FACW
2. Equisetum arvense	15	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum ______			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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		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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Wetland dominanted plant community.

SOIL

Sampling Point: SPO3

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
0-24	10YR 3/2	100					SL	

[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: No prominent field indicators of hydric soils.

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): __________

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

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

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO4

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	95	yes	FACW
2. Equisetum arvense	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	0	= Total Cover	
% Bare Ground in Herb Stratum _____			

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:

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

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

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

Remarks: prior farmland

SOIL

Sampling Point: SPO4

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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					SL	
8-24	10YR 3/3	98	10YR 4/6	2	D	M	SL	

[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: NO Prominent field indicators of hydric soils.

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): __________

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

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

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO5

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

NOT ABLE TO DEFINE HYDROLOGY - PRELIMINARY DEFINED AS WETLAND

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	100	yes	FACW
2. Equisetum arvense	<2	no	FAC
3. Polygonum cuspidatum	trace	no	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	trace	no	FAC
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum _____			

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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Reed canarygrass dominated old farmland

SOIL

Sampling Point: SP5

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 %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	99	10YR 4/6	<1	D	M	SL	
12-24	10YR 3/2	98	10YR 4/6	<2	D	M	SL	

[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: NOT VERY Prominent field indicators of hydric soils.

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): ________

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

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

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

Remarks: No prominent field indicators of wetland hydrology. old field ditch to west.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO6

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ____

Subregion (LRR): A Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	5	yes	FAC
2.			
	5	= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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	____	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:

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

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

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

Remarks: reed canarygrass dominated old managed ag. land

SOIL

Sampling Point: SPO6

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
0-14	10YR 3/2	100					SL	
14-24	10YR 3/3	100					SL	

[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: No prominent field indicators of hydric soils.

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO7

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	20	yes	FAC
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	85	yes	FACW
2. Equissetum arvense	<5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	90		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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 ____	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:

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

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

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

Remarks: reed canarygrass dominanted plant community.

SOIL

Sampling Point: SPO7

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
0-13	10YR 3/2	100					Sl	
13-24	10YR 3/3	99	10YR 4/6	1	D	M	SL	

[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: No prominent field indicators of hydric soils.

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): ____________

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

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

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO8

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland over buried pipeline, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	20	yes	FAC
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	30	yes	FACW
2. Equissetum arvense	15	no	FAC
3. Dactylis glomerata	30	yes	FACU
4. Agrostis tenuis	20	yes	FAC
5. Poa spp.	<10	no	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (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:

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

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

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

Remarks: managed plant community over pipeline corridor

SOIL

Sampling Point: SPO8

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
0-5	10YR 3/2	100					GSL	
5-24	10YR 3/4	100					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: No prominent field indicators of hydric soils.

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): ________

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

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

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO9

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland over managed buried pipeline, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	20	yes	FACW
2. Equissetum arvense	15	no	FAC
3. Festuca spp.	20	yes	FAC
4. Holcus lanatus	20	yes	FAC
5. Poa spp.	20	yes	FAC
6. Hypochaeris lanatum	<10	no	FACU
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	trace	no	FAC
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: mixed grasses over manaed pipeline corridor

SOIL

Sampling Point: SPO9

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 3/2	100					Sl	
7-24	10YR 3/4	100					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: No prominent field indicators of hydric soils.

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPO10

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	40	yes	FACW
2. Circium arvensis	35	yes	FAC
3. Dactylis glomerata	35	yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	0 = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: once managed farmland

SOIL

Sampling Point: SPO10

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 %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Sl	
12-24	10YR 3/3	99	10YR 4/6	<1	D	M	SL	

[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: No prominent field indicators of hydric soils.

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): ________

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPT5

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

NOT ABLE TO DEFINE HYDROLOGY - PRELIMINARY DEFINED AS WETLAND

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	______ = Total Cover		
% Bare Ground in Herb Stratum ______			

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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Reed canarygrass dominated old farmland

SOIL

Sampling Point: SPT5

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 %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	99	10YR 4/6	<1	D	M	SL	
15-24	10YR 3/2	98	10YR 4/6	2	D	M	SL	

[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: NOT VERY Prominent field indicators of hydric soils.

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): ________

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

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

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPT6

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

NOT ABLE TO DEFINE HYDROLOGY - PRELIMINARY DEFINED AS WETLAND

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum ____			

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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Reed canarygrass dominated old farmland

SOIL

Sampling Point: SPT6

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 %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	99	10YR 4/6	<1	D	M	SL	
14-24	10YR 3/2	98	10YR 4/6	2	D	M	SL	

[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: NOT VERY Prominent field indicators of hydric soils.

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):

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPT7

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1. Rubus armeniacus	30	yes	FAC
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	75	yes	FACW
2. Equissetum arvense	<5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	<80	= Total Cover	
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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		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:

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

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

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

Remarks: reed canarygrass dominanted plant community.

SOIL

Sampling Point: SPT7

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
0-11	10YR 3/2	100					Sl	
11-24	10YR 3/3	99	10YR 4/6	1	D	M	SL	

[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: No prominent field indicators of hydric soils.

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

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

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

Remarks: No prominent field indicators of wetland hydrology.

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPT8

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

NOT ABLE TO DEFINE HYDROLOGY - PRELIMINARY DEFINED AS WETLAND ALONG PROPERTY LINE

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	______ = Total Cover		
% Bare Ground in Herb Stratum ______			

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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Reed canarygrass dominated old farmland

SOIL

Sampling Point: SPT8

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
0-24	10YR 3/2	98	10YR 4/6	2	D	M	SL	

[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: Prominent field indicators of hydric soils.

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): ________

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

Wetland Hydrology Present? Yes ☐ No ☐

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

Remarks: No prominent field indicators of wetland hydrology. located in centerline of property boundary ditch. likely wetland hydrology

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

Project/Site: East Town Center City/County: City of Puyallup Sampling Date: 6 SEP 2022

Applicant/Owner: ______ State: WA. Sampling Point: SPT9

Investigator(s): Habitat Technologies Section, Township, Range: S26 T20 R04

Landform (hillslope, terrace, etc.): valley terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Briscot loam NWI classification: Poorly drained

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: prior managed farmland, also same plot reviewed on Sept 24, Oct 3, Oct 19, Oct 28, and Nov 7, 2022

NOT ABLE TO DEFINE HYDROLOGY - PRELIMINARY DEFINED AS WETLAND ALONG PROPERTY LINE

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 15ft radius)			
1. Phalaris arundinacea	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15ft radius)			
1.			
2.			
	______ = Total Cover		
% Bare Ground in Herb Stratum _____			

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:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Reed canarygrass dominated old farmland

SOIL

Sampling Point: SPT9

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
0-24	10YR 3/2	98	10YR 4/6	2	D	M	SL	

[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: Prominent field indicators of hydric soils.

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): __________

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

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

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

Remarks: No prominent field indicators of wetland hydrology. located in centerline of property boundary ditch. likely wetland hydrology

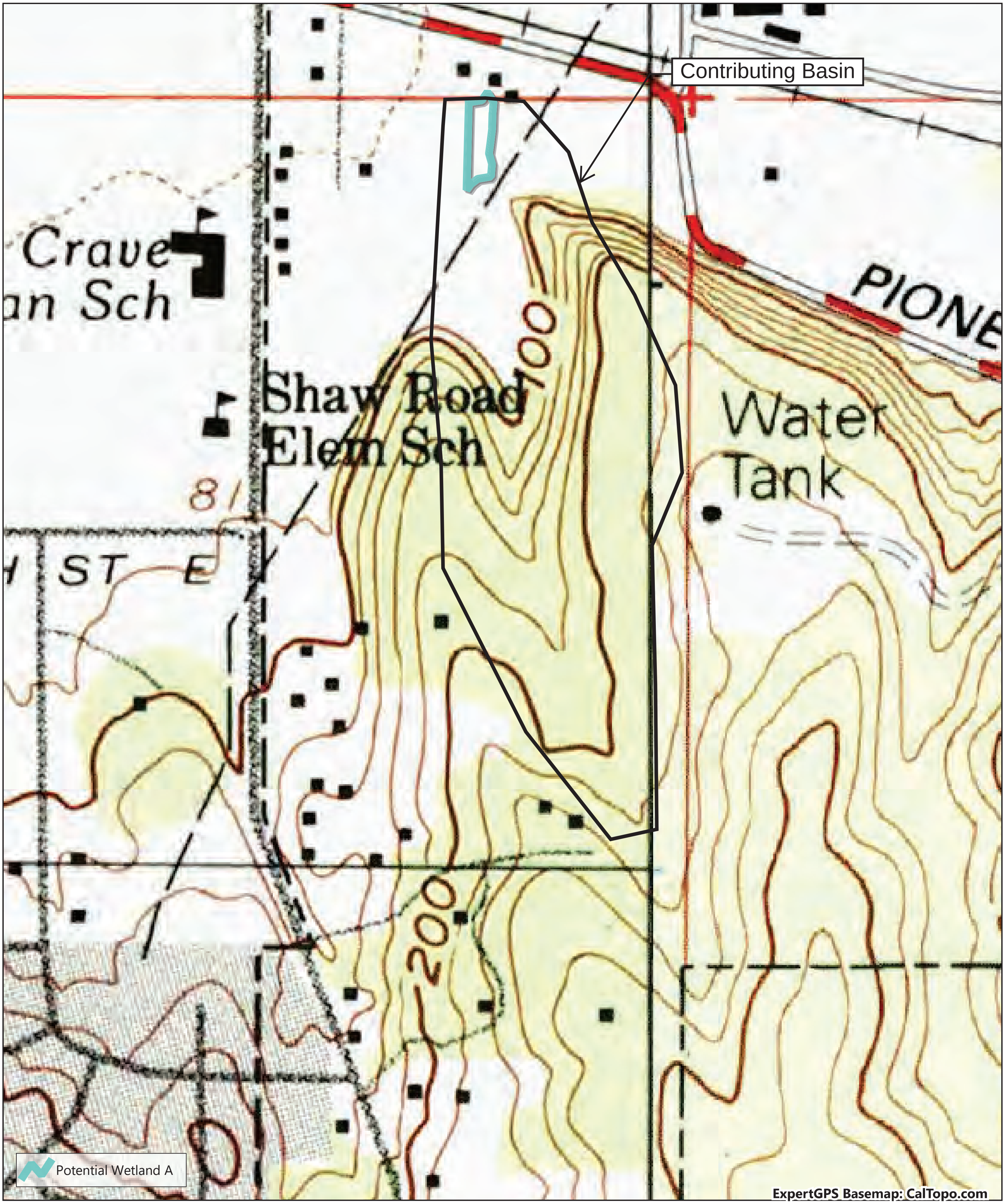
APPENDIX B – Offsite Wetland Rating Worksheet

ExpertGPS

Figure A1

ExpertGPS

Figure A2



ExpertGPS

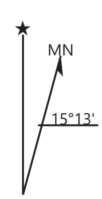
Figure A3

200 ft

MN
15°13'

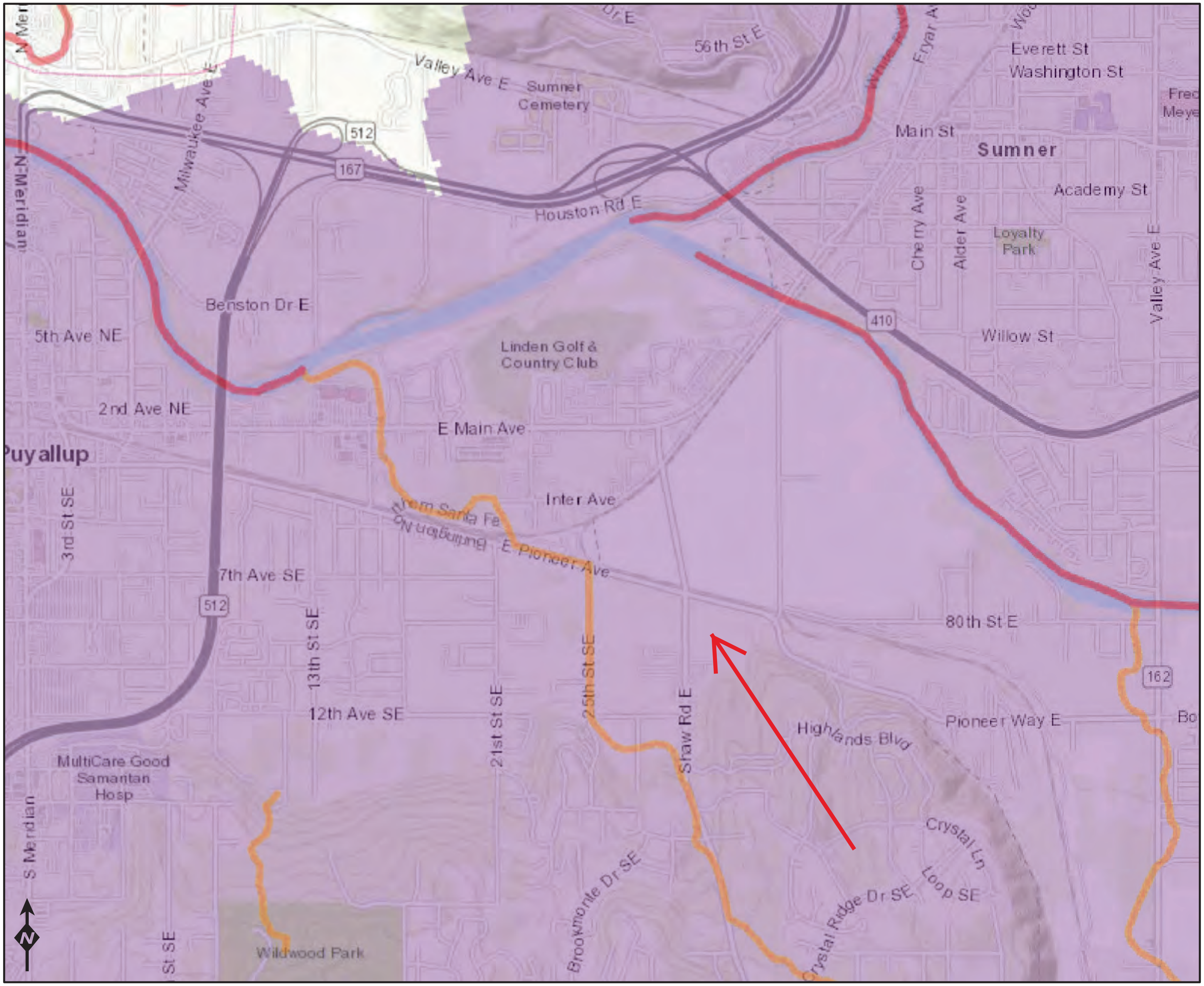
ExpertGPS

Figure A4



November 22, 2022

Figure W1



Assessed Water/Sediment

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

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

WQ Improvement Projects
- Approved
- In Development

Subbasins (12 digit HUCs)
- HUC boundary

Miles
0 0.23 0.45 0.9

Esri, NASA, NGA, USGS, FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 17 NOV 2022

Rated by Habitat Technologies Trained by Ecology? x Yes ___No Date of training 2014

HGM Class used for rating Depressional Wetland has multiple HGM classes? ___Y x N

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

OVERALL WETLAND CATEGORY III (based on functions x or special characteristics___)

1. Category of wetland based on FUNCTIONS

_______**Category I** – Total score = 23 - 27

_______**Category II** – Total score = 20 - 22

x **Category III** – Total score = 16 - 19

_______**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
			Circle the appropriate ratings	
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	**TOTAL**
Score Based on Ratings	7	5	4	16

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	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	x

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	A1
Hydroperiods	D 1.4, H 1.2	A2
Location of outlet *(can be added to map of hydroperiods)*	D 1.1, D 4.1	A2
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	A2
Map of the contributing basin	D 4.3, D 5.3	A3
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	A4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	W1
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	W1

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	N/A
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	N/A
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	N/A
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	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	9

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	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	1

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

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	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: X **2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 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	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 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	0
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit points = 5 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	3
Total for D 4 Add the points in the boxes above	5

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

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	2

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

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • 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	0
Total for D 6 Add the points in the boxes above	1

Rating of Value If score is: ___**2-4 = H** _X_**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
_X__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

0

H 1.2. Hydroperiods

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

____Permanently flooded or inundated	4 or more types present: points = 3
_X_Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
_X__Saturated only	1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland	
____Seasonally flowing stream in, or adjacent to, the wetland not more than 10%	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

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

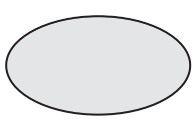
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

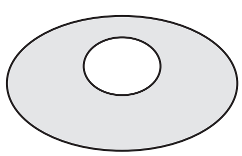
0

H 1.4. Interspersion of habitats

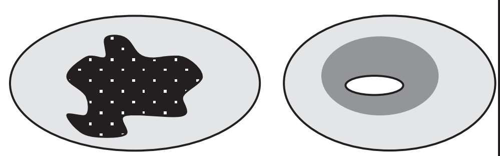
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points

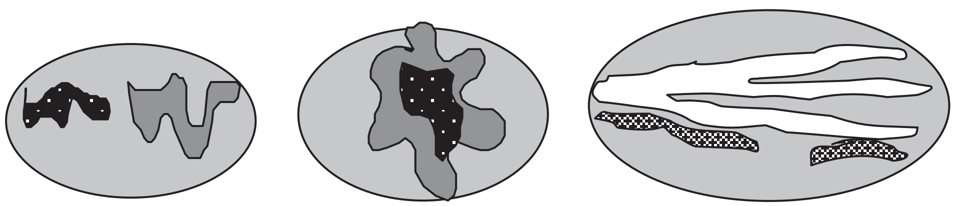


Low = 1 point



Moderate = 2 points

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



0

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*)	0
Total for H 1 — Add the points in the boxes above	1

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 12 **+** [(% moderate and low intensity land uses)/2] 3 **=** 15 % 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	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 16 **+** [(% moderate and low intensity land uses)/2] 12 **=** 28 % 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	0

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

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

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

Wetland name or number A

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

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

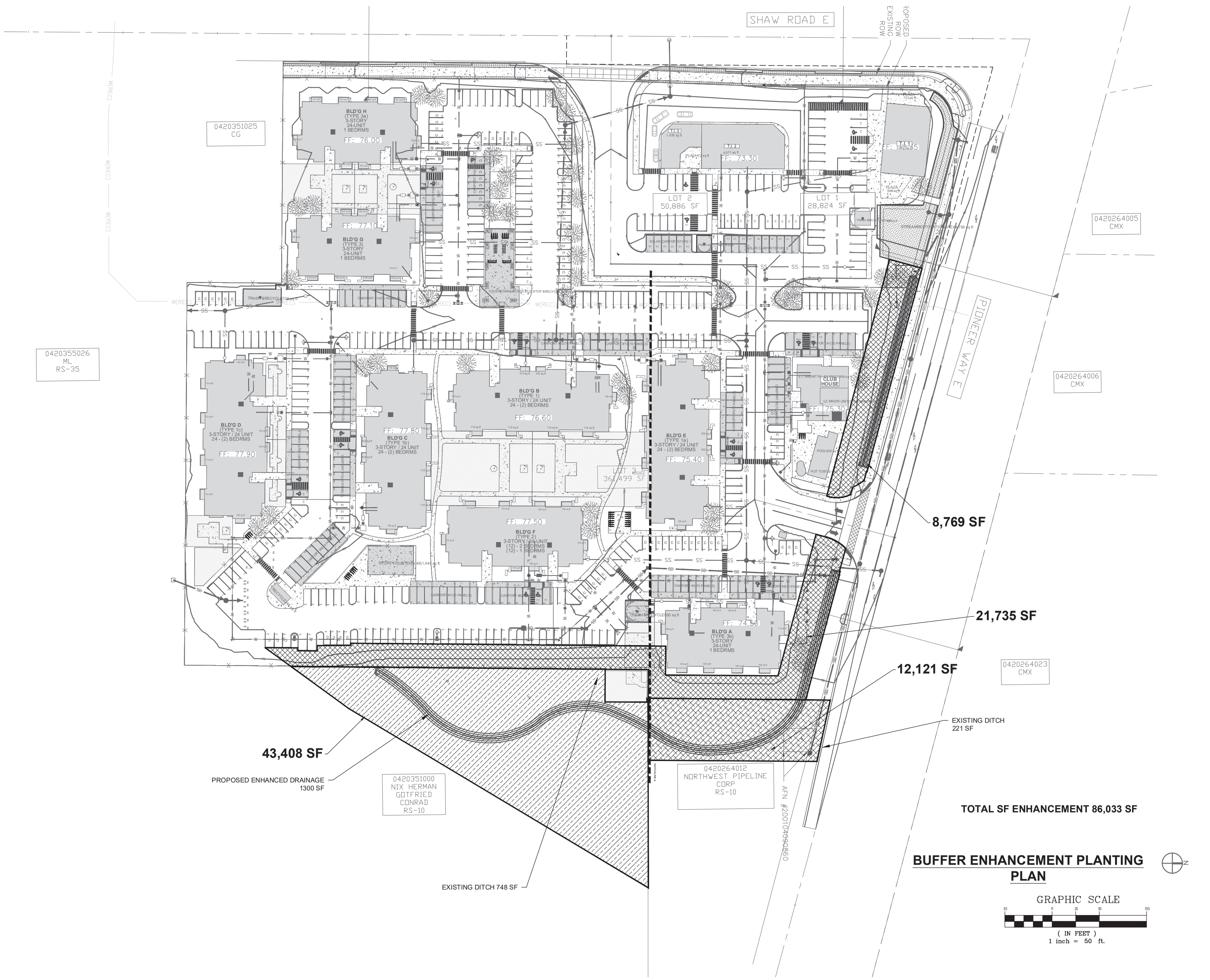
— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

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

— **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.

ATTACHMENT ONE – Stream Corridor Restoration Program



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

TOTAL SF ENHANCEMENT 86,033 SF

BUFFER ENHANCEMENT PLANTING PLAN

GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.

Nature By Design
Landscape Architecture
1520 Alameda Avenue, Suite B, Fircrest, WA 98466
www.naturebydesigninc.com
253.460.6067

PROJECT:
EAST TOWN CROSSING
PIONEER & SHAW RD
PUYALLUP WA
HABITAT TECHNOLOGIES

REVISIONS:
D. ADDED PLANTS BASED ON COMMENTS

DRAWING ISSUED FOR:
AGENCY REVIEW
DATE: NOVEMBER 30, 2022

STATE OF WASHINGTON
LICENSED LANDSCAPE ARCHITECT

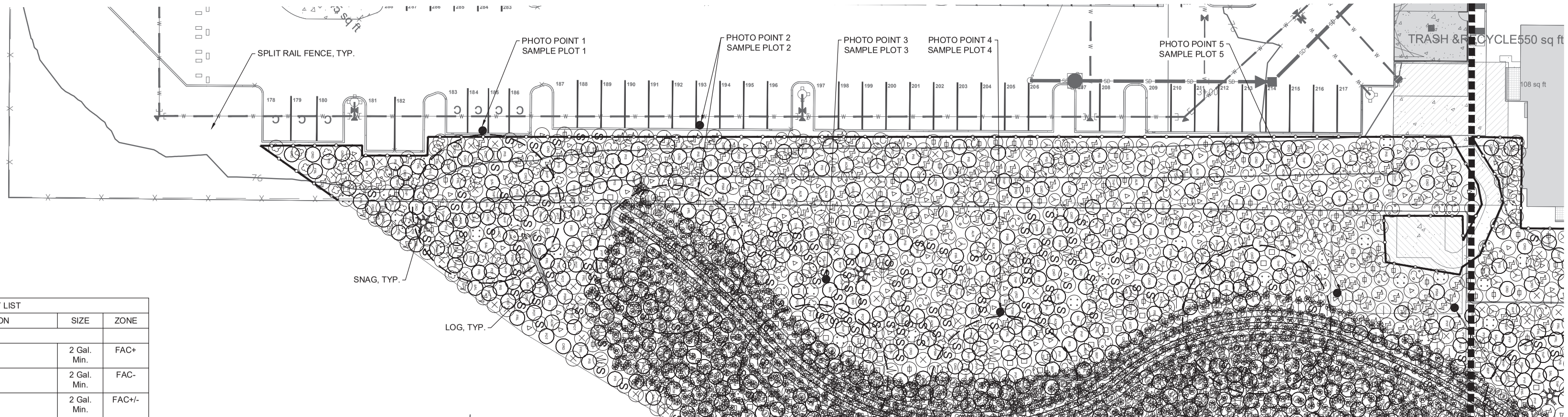
PROJECT NO:	2269
FILE NAME:	2269LSD
DRAWN BY:	KLO
CHECKED BY:	KLO
X-REFS:	CIVIL
PLOT SCALE:	1:1
DRAWING SCALES:	1:50

DRAWING CONTENTS
BUFFER ENHANCEMENT PLANTING PLAN

DRAWING NO.:
L1
1 OF

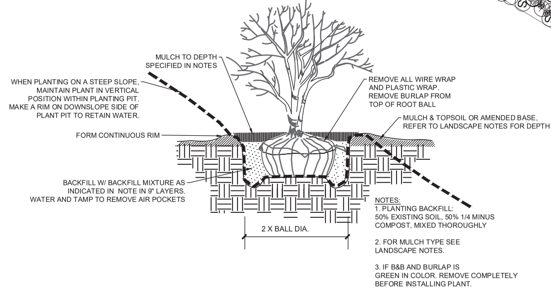
ORIG. SHEET SIZE 22X34

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



SYMBOL	QTY	DESCRIPTION	SIZE	ZONE
NATIVE PLANT LIST				
TREES				
	50	Acer macophyllum Big Leaf Maple	2 Gal. Min.	FAC+
	75	Alnus rubra Red Alder	2 Gal. Min.	FAC-
	76	Betula papyifera Western Paper Birch	2 Gal. Min.	FAC+/-
	225	Crataegus douglasii Western Hawthrone	2 Gal. Min.	FAC+
	200	Fraxinus latifolia Oregon Ash	2 Gal. Min.	FAC-
	125	Picea sitchensis Sitka Spruce	2 Gal. Min.	FAC+/-
	75	Popolus tremuloides Quaking Aspen	2 Gal. Min.	FAC+/-
	75	Pseudotsuga menziesii Douglas Fir	2 Gal. Min.	FAC+
	150	Pyrus fusca Crab Apple	2 Gal. Min.	FAC-
	75	Rhamnus purshiana Cascara	2 Gal. Min.	FAC+/-
	175	Salix lasandra Pacific Willow	2 Gal. Min.	FAC-
	99	Thuja plicata Western Red Cedar	2 Gal. Min.	FAC+/-
	1400	TOTAL BUFFER ENHANCEMENT TREES		
SHRUBS				
	175	Acer circinatum Vine Maple	1 Gal. Min.	FAC+
	200	Berberis aquifolium Tall Oregon Grape	1 Gal. Min.	FAC+
	175	Corylus cornuta Hazlenut	1 Gal. Min.	FAC+/-
	400	Cornus stolonifera Red Osier Dogwood	1 Gal. Min.	FAC-
	150	Holodiscus discolor Oceansoray	1 Gal. Min.	FAC+
	350	Lonicera involucrata Black Twinberry	1 Gal. Min.	FAC+/-
	300	Physocarpus capitatus Ninebark	1 Gal. Min.	FAC-
	150	Ribes sanguineum Flowering Currant	1 Gal. Min.	FAC+
	150	Rosa gymnocarpa Wild Rose	1 Gal. Min.	FAC+
	350	Rosa nutkana Nootka Rose	1 Gal. Min.	FAC+/-
S	400	Salix sitchensis Sitka Willow	1 Gal. Min.	FAC-
	200	Symphoricarpos albus Snowberry	1 Gal. Min.	FAC+
	3000	TOTAL BUFFER ENHANCEMENT SHRUBS		
EMERGENTS Locate in stream channel and outward				
	1700	Carex obnupta Slough Sedge	4" Plug @ 5' O.C.	FAC-
	1700	Scirpus acutus Hardstem Bulrush	4" Plug @ 5' O.C.	FAC-
	1000	Scirpus microcarpus Small Fruited Bulrush	4" Plug @ 5' O.C.	FAC-
	4400			

4400 QUANTITY - ALL TREES AND SHRUBS (2 AND 1 GAL.) SHALL BE SPACED AT 5' ON CENTER.
ADDTIONALLY 4400 EMERGENTS SHALL BE SPACED AT 5' ON CENTER THROUGH THE STREAM CHANNEL AND OUTWARD.



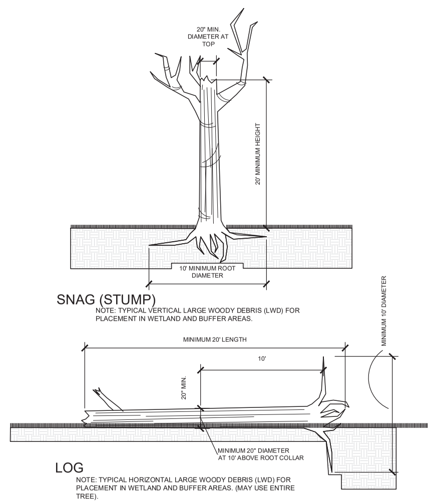
SHRUB PLANTING DETAIL

No Scale

UPLAND BUFFER AREA SOIL MOISTURE CONDITIONS

COMMON NAME	SCIENTIFIC NAME	PERCENT BY WEIGHT
COLONIAL BENTGRASS	Agrostis tenuis	15%
TALL FESCUE	Festuca arundinacea	40%
PERENNIAL RYEGRASS	Lolium perenne	30%
CREEPING RED FESCUE	Festuca rubra	15%

APPLY AT THE RATE OF 120 LBS PER ACRE.
REFER TO THE KEY MAP FOR WETLAND AND UPLAND PLANTING AREAS.



SNAG AND LOG FEATURE DETAIL

ENLARGED SOUTH BUFFER ENHANCEMENT PLANTING PLAN

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

Nature By Design Landscape Architecture
1020 Alameda Avenue, Suite B, Fircrest, WA 98466
www.naturebydesigninc.com
253.460.6067

PROJECT:
EAST TOWN CROSSING
PIONEER & SHAW RD
PUYALLUP WA
HABITAT TECHNOLOGIES

REVISIONS:
D. ADDED PLANTS BASED ON COMMENTS

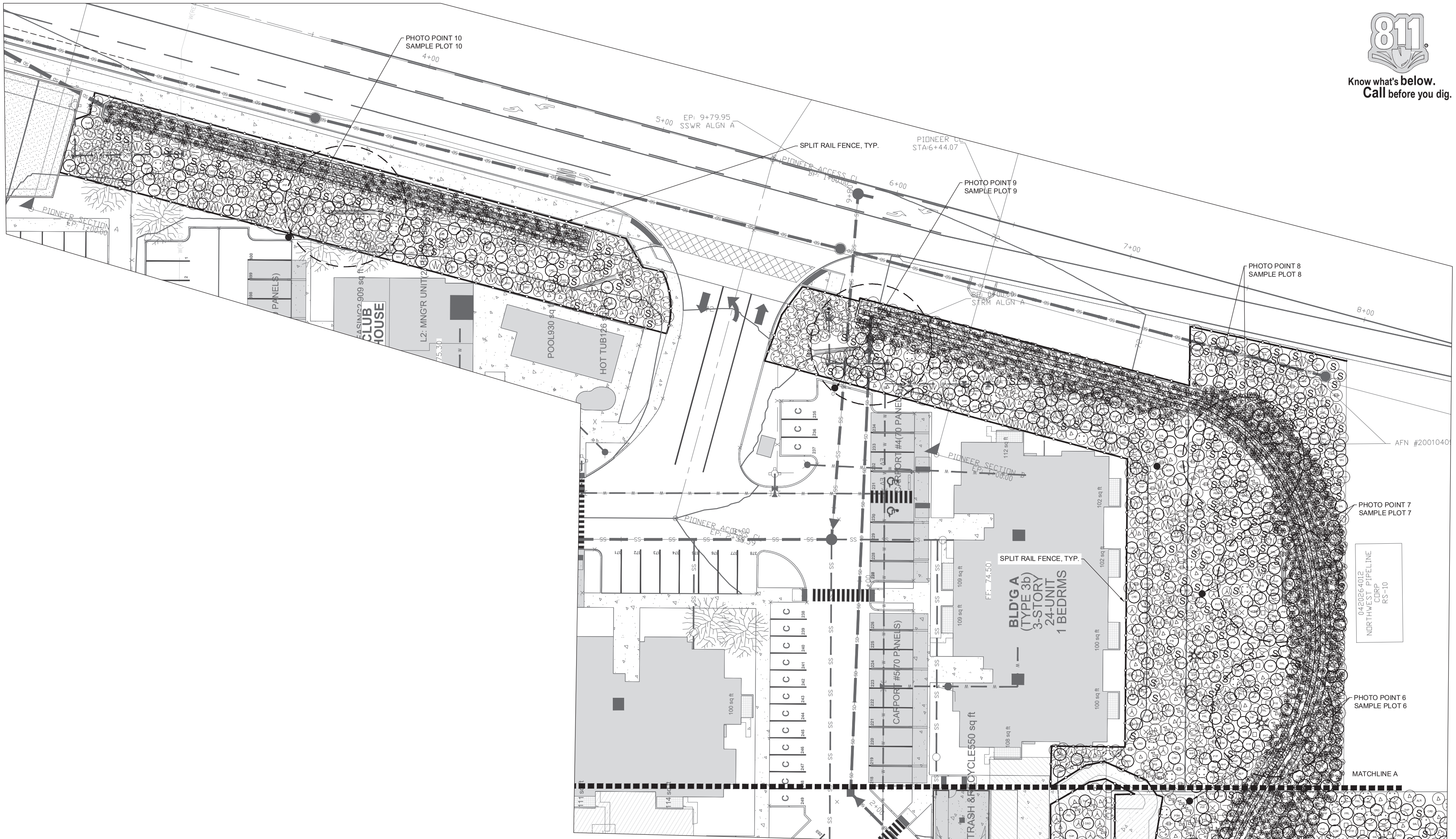
DRAWING ISSUED FOR:
AGENCY REVIEW
DATE: NOVEMBER 30, 2022

PROJECT NO:	2269
FILE NAME:	2269LSD
DRAWN BY:	KLO
CHECKED BY:	KLO
X-REFS:	CIVIL
PLOT SCALE:	1:1
DRAWING SCALES:	1:20

DRAWING CONTENTS
SOUTH ENLARGED BUFFER ENHANCEMENT PLANTING PLAN

DRAWING NO.:
L2
2 OF

ORIG. SHEET SIZE 22X34



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

UPLAND BUFFER AREA SOIL MOISTURE CONDITIONS		
COMMON NAME	SCIENTIFIC NAME	PERCENT BY WEIGHT
COLONIAL BENTGRASS	Agrostis tenuis	15%
TALL FESCUE	Festuca arundinacea	40%
PERENNIAL RYEGRASS	Lolium perenne	30%
CREEPING RED FESCUE	Festuca rubra	15%

APPLY AT THE RATE OF 120 LBS PER ACRE.
REFER TO THE KEY MAP FOR WETLAND AND UPLAND PLANTING AREAS.

NORTH BUFFER ENHANCEMENT PLANTING PLAN

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

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253.460.6067

PROJECT:
EAST TOWN CROSSING
PIONEER & SHAW RD
PUYALLUP WA
HABITAT TECHNOLOGIES

REVISIONS:
D. ADDED PLANTS BASED ON COMMENTS

DRAWING ISSUED FOR:
AGENCY REVIEW
DATE: NOVEMBER 30, 2022

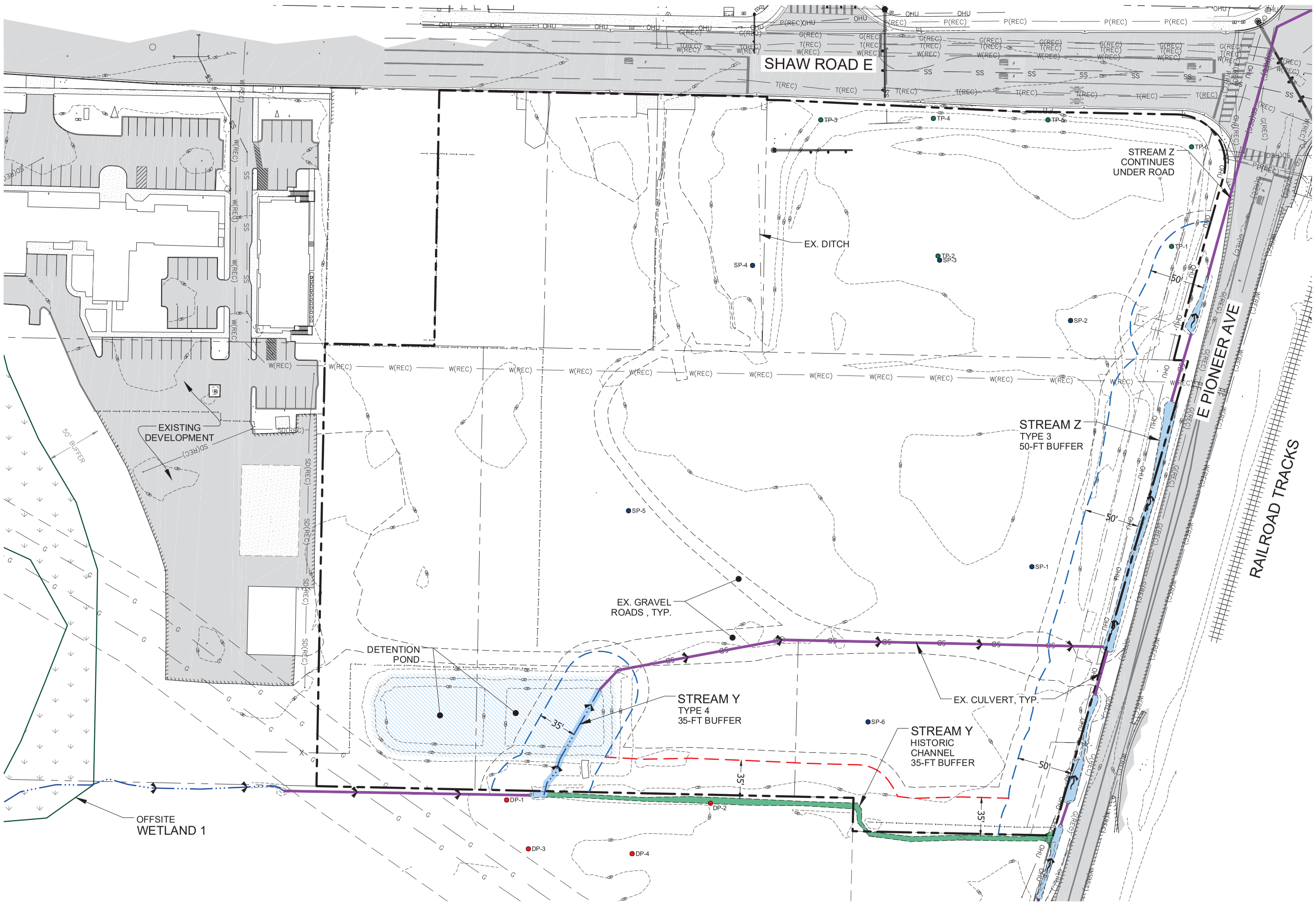
PROJECT NO:	2269
FILE NAME:	2269LSD
DRAWN BY:	KLO
CHECKED BY:	KLO
X-REFS:	CIVIL
PLOT SCALE:	1:1
DRAWING SCALES:	1:20

DRAWING CONTENTS
NORTH ENLARGED BUFFER ENHANCEMENT PLANTING PLAN

DRAWING NO.:
L3
3 OF

ORIG. SHEET SIZE 22X34

Appendix B – Proposed Site Plan Exhibits



0 50 100 200
GRAPHIC SCALE
1"= 50'

PLAN LEGEND

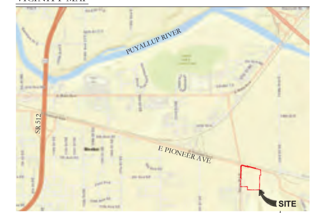
- PROPERTY LINE
- DP-# DATA PLOT LOCATION (SOUNDVIEW CONSULTANTS)
- SP-# DATA PLOT LOCATION (HABITAT TECHNOLOGIES 10/14/2021)
- TP-# DATA PLOT LOCATION (JOHN COMIS ASSOCIATES, LLC 3/24/2020)
- EXISTING STREAM CENTERLINE
- APPROXIMATE STREAM ORDINARY HIGH WATER LINE (SURVEYED TOE OF BANK)
- EXISTING STREAM BUFFER
- 10-FT BUILDING SETBACK
- EXISTING CULVERT
- HISTORIC STREAM ORDINARY HIGH WATER LINE (OHW)
- HISTORIC STREAM BUFFER
- DITCH CENTERLINE
- EXISTING 2-FT CONTOURS

STREAM LEGEND

STREAM Y OPEN CHANNEL	110 LF
STREAM Y IN CULVERT	471 LF
STREAM Z OPEN CHANNEL	421 LF
STREAM Z IN CULVERT	127 LF

NOTE
1. OFFSITE WETLAND 1 DELINEATION COMPLETED BY JOHN COMIS ASSOCIATES, LLC IN REPORT DATED MARCH 24, 2020.
2. STREAM TYPING COMPLETED BY HABITAT TECHNOLOGIES IN REPORT DATED OCTOBER 14, 2021

VICINITY MAP



SOURCE: ESRI (ACCESSED XX/XX/2022)

LOCATION

THE SE & NE¼ OF SECTIONS 26 & 35,
TOWNSHIP 20N, RANGE 04E, WM
LAT: 47.184068° N LON: -122.254753° W
IN: PUYALLUP NEAR: ----

APPLICANT/OWNER

NAME: ASH DEVELOPMENT
ADDRESS: 1001 SHAW ROAD
PUYALLUP, WA 98371
CONTACT: GREG HELLE
PHONE: (253) 606-6799
E-MAIL: GREG.HELLE@ABSHERCO.COM

ENVIRONMENTAL CONSULTANT

SOUNDVIEW CONSULTANTS LLC
2907 HARBORVIEW DRIVE
GIG HARBOR, WA 98355
(253) 514-8952

SHEET INDEX

SHEET	SHEET TITLE
1.0	EXISTING CONDITIONS
2.0	PROPOSED SITE PLAN (PHASE I)
2.1	PROPOSED SITE PLAN, IMPACTS & MITIGATION (PHASE II)

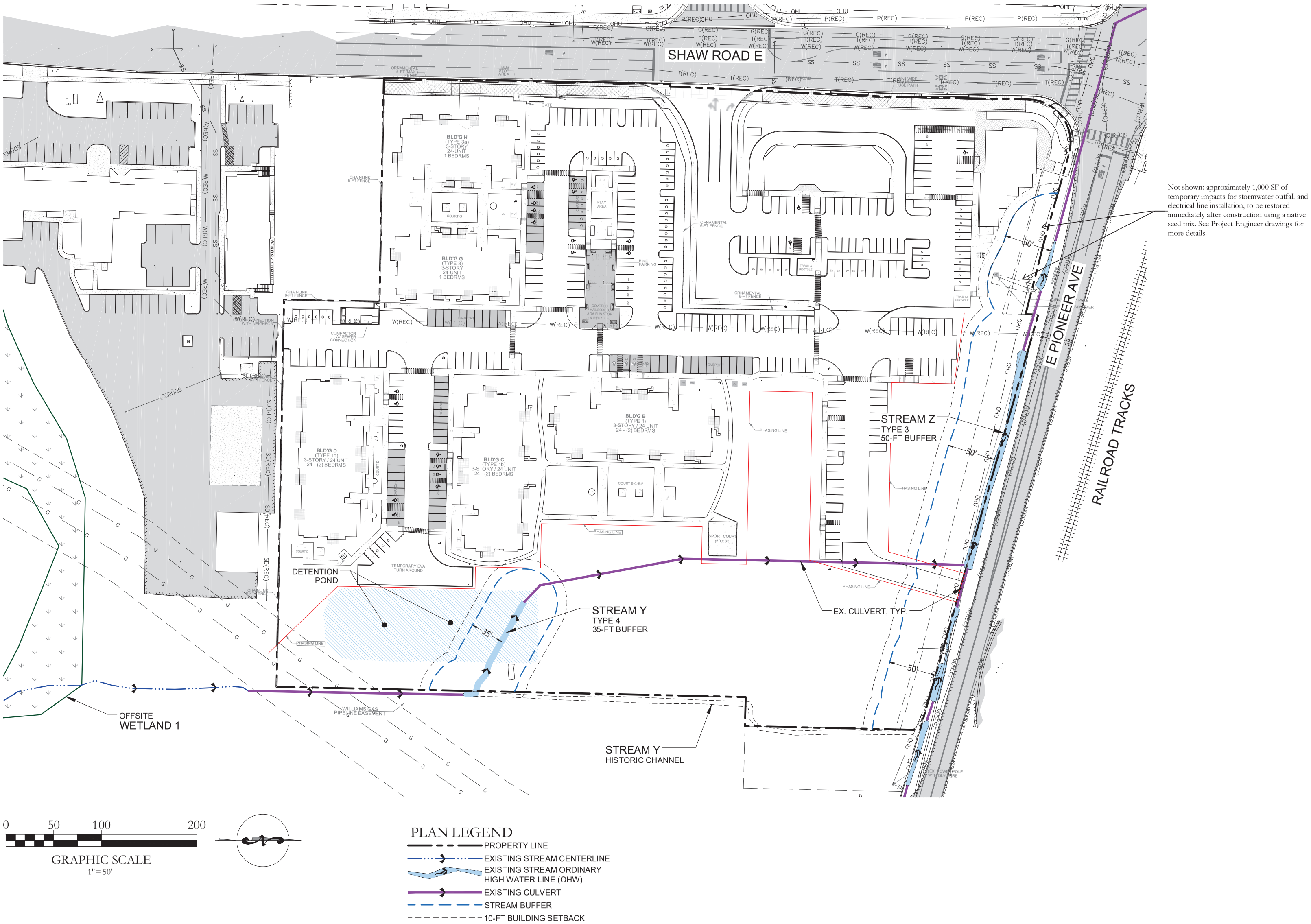
SOURCE:
McInnis ENGINEERING
535 Dock Street, Suite 111, Tacoma, WA 98402
253.414.1992
mcinnisengineering.com

Soundview Consultants
Environmental Assessment • Planning • Land Use Solutions
2907 HARBORVIEW DRIVE
GIG HARBOR, WASHINGTON 98335
P. 253.514.8952
F. 253.514.8954
WWW.SOUNDVIEWCONSULTANTS.COM

EAST TOWN CROSSING
2902 E PIONEER ROAD
PUYALLUP, WA 98374
PIERCE COUNTY PARCEL NUMBERS:
0420264021, 0420264053, 0420264054, 0420351030,
0420351029, 0420351026, & 0420351066

DATE: 4/6/2023
JOB: 2544.0001
BY: MW
SCALE: AS SHOWN
SHEET: 1.0

PROPOSED SITE PLAN (PHASE I)



SOURCE:

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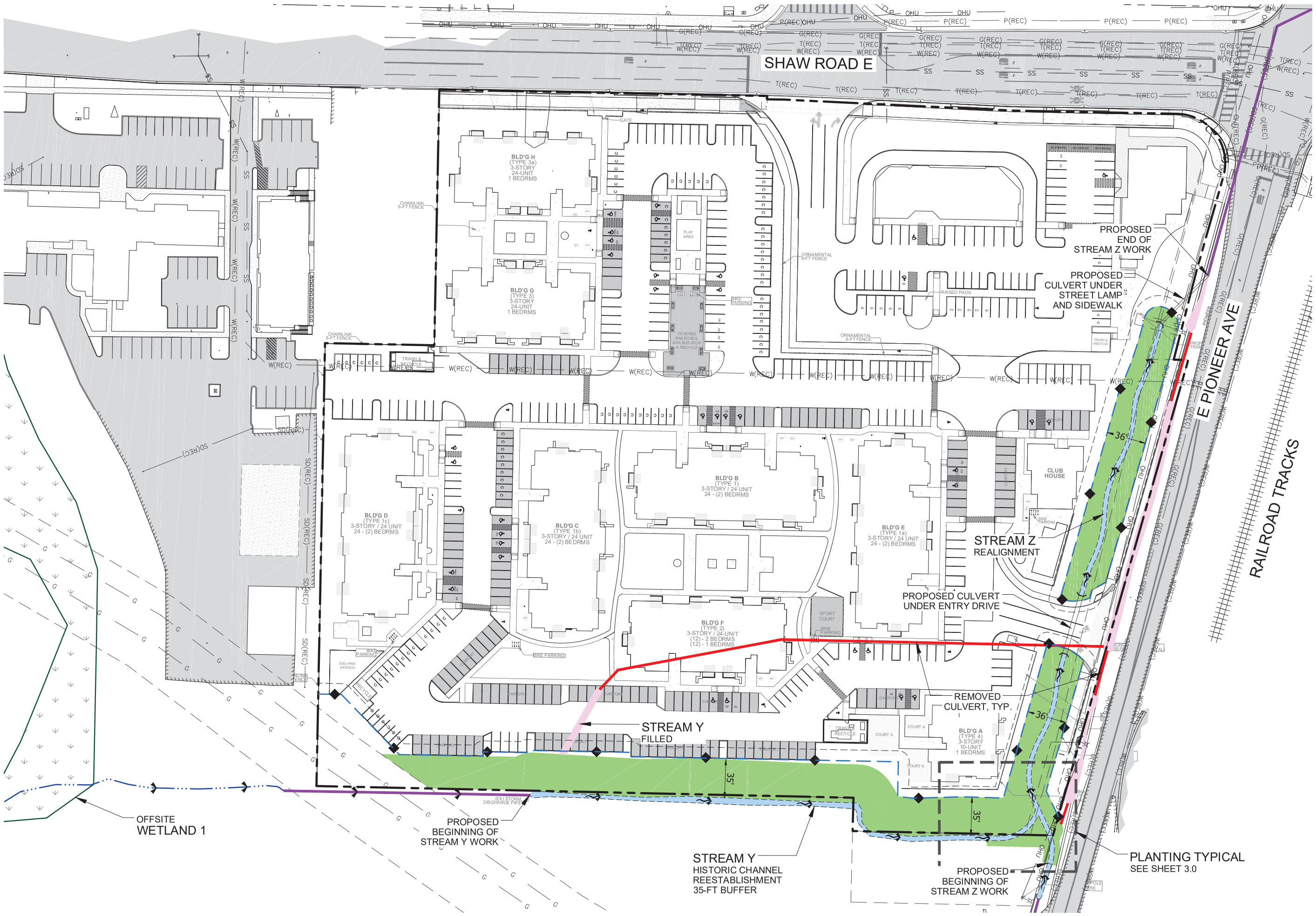
DATE: 4/6/2023
JOB: 2544.0001
BY: MW
SCALE: AS SHOWN
SHEET: 2.0

PROPOSED SITE PLAN, IMPACTS & MITIGATION (PHASE II)



0 50 100 200
GRAPHIC SCALE
1" = 50'

PLAN LEGEND

- PROPERTY LINE
- EXISTING STREAM CENTERLINE
- PROPOSED STREAM ORDINARY HIGH WATER LINE (OHW)
- 10-FT BUILDING SETBACK
- EXISTING / RETAINED CULVERT
- PROPOSED CULVERT
- STREAM FILL
- REMOVED CULVERT

MITIGATION LEGEND

- POST-CONSTRUCTION STREAM BUFFER/ CRITICAL AREA FENCE (1,580 LF)
- CRITICAL AREA SIGN (17 SIGNS)
- STREAM BUFFER RESTORATION/ENHANCEMENT (34,362 SF)

STREAM LEGEND

	EXISTING	PROPOSED
STREAM Y OPEN CHANNEL	110 LF	496 LF
STREAM Y IN CULVERT	471 LF	0 LF
STREAM Z OPEN CHANNEL	421 LF	463 LF
STREAM Z IN CULVERT	127 LF	117 LF

SOURCE:

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535 Dock Street, Suite 111, Tacoma, WA 98402
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EAST TOWN CROSSING
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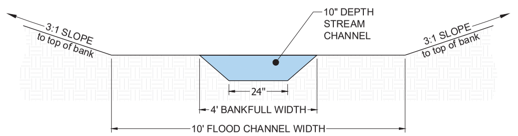
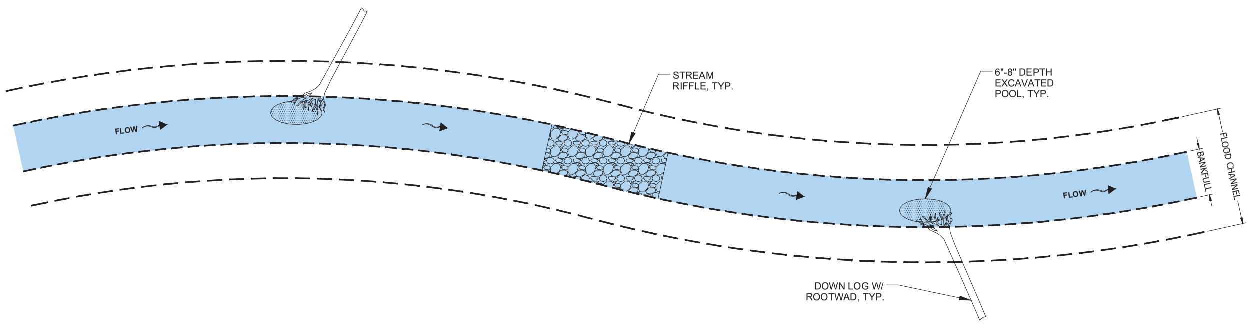
PIERCE COUNTY PARCEL NUMBERS:
0420264021, 0420264053, 0420264054, 0420351030, 0420351029, 0420351026, & 0420351066

DATE: 4/6/2023
JOB: 2544.0001
BY: MW
SCALE: AS SHOWN
SHEET: 2.1



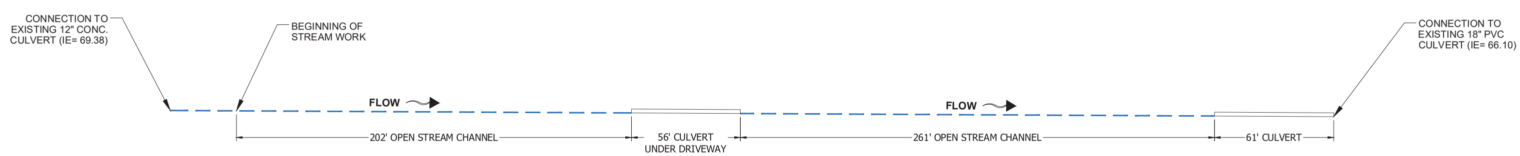
PROPOSED STREAM CROSS SECTION, TYP.

SCALE: 1"=2'



PROPOSED STREAM PLAN VIEW, TYP.

SCALE: 1"=5'



PROPOSED STREAM Z PROFILE

SCALE: 1"=30'

SOURCE:

McInnis ENGINEERING
535 Dock Street, Suite 111, Tacoma, WA 98402
253.414.1992
mcinnisengineering.com

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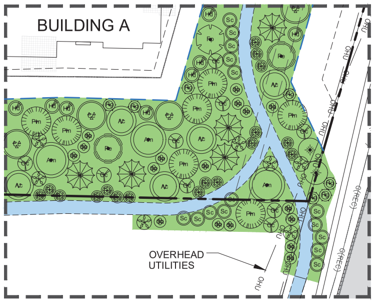
EAST TOWN CROSSING
2902 E PIONEER ROAD
PUYALLUP, WA 98374

PIERCE COUNTY PARCEL NUMBERS:
0420264021, 0420264053, 0420264054, 0420351030,
0420351029, 0420351026, & 0420351066

DATE:	4/6/2023
JOB:	2544.0001
BY:	MW
SCALE:	AS SHOWN
SHEET:	2.2



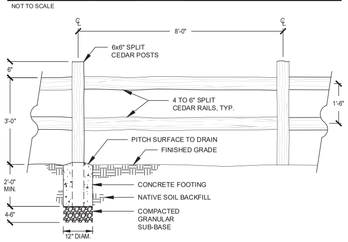
PLANTING TYPICAL
SCALE: 1"=20'

		Area (sf):	34,362				
		Cov'g (%):	100				
		Trees (%):	50				
		Shrubs (%):	50				
Scientific Name	Common Name	WL Status	AREA 1	Spacing (min.)	Height (min.)	Size (min.)	Planting Area
TREES			(Qty)				
Acer macrophyllum	bigleaf maple	FACU	17	10 ft	3 ft	2 gal	Dry
Frangula purshiana (Rhamnus p.)	cascara	FAC	3	10 ft	3 ft	1 gal	Dry
Prunus emarginata	bitter cherry	FACU	13	10 ft	3 ft	2 gal	Dry
Pseudotsuga menziesii	Douglas fir	FACU	38	10 ft	3 ft	2 gal	Dry
Salix scouleriana	Scouler's willow	FAC	100	5 ft	4 ft	Stakes	Dry
Thuja plicata	western redcedar	FAC	31	10 ft	3 ft	2 gal	Moist - on hummock
		Total:	202				
SHRUBS			(Qty)				
Acer circinatum	vine maple	FAC	32	10 ft	4 ft	2 gal	Dry/Moist
Amelanchier alnifolia	serviceberry	FACU	13	8 ft	3 ft	2 gal	Dry
Corylus cornuta var. californica	western hazelnut	FACU	23	10 ft	2 ft	2 gal	Moist
Gaultheria shallon	salal	FACU	168	4 ft	1 ft	1 gal	Dry
Holodiscus discolor	oceanspray	FACU	54	5 ft	2 ft	1 gal	Dry
Oemleria cerasiformis	Indian plum	FACU	45	5 ft	2 ft	2 gal	Dry
Polystichum munitum	western swordfern	FACU	168	4 ft	1 ft	1 gal	Dry/Moist
Rosa gymnocarpa	bald hip rose	FACU	42	4 ft	2 ft	1 gal	Dry/Moist
Rubus spectabilis var. spectabilis	salmonberry	FAC	112	4 ft	2 ft	1 gal	Moist
Sambucus racemosa var. racemosa	red elderberry	FACU	45	5 ft	2 ft	2 gal	Dry
Symphoricarpos albus var. laevigatus	common snowberry	FACU	98	4 ft	2 ft	1 gal	Dry
		Total:	800				
SEED MIXES (www.riverrefugeseed.com)		WL Status	AREA 1				
Native Upland Grass Mix #9	20 lbs/acre		(Qty)				
Elymus glaucus	Blue wildrye	30%					
Bromus carinatus	California brome	25%					
Hordeum brachyantherum	Meadow barley	10%					
Festuca roemeri	Roemer's fescue	10%					
Deschampsia elongata	Slender hairgrass	10%					
Agrostis exarata	Spike bentgrass	5%					
Deschampsia cespitosa	Tufted hairgrass	5%					
Festuca rubra var. rubra	Red fescue	5%					
		Total (lbs):	16				
Habitat Structures	(Qty)	Requirements					
Small Woody Debris	12 Pieces	8-12 feet long, 10 inch minimum diameter					

1 - Scientific names and species identification taken from *Flora of the Pacific Northwest: 2nd Edition (Hitchcock and Cronquist, Ed. by Giblin, Ledger, Zika, and Olmstead, 2018)*
2 - Over-sized container plants are suitable for replacement pending Wetland Scientist approval.
3 - Alternate native plant species may be substituted or added with Wetland Scientist approval.
4 - All disturbed and bare soil areas in the buffer to be seeded with a native grass seed mix.
5 - Shrub calculations based upon 5-ft average spacing.
6 - Tree calculations based upon 10-ft average spacing
7 - *Gaultheria shallon* & *Polystichum munitum* to be planted in groups of 3 to 5 around the base of new trees and in areas of sparse vegetation

SPLIT RAIL FENCE DETAIL

NOT TO SCALE

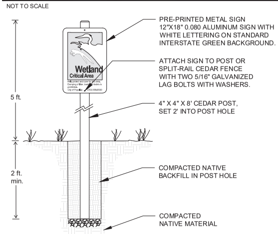


NOTES:

1. POSTS AND RAILINGS PRE-CUT FOR ASSEMBLY.
2. 3-RAIL DESIGNS ARE PERMITTED.
3. FENCE SHALL BE PLACED AT APPROVED BUFFER EDGE.

CRITICAL AREA SIGN DETAIL

NOT TO SCALE

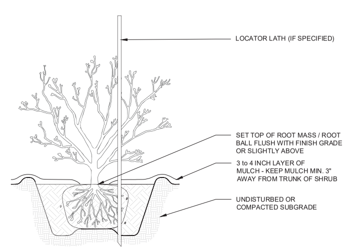


CRITICAL AREA BOUNDARY SIGN NOTES:

1. THE BOUNDARY AT THE OUTER EDGE OF THE CRITICAL AREA OR BUFFER SHALL BE IDENTIFIED WITH SIGNS OR MARKERS TO CLEARLY INDICATE THE LOCATION OF THE CRITICAL AREA
2. FENCING AND SIGNS SHALL BE MAINTAINED IN GOOD CONDITION SO AS TO BE VISIBLE AND UNOBSCURED.
3. PRE-PRINTED METAL SIGN AVAILABLE THROUGH: ZUMAR INDUSTRIES PHONE: 1-800-426-7967. WEBSITE: WWW.ZUMAR.COM

TREE AND SHRUB PLANTING DETAIL (TYPICAL)

NOT TO SCALE

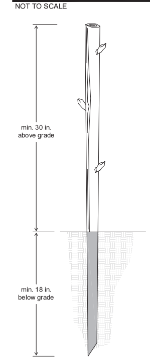


NOTES:

1. PLANT SHRUBS OF THE SAME SPECIES IN GROUPS OF 3 to 9 AS APPROPRIATE, OR AS SHOWN ON PLAN. AVOID INSTALLING PLANTS IN STRAIGHT LINES TO ACHIEVE A NATURAL-LOOKING LAYOUT.
2. EXCAVATE PIT TO FULL DEPTH OF ROOT MASS AND 2 X ROOT MASS DIAMETER. SPREAD ROOTS TO FULL WIDTH OF CANOPY. SCARIFY SIDES OF PIT.
3. MIDWAY THROUGH PLANTING ADD AGROFORM TABLET AND WATER THOROUGHLY.
4. BACKFILL TO BE COMPACTED USING WATER ONLY.
5. WATER IMMEDIATELY AFTER INSTALLATION.

LIVE STAKE PLANTING DETAIL (TYPICAL)

NOT TO SCALE



STORAGE OF LIVE STAKES:
ALL WOODY PLANT CUTTINGS COLLECTED MORE THAN 12 HR PRIOR TO INSTALLATION, MUST BE CAREFULLY BOUND, SECURED, AND STORED OUT OF DIRECT SUNLIGHT AND SUBMERGED IN CLEAN FRESH WATER FOR A PERIOD OF UP TO TWO WEEKS.

OUTDOOR TEMPERATURES MUST BE LESS THAN 50 DEGREES F AND TEMPERATURE INDOORS AND IN STORAGE CONTAINERS MUST BE BETWEEN 34 AND 50 DEGREES F.

IF THE LIVE STAKES CANNOT BE INSTALLED DURING THE DORMANT SEASON, CUT DURING THE DORMANT SEASON AND HOLD IN COLD STORAGE AT TEMPERATURES BETWEEN 33 AND 39 DEGREES F FOR UP TO 2 MONTHS.

NOTES:

1. LIVE STAKES TO BE A MIN. 1/2 INCH DIAMETER; MIN. 48 INCH LENGTH.
2. USE 1/2 INCH MIN. DIAMETER REBAR OR ROCK BAR TO MAKE PILOT HOLE WHEN PLANTING IN DENSE OR GRAVELY SOILS TO A MIN. DEPTH OF 18 INCHES.
3. MANUALLY INSERT LIVE STAKE INTO PILOT HOLE TAPERED END UP AND TEMP SOIL AROUND BASE. CUTTINGS SHOULD BE INSERTED TO A DEPTH OF AT LEAST 18 INCHES. LEAVE A MIN. OF 30" OF THE CUTTING ABOVE GROUND SURFACE TO ALLOW FOR SUCCESSFUL FOLIAGE DEVELOPMENT.
4. MINUMUM TWO BUDS ABOVE GRADE.
5. SET LIVE STAKES WITH DEAD-BLOW HAMMER.
6. WATER IMMEDIATELY AFTER INSTALLATION.

SOURCE:

McInnis ENGINEERING
535 Dock Street, Suite 111, Tacoma, WA 98402
253.414.1992
mcinnisengineering.com

Soundview Consultants
Environmental Assessment • Planning • Land Use Solutions
2907 HARBORVIEW DRIVE
GIG HARBOR, WASHINGTON 98335
P. 253.514.8952
F. 253.514.8954
WWW.SOUNDVIEWCONSULTANTS.COM

EAST TOWN CROSSING
2902 E PIONEER ROAD
PUYALLUP, WA 98374
PIERCE COUNTY PARCEL NUMBERS:
0420264021, 0420264053, 0420264054, 0420351030, 0420351029, 0420351026, & 0420351066

DATE:	4/6/2023
JOB:	2544.0001
BY:	MW
SCALE:	AS SHOWN
SHEET:	3.0

Appendix C – Photographs

Typical degraded conditions of Stream Z within ROW of East Pioneer Avenue

Typical conditions of Stream Y

Existing Stream Z crossing providing access from East Pioneer Avenue to site (source: Google Earth)

Appendix D – Qualifications

All determinations and supporting documentation, including this ***Conceptual Mitigation Plan*** prepared for the ***East Town Crossing*** project were prepared by, or under the direction of, Alex Murphy of SVC. In addition, report preparation was completed by Kyla Caddey, and additional project oversight and final quality assurance/ quality control was completed by Laura Livingston.

Alex Murphy, AICP

Planner & Project Manager
Professional Experience: 7 years

Alex Murphy is a Planner and Project Manager with a background in land use planning, site planning & design, permitting, and project management. He has over 7 years of experience working for local jurisdictions in the Intermountain West and Pacific Northwest with an emphasis on maximizing opportunities for culturally and environmentally sensitive projects.
Alex earned a Bachelor of Landscape Architecture degree from Utah State University. He is a Certified Planner through the American Institute of Certified Planners and has received formal training in climate adaptation planning for coastal communities from NOAA. Mr. Murphy currently assists in wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; conducts environmental code analysis; and prepares environmental assessment and mitigation reports. He also manages development projects, supporting clients through the regulatory and planning process for various land use proposals.

Kyla Caddey, PWS, Certified Ecologist

Senior Environmental Scientist
Professional Experience: 8 years

Kyla Caddey is a Senior Environmental Scientist with a diverse background in stream and wetland ecology, wildlife ecology and conservation, wildlife and natural resource assessments and monitoring, and riparian habitat restoration at various public and private entities. Kyla has field experience performing in-depth studies in both the Pacific Northwest and Central American ecosystems which included various environmental science research and statistical analysis. Kyla has advanced expertise in federal- and state-listed endangered, threatened, and sensitive species surveys and assessment of aquatic and terrestrial systems throughout the Puget Sound region. She has completed hundreds of wetland delineations and has extensive knowledge and interest in hydric soil identification. As the senior writer, she provides informed project oversight and performs final quality assurance / quality control on various types of scientific reports for agency submittal, including: Biological Assessments/Evaluations; Wetland, Shoreline, and Fish and Wildlife Habitat Assessments; Mitigation Plans, and Mitigation Monitoring Reports. She currently performs wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; prepares scientific reports; and provides environmental permitting and regulatory compliance assistance to support a wide range of commercial, industrial, and multi-family residential land use projects.

Kyla earned a Bachelor of Science degree in Environmental Science and Resource Management from the University of Washington, Seattle with a focus in Wildlife Conservation and a minor in Quantitative Science. She has also completed additional coursework in Comprehensive Bird Biology from Cornell University. Ms. Caddey is a Certified Professional Wetland Scientist (PWS #3479) through the Society of Wetland Scientists and Certified Ecologist through the Ecological Society of America. She has received 40-hour wetland delineation training (Western Mtns, Valleys, & Coast and Arid West Regional Supplement), is a Pierce County Qualified Wetland Specialist and Wildlife Biologist, and is a USFWS-approved Mazama pocket gopher survey biologist. Kyla has been formally trained through the Washington State Department of Ecology, Coastal Training Program, and the Washington Native Plant Society in winter twig and grass, sedge, and rush identification for Western WA; Using the Credit-Debit Method in Estimating Wetland Mitigation Needs; How to Determine the Ordinary High Water Mark; Using Field Indicators for Hydric Soils; How to Administer Development Permits in Washington Shorelines; Puget Sound Coastal Processes; and Forage Fish Survey Techniques. Additionally, she has received formal training in preparing WSDOT Biological Assessments.

Laura Livingston

Senior Environmental Planner
Professional Experience: 9 years

Laura Livingston is an Environmental Planner with a background in water quality monitoring, invasive species monitoring, wildlife monitoring, wilderness stewardship, and erosion control projects. Laura has field experience working on natural resources projects, with an emphasis on stream and river projects, in the Northwest, Northeast, and Southwest United States. She has also worked on a variety of environmental science research, grant, and teaching projects requiring scientific writing, science communication, laboratory work, and statistical analysis. She currently performs ordinary high water delineations; conducts environmental code analysis; and prepares environmental assessment and mitigation reports, biological evaluations, and permit applications to support clients through the regulatory and planning process. Laura has a particular interest in shoreline projects and has prepared a variety of application materials to support projects within Shoreline Master Program jurisdictions.

Laura earned a Master of Science degree in Environmental Science from Washington State University, Pullman. She has received training from the Washington State Department of Ecology in How to Administer Shoreline Development Permits in Western Washington's Shorelines, Determining the Ordinary High Water Mark, the revised Washington State Wetland Rating System, Puget Sound Coastal Processes, How to Conduct a Forage Fish Survey, and Using the Credit-Debit Method for Estimating Mitigation Needs. Laura has also received training from the Washington State Department of Transportation in Biological Assessment Preparation for Transportation Projects and is listed by WSDOT as a junior author for preparing Biological Assessments. Laura is interested in stormwater management and has received a certificate in Low Impact Development Design from the Washington Stormwater Center.