



CRITICAL AREAS DETERMINATION

August 2018



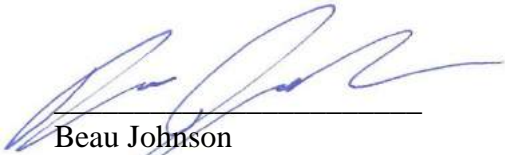
Lacamas Creek Sewer Pump Station
Camas, Washington

Prepared for
City of Camas
Attn: Jim Hodges
616 NE 4th Avenue
Camas, WA 98607
(360) 817-1561

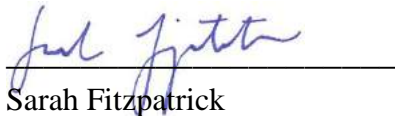
Prepared by
Ecological Land Services
1157 3rd Avenue , Suite 220A • Longview, WA 98632
(360) 578-1371 • Project Number 805.11

SIGNATURES

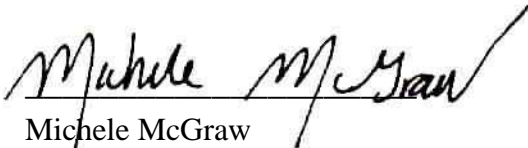
The information and data in this report was compiled and prepared by the undersigned:



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INTRODUCTION

Ecological Land Services, Inc. (ELS) completed a critical areas determination on behalf of the City of Camas for a project located in Camas, Washington. The study area encompasses nine Clark County parcels (089800000, 089871000, 089872000, 089873000, 090910000, 090744000, 090924000, 091029000, and 124486000) (Figure 1), and is located in the northwest quarter of Section 12, Township 1 North, Range 3 East of the Willamette Meridian. The study area spans the location of one existing sewer pump station, existing pipelines to and from the existing pump station, and two proposed pump stations. This report summarizes the findings of the critical areas determination according to the *Camas Shoreline Master Program (CSMP) Chapter 5.3, Critical Areas Protection*, and *Appendix C (CSMP 2015)*.

METHODOLOGY

ELS used the Routine Determination Method established by the U.S. Army Corps of Engineers to delineate wetlands and follows criteria defined in the *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (U.S. Army Corps of Engineers 2010). By definition, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are regulated as “Waters of the United States” by the U.S. Army Corps of Engineers (Corps), as “Waters of the State” by the Department of Ecology, and locally by the City of Camas.

ELS conducted a site visit on July 19, 2018 to determine the presence or absence of critical areas onsite, assess wetland and habitat functions, and gather vegetation, soils, and hydrology data that describe site characteristics. ELS located one wetland in the study area. The wetland boundary was determined by topographical variations, changes in vegetation, soil properties, and the presence of surface and/or subsurface hydrology. Vegetation, soil, and hydrology data were collected from eight test plots to verify the presence and extent of wetland onsite. The wetland boundary was demarcated on the ground using consecutively numbered pink flagging, and was subsequently surveyed by KC Development in August 2018.

The ordinary high water mark (OHWM) of Lacamas Creek was identified by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual and so long continued in all ordinary years as to mark upon the soil a character distinct from that of the abutting upland (Ecology 2016). The OHWM was determined by scour, wrack deposits, and a change in vegetation. The OHWM was marked using consecutively numbered fluorescent flagging and surveyed by KC Development in August 2018.

SITE DESCRIPTION

The study area lies north and south of NE 3rd Avenue and consists of undeveloped land and a community park. Study Area A slopes steeply eastward towards Lacamas Creek. Study Area B slopes steeply to the south towards Lacamas Creek and Wetland A. Study Area C slopes steeply to the south towards Wetland A. An existing pump station is located in the western portion of

Study Area B, and existing pipes to and from this pump station bisect the central portion of Study Areas B and C. Surrounding land use consists of residential subdivision and recreational parks to the west and east, and undisturbed, undeveloped land to the north and south.

Critical areas onsite include Lacamas Creek, which flows north to south through Study Area A, flows beneath a half-round culvert located beneath NE 3rd Avenue, and continues east to west through Study Area B, and Wetland A, encompassed within the southern portions of Study Areas B and C and continuing offsite to the south and east (Sheets 2 through 5).

SOILS

The Natural Resource Conservation Service (NRCS) maps the onsite soils as Hillsboro loam, 15 to 20 percent slopes (HID), Hillsboro loam 20 to 30 percent slopes (HIE), Hillsboro loam 30 to 50 percent slopes (HIF), Olympic stony clay loam, 3 to 30 percent slopes (OmE), Sauvie silt loam, sandy substratum, 0 to 3 percent slopes (SnA), Washougal gravelly loam, 0 to 8 percent slopes (WgB), and Washougal gravelly loam, 8 to 30 percent slopes (WgE).

Hillsboro loam is formed from alluvium and found on terraces. A typical profile includes loam from 0 to 36 inches below ground surface (BGS), sandy loam from 36 to 48 inches BGS, and sand from 48 to 60 inches BGS. It is characterized as well-drained soil and has a moderately high to high capacity of the most limiting layer to transmit water, and an average depth to water table of more than 80 inches BGS with no frequency of flooding or ponding.

Olympic stony clay loam is formed from residuum and colluvium from igneous rock, and is found on mountain slopes. A typical profile includes stony clay loam from 0 to 13 inches BGS, clay loam from 13 to 44 inches BGS, and gravelly clay loam from 44 to 60 inches BGS. It is characterized as well-drained soil with a moderately high capacity of the most limiting layer to transmit water, and an average depth to water table of more than 80 inches with no frequency of flooding or ponding.

Sauvie silt loam, sandy substratum is formed from alluvium and found on flood plains. A typical profile includes silt loam from 0 to 15 inches BGS, silty clay loam from 15 to 36 inches BGS, and stratified sandy loam to silt loam from 36 to 60 inches BGS. It is characterized as somewhat poorly drained soil with a moderately high capacity of the most limiting layer to transmit water, and an average depth to water table of about 0 12 inches with frequent flooding.

Washougal gravelly loam is formed from gravelly alluvium and found on terraces. A typical profile includes gravelly medial loam from 0 to 22 inches BGS, very gravelly medial loam from 22 to 30 inches BGS, and very cobbly coarse sand from 30 to 60 inches BGS. It is characterized as somewhat excessively drained soil and has a moderately high to high capacity of the most limiting layer to transmit water, and an average depth to water table of more than 80 inches BGS with no frequency of flooding or ponding.

Hillsboro loam, Olympic stony clay loam, and Washougal gravelly loam are not listed as hydric by NRCS, while Sauvie silt loam is listed as hydric by NRCS (NRCS 2016).

Wetlands

Evaluated wetland soils consisted of silt loams with very dark grayish brown (10YR 3/2) hues. Redoximorphic concentrations with dark yellowish brown (10YR 4/6) hues. These profiles matched hydric indicators F3, Depleted Matrix, and F6, Redox Dark Surface.

Uplands

Evaluated upland soils consisted of silt loams with very dark grayish brown, very dark gray (10YR 3/1), and very dark brown (10YR 2/2) hues. No redoximorphic features were present in upland soil pits. Soil information gathered during the field visit can be found attached in Appendix A.

VEGETATION

The primary vegetation communities onsite consist of upland and wetland grasses and forest. Vegetation species include **trees:** Oregon ash (*Fraxinus latifolia*, FACW), black cottonwood (*Populus balsamifera*, FAC), **shrubs:** Pacific willow (*Salix lasiandra*, FACW), Nootka rose (*Rosa nutkana*, FAC), Himalayan blackberry (*Rubus armeniacus*, FAC), **herbs:** reed canarygrass (*Phalaris arundinacea*, FACW), and **woody vines:** trailing blackberry (*Rubus ursinus*, FACU).

The dominant species of vegetation in each test plot have been recorded on the attached wetland delineation data sheets (Appendix A). The indicator categories following the common and scientific names indicate the likelihood of a species to be found in wetlands. Listed from most-likely to least-likely to be found in wetlands, the indicator categories are:

- **OBL** (obligate wetland) – Almost always occur in wetlands.
- **FACW** (facultative wetland) – Usually occur in wetlands, but may occur in non-wetlands.
- **FAC** (facultative) – Occur in wetlands and non-wetlands.
- **FACU** (facultative upland) – Usually occur in non-wetlands, but may occur in wetlands.
- **UPL** (obligate upland) – Almost never occur in wetlands.
- **NI** (no indicator) – Status not yet determined.

HYDROLOGY

Wetland A is a riverine wetland located southeast of the existing Lacamas Creek Pump Station. During the ELS site investigation, wetland hydrology was generally absent with the exception of water-stained leaves in one test plot; no saturation or inundation was present. Sources of hydrology to Wetland A include overbank flooding from Lacamas Creek, Washougal River, and the Columbia River, as well as precipitation and runoff from surrounding uplands. Wetland A extends outside the study area offsite to the south. Surface water or groundwater was not observed during the site visit, although drainage patterns were observed and saturation is visible using aerial imagery.

Lacamas Creek flows south through Study Area A to Study Area B, providing hydrology for the wetland, with a seasonal back channel running through Wetland A at high flow events. Lacamas

Creek is designated a shoreline of the state and is categorized as a fish bearing, shoreline stream (Type S) by the Washington State Department of Natural Resources (DNR).

NATIONAL AND COUNTY WETLANDS INVENTORIES

The National Wetlands Inventory depicts five wetlands in the study area, identified as palustrine, forested, broad-leaved deciduous, seasonally flooded (PFO1C), palustrine, forested, broad-leaved deciduous, temporarily flooded-tidal (PFO1S), riverine, tidal, unconsolidated bottom, permanently flooded-tidal (R1UBV), riverine, tidal, unconsolidated shore, regularly flooded (R1USQ), and riverine, upper perennial, unconsolidated bottom, permanently flooded (R3UBH).

Clark County Wetland Inventory (Sheet 5) depicts one wetland in the study area encompassing both sides of Lacamas Creek¹ and extending south. ELS findings are closely aligned with the County's inventory for wetlands associated with Lacamas Creek.

PRIORITY HABITAT AND SPECIES IN THE PROJECT VICINITY

There are listed salmonids mapped within Lacamas Creek and the Washougal River, and there is a biodiversity area mapped by the Washington Department of Fish and Wildlife Priority Habitat and Species website. The table shows state priority habitats and federally or state-listed species, as well as state candidate species, that have a primary association with habitat within or adjacent to the project site. The list was compiled using the most recent state and federal species lists. The project involves structure removal and restoration; construction of both proposed pump stations will not occur beneath the OHWM of Lacamas Creek, will not result in the removal of vegetation, and will restore the project area to more natural conditions that existed before the original pump station installation; therefore, there are no anticipated impacts to the habitats or species listed in Table 1 (WDFW 2018a & 2018b).

Table 1. Priority Habitats and Listed Species within the Project Vicinity

Priority Species	State Status	Federal Status
<i>Fish</i>		
Coastal cutthroat (<i>Oncorhynchus clarki</i>)	N/A	Species of Concern
Chum (<i>Oncorhynchus keta</i>)	Candidate	Threatened
Coho (<i>Oncorhynchus kisutch</i>)	N/A	Threatened
Steelhead (<i>Oncorhynchus mykiss</i>)	Candidate	Threatened
Chinook (<i>Oncorhynchus tshawytscha</i>)	Candidate	Threatened
Priority Listed Habitat		
Biodiversity Areas		

¹ County inventory does not identify wetland type or vegetation classes.

CONCLUSIONS

Wetlands

Wetland A is a Category II, riverine, forested, emergent wetland rated using the Department of Ecology *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby 2014). The Ecology rating form calculates individual scores for water quality, hydrology, and habitat functions; the sum of these functions determines the overall wetland category. Wetland buffers are determined in the City of Camas using the habitat score from the wetland rating form, the proposed land use intensity, and the overall wetland category. As Wetland A is a Category II wetland with a habitat score of 7 points and a proposed high-intensity land use, its buffer is 220 feet. Critical areas are summarized in Table 2.

Streams

Lacamas Creek is a Type S (shoreline of the state) water that crosses the study area, flowing south and west in a defined perennial channel, before flowing into the Washougal River and eventually, the Columbia River. The City of Camas regulates streams according to the criteria for shorelines of the state as defined by the Department of Ecology, and by the stream type defined by Washington State Department of Natural Resources (DNR). Shoreline areas are those areas 200 feet from the OHWM, and on rivers, areas including the entire floodway and contiguous floodplain areas landward 200 feet from the floodway. Critical areas are summarized in Table 2.

Table 2. Summary of Wetlands and Streams in the Study Area

Wetlands						
<i>Wetland</i>	<i>Cowardin Class</i>	<i>HGM Classification</i>	<i>Ecology Rating</i>	<i>Habitat Functions Score</i>	<i>Land use Intensity</i>	<i>Clark County Buffer Width (ft.)</i>
A	EM/FO	Riverine	II	7	High	220
Streams						
<i>Stream</i>	<i>DNR Stream Type</i>			<i>City of Camas Buffer Width (ft.)</i>		
Lacamas Creek	Type S (shoreline)			150		

Functionally Isolated Buffers

According to *CMC 16.53.040(B)(4)*, areas which are functionally separated from a wetland and do not protect the wetland from adverse impacts shall be excluded from the standards outlined in *CMC 16.53.040*. Portions of Wetland A's buffers are functionally isolated by pre-existing roads and vertical separations. Though *CMC 16.61* does not state similar exclusions for functionally isolated buffers, pre-existing impervious surfaces within the study area, such as parking lots and roads, do not protect Lacamas Creek from adverse impacts and have been treated as functionally isolating features to stream buffers (Sheets 3 through 5).

LIMITATIONS

ELS personnel base the conclusions contained within this report on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with the findings presented in this report.

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. There are no other warranties, express or implied. The services performed were consistent with our agreement with our client. This report is prepared solely for the use of our client and may not be used or relied upon by a third party for any purpose. Any such use or reliance will be at such party's risk.

The opinions and recommendations contained in this report apply to conditions existing when services were performed. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report. ELS does not warrant the accuracy of supplemental information incorporated in this report that was supplied by others.

REFERENCES

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- Clark County. 2018. *Clark County Maps Online*. Clark County Property Information Center Website <http://gis.clark.wa.gov/applications/gishome/property/>. Accessed August 2018.
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SHEETS & PHOTOPLATES

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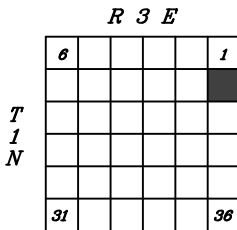


● STUDY AREA

45.5885° Latitude

-122.3901° Longitude

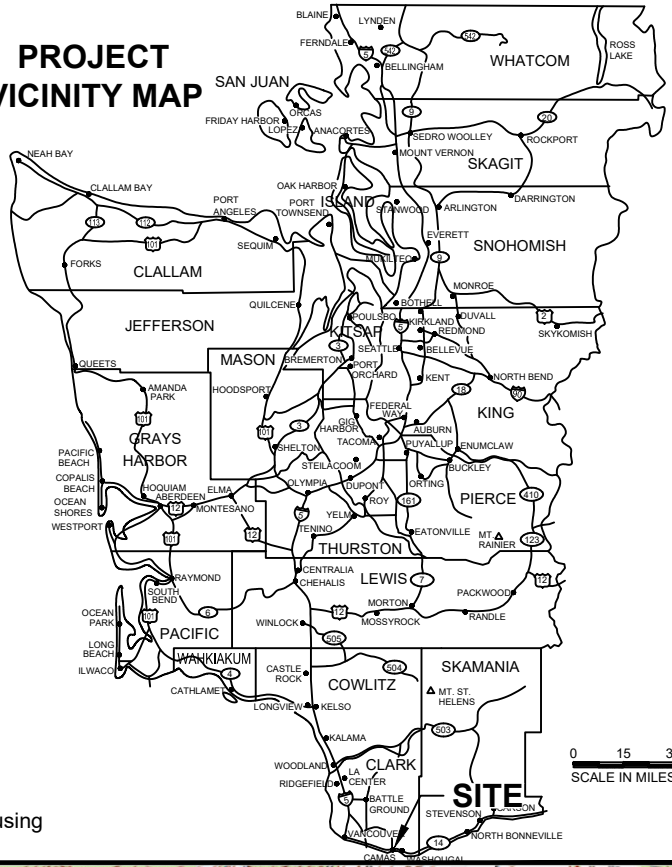
LOCATION MAP



NOTE:

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

PROJECT VICINITY MAP



PROPOSED: Fill

IN Lacamas Creek

NEAR: Camas

COUNTY: Clark

SHEET 1 OF 14

DATE: 10/4/18

VICINITY MAP

APPLICANT: Wallis Engineering

PROJECT NAME: Lacamas Creek Sewer Pump Station

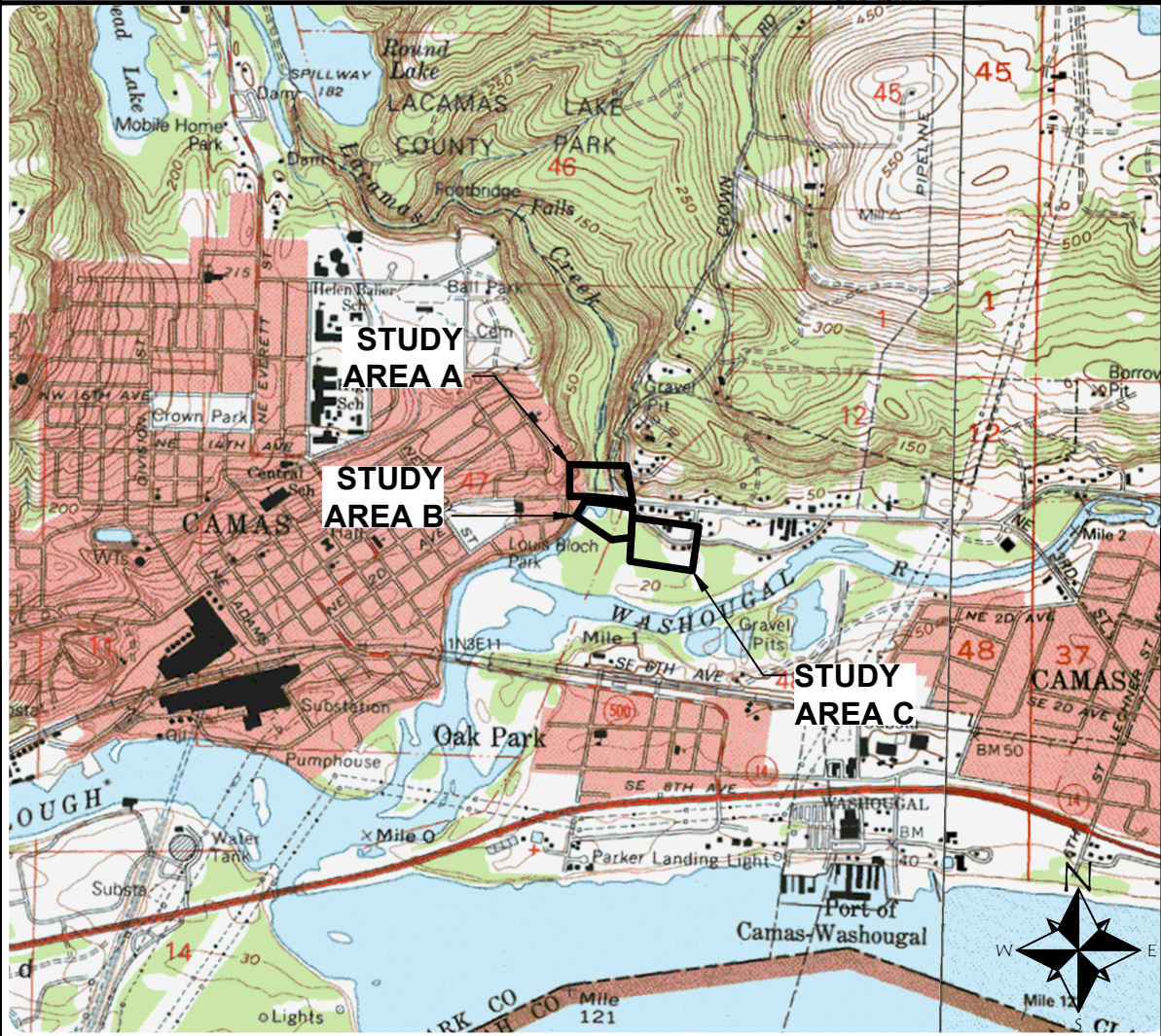
REFERENCE #: Not Yet Assigned

SITE LOCATION ADDRESS:

PURPOSE: Construct new pump station

DATUM: NAD83

ADJACENT PROPERTY OWNERS:



SCALE IN FEET



SCALE IN FEET

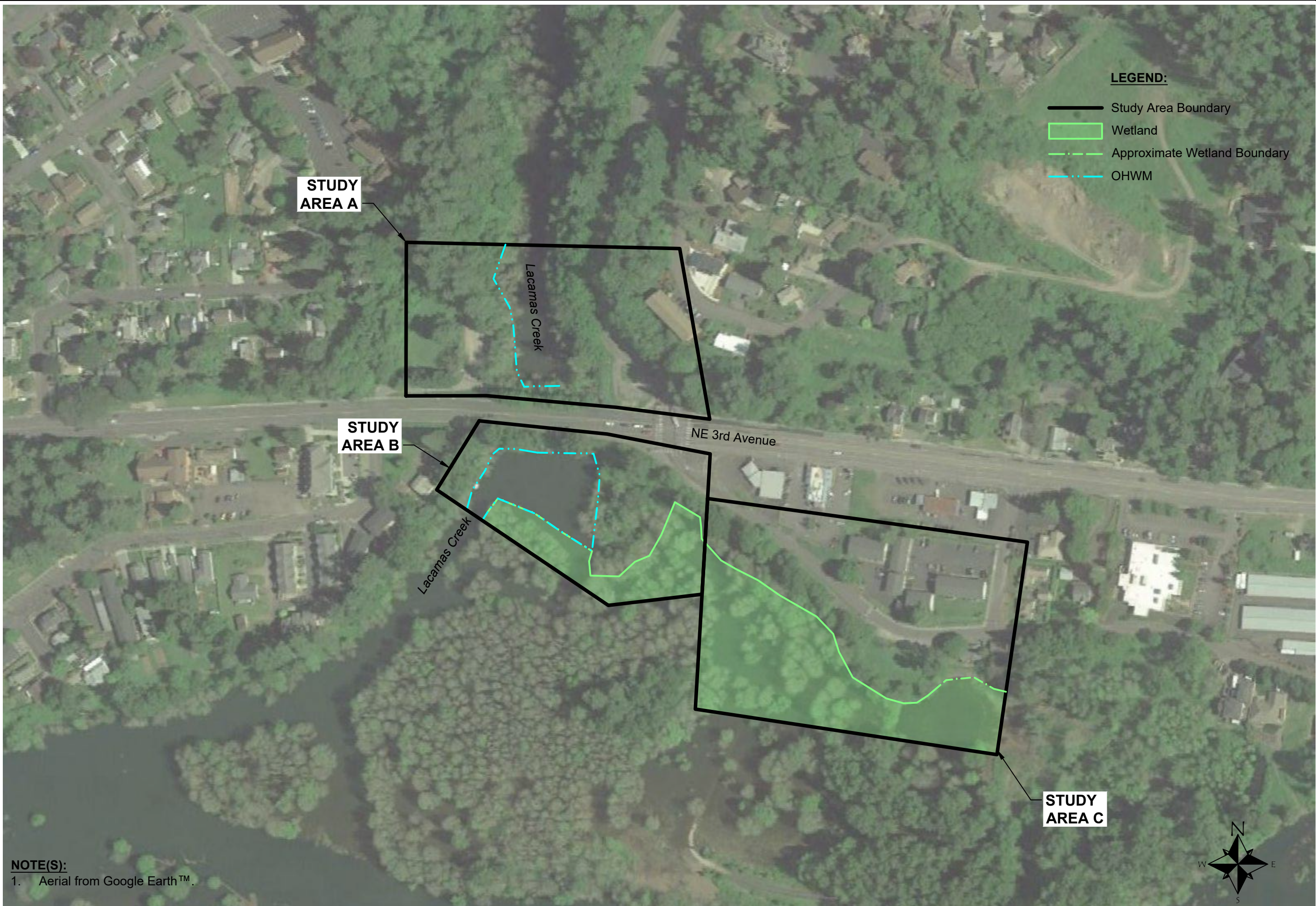


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NOTE(S): 1. Aerial from Google Earth™.		LEGEND: Study Area Boundary Wetland Approximate Wetland Boundary OHWM	
PURPOSE: Construct new pump station		PROPOSED: Fill	
ADJACENT PROPERTY OWNERS:		SITE MAP OVERVIEW	
DATUM: NAD83		APPLICANT: Wallis Engineering	
PROJECT NAME: Lacamas Creek Sewer Pump Station		IN Lacamas Creek	
REFERENCE #: Not Yet Assigned		NEAR: Camas	
SITE LOCATION ADDRESS:		COUNTY: Clark	
		STATE: WA	
		SHEET 2 OF 14	
		DATE: 10/4/18	



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Longview, WA 98632
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SCALE IN FEET

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PURPOSE: Construct new pump station	SITE MAP - STUDY AREA A	PROPOSED: Fill
APPLICANT: Wallis Engineering	PROJECT NAME: Lacamas Creek Sewer Pump Station	IN Lacamas Creek
DATUM: NAD83	REFERENCE #: Not Yet Assigned	NEAR: Camas
ADJACENT PROPERTY OWNERS:	SITE LOCATION ADDRESS:	COUNTY: Clark
		STATE: WA
		SHEET 3 OF 14
		DATE: 10/4/18

SCALE IN FEET

N

Ecological Land Services

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LEGEND:

- Study Area Boundary
- Wetland
- Approximate Wetland Boundary

LEGEND (cont.):

- OHWM
- Functionally Isolated Buffer
- Stream Buffer

LEGEND (cont.):

- Wetland Buffer
- Existing Edge of Pavement/Gravel
- Test Plot Location

NOTE(S):

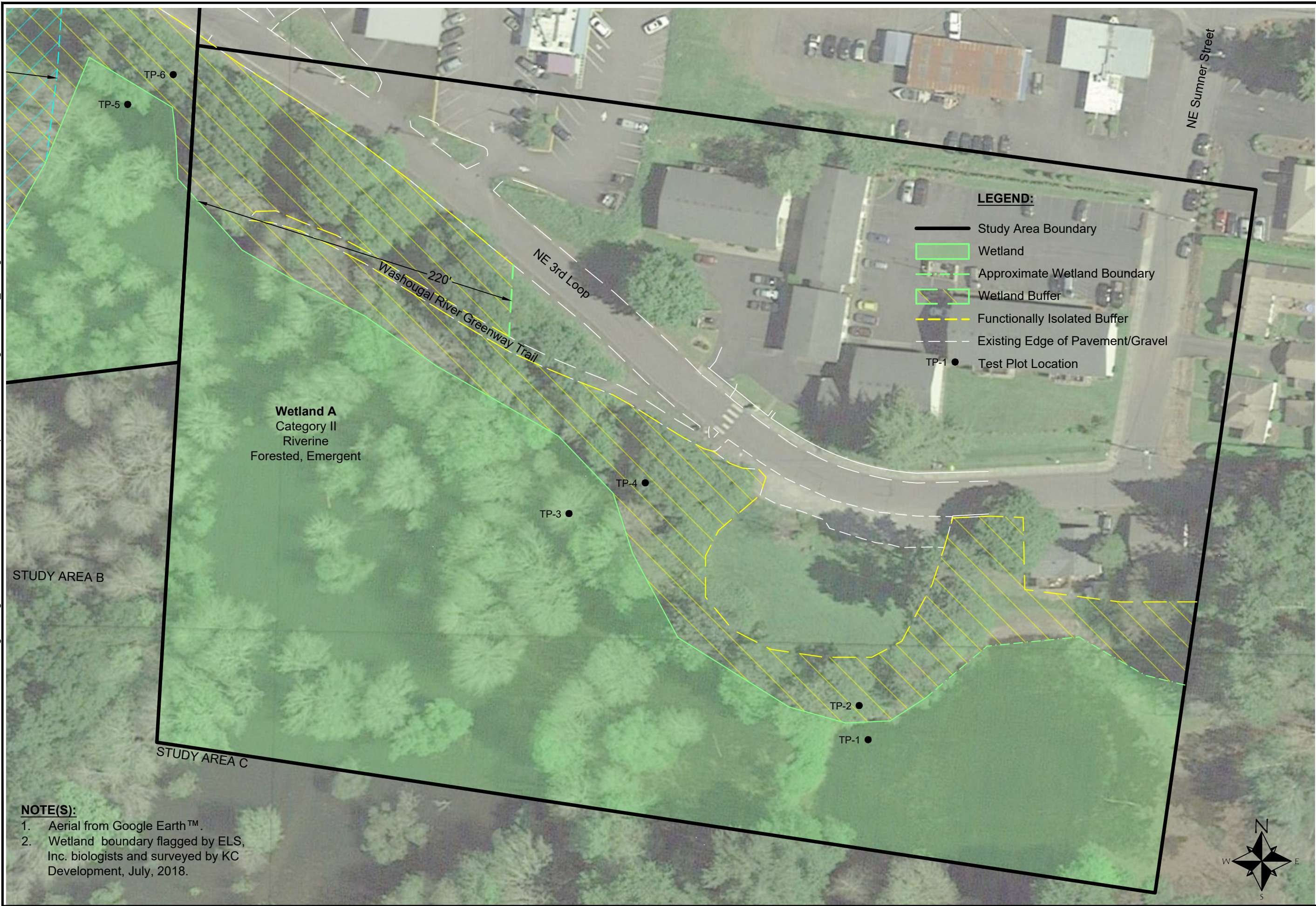
- Aerial from Google Earth™.
- OWHM and wetland boundary flagged by ELS, Inc. biologists and surveyed by KC Development, July, 2018.



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Phone: (360) 578-1371

PURPOSE: Construct new pump station	SITE MAP - STUDY AREA B	PROPOSED: Fill
APPLICANT: Wallis Engineering	PROJECT NAME: Lacamas Creek Sewer Pump Station	IN Lacamas Creek
REFERENCE #: Not Yet Assigned	SITE LOCATION ADDRESS:	NEAR: Camas
DATUM: NAD83		COUNTY: Clark
ADJACENT PROPERTY OWNERS:		STATE: WA
		SHEET 4 OF 14
		DATE: 10/4/18

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PURPOSE: Construct new pump station	SITE MAP - STUDY AREA C	PROPOSED: Fill
APPLICANT: Wallis Engineering	PROJECT NAME: Lacamas Creek Sewer Pump Station	IN Lacamas Creek
DATUM: NAD83	REFERENCE #: Not Yet Assigned	NEAR: Camas
ADJACENT PROPERTY OWNERS:	SITE LOCATION ADDRESS:	COUNTY: Clark
		STATE: WA
		SHEET 5 OF 14
		DATE: 10/4/18

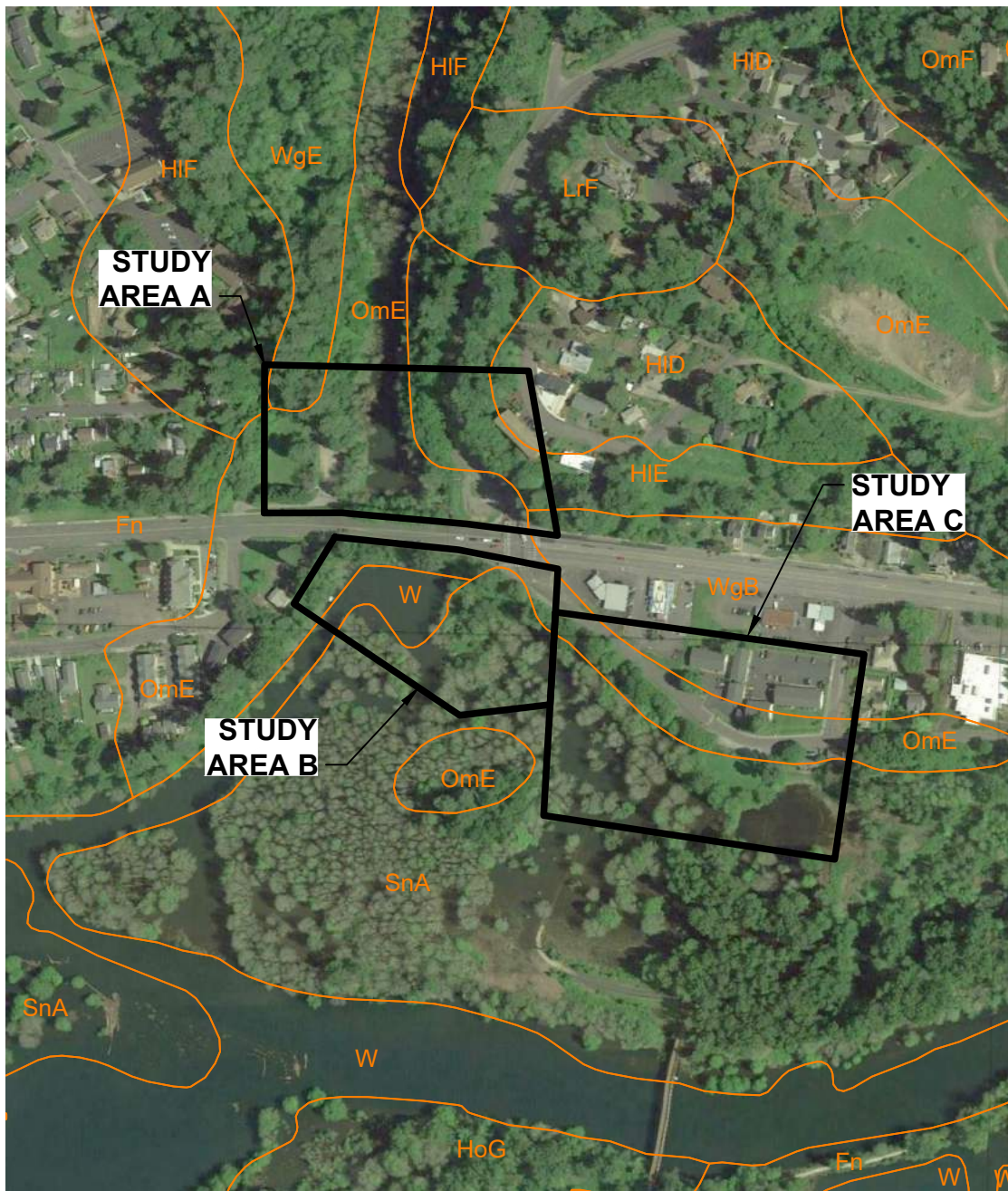
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Longview, WA 98632
Phone: (360) 578-1371

Ecological Land Services

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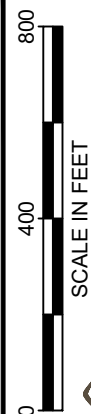
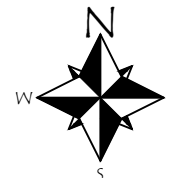


LEGEND:

- HID** Hillsboro loam, 15 to 20 percent slopes. Not hydric.
- HIE** Hillsboro loam, 20 to 30 percent slopes. Not hydric.
- HIF** Hillsboro loam, 30 to 50 percent slopes. Not hydric.
- OmE** Olympic stony clay loam, 3 to 30 percent slopes. Not hydric.
- SnA** Suavie silt loam, sandy substratum, 0 to 3 percent slopes. **Hydric.**
- W** Water
- WgB** Washougal gravelly loam, 0 to 8 percent slopes. Not hydric.
- WgE** Washougal gravelly loam, 8 to 30 percent slopes. Not hydric.

NOTE(S):

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



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Phone: (360) 578-1371

PURPOSE: Construct new pump station

DATUM: NAD83

ADJACENT PROPERTY OWNERS:

NRCS SOIL SURVEY

APPLICANT: Wallis Engineering

PROJECT NAME: Lacamas Creek Sewer Pump Station

REFERENCE #: Not Yet Assigned

SITE LOCATION ADDRESS:

PROPOSED: Fill

IN Lacamas Creek

NEAR: Camas

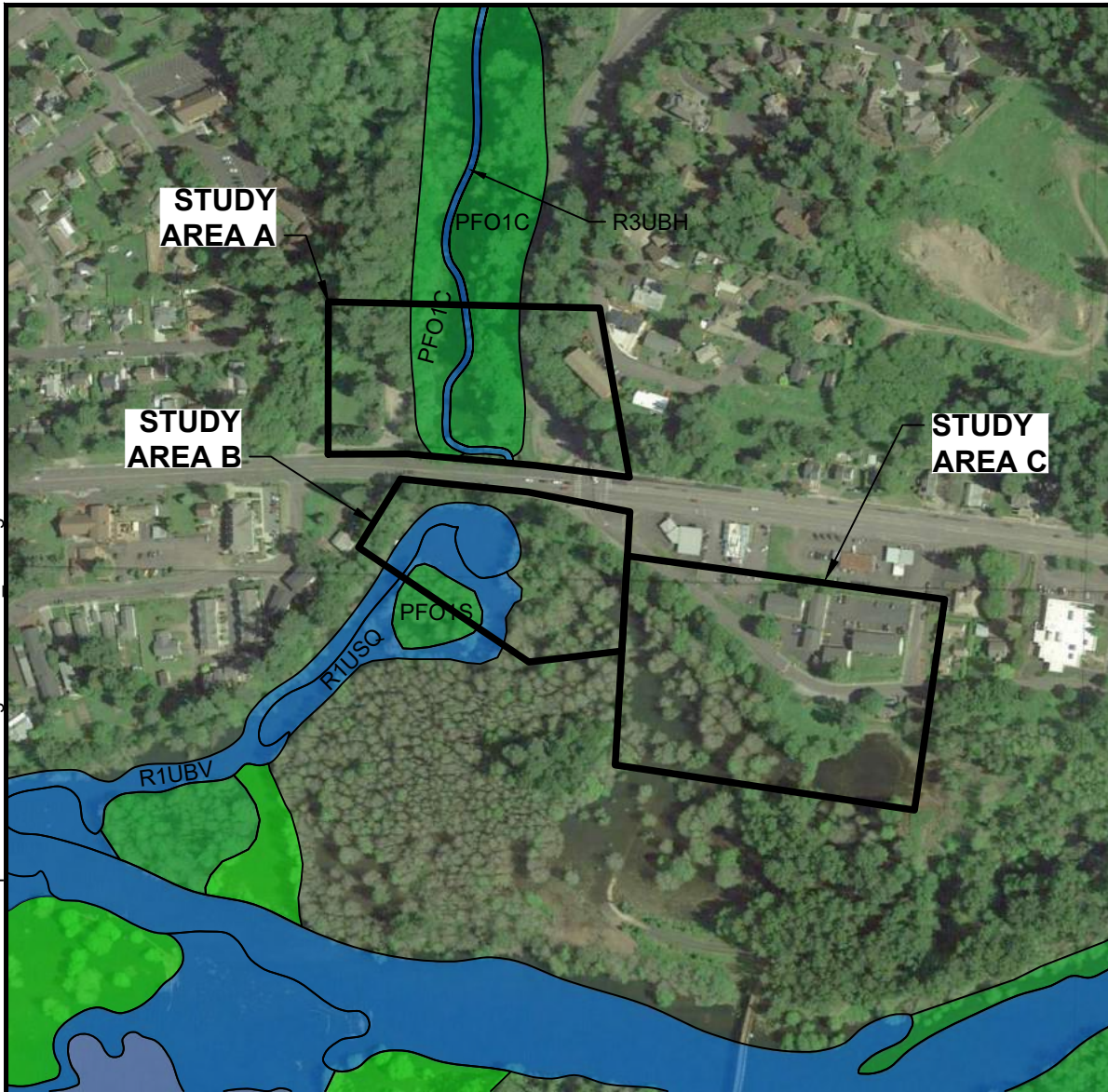
COUNTY: Clark

SHEET 6 **OF** 14





DATE: 10/4/18

STATE: WA

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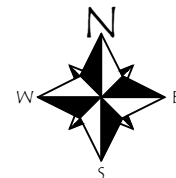
LEGEND:

-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Riverine

- PFO1C** Palustrine, forested, broad-leaved deciduous, seasonally flooded.
PFO1S Palustrine, forested, broad-leaved deciduous, temporarily flooded-tidal.
R1UBV Riverine, tidal, unconsolidated bottom, permanently flooded-tidal.
R1USQ Riverine, tidal, unconsolidated shore, regularly flooded.
R3UBH Riverine, upper perennial, unconsolidated bottom, permanently flooded.

NOTE(S):

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



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PURPOSE: Construct new pump station

DATUM: NAD83

ADJACENT PROPERTY OWNERS:

APPLICANT: Wallis Engineering

PROJECT NAME: Lacamas Creek Sewer Pump Station

REFERENCE #: Not Yet Assigned

SITE LOCATION ADDRESS:

PROPOSED: Fill

IN: Lacamas Creek

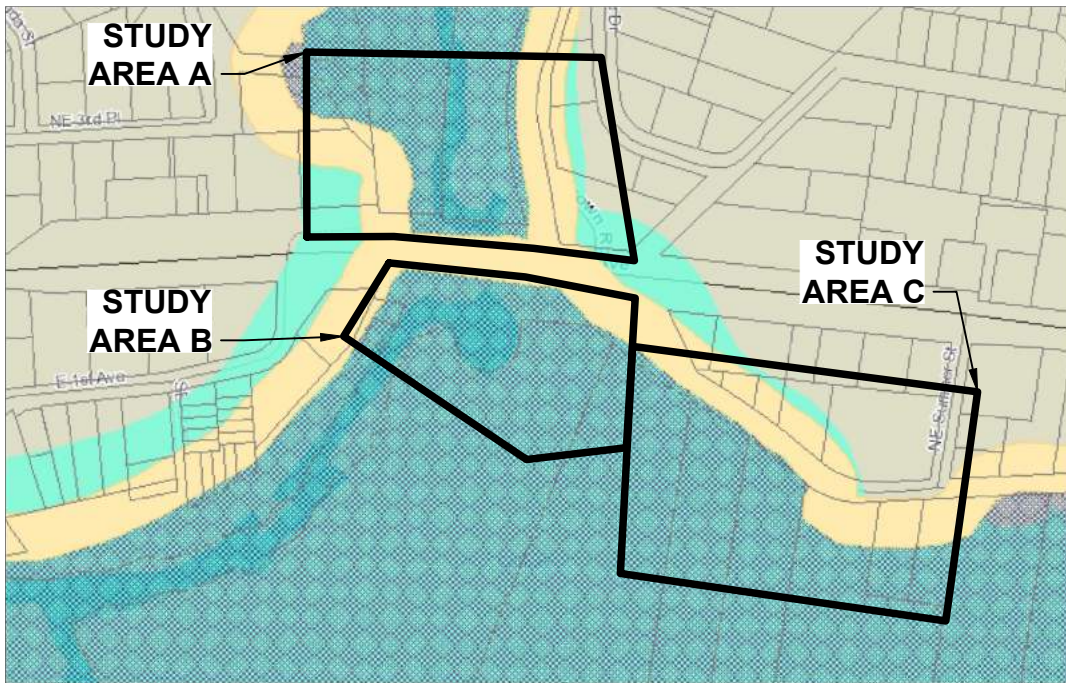
NEAR: Camas

COUNTY: Clark

SHEET 7 **OF** 14

DATE: 10/4/18

STATE: WA

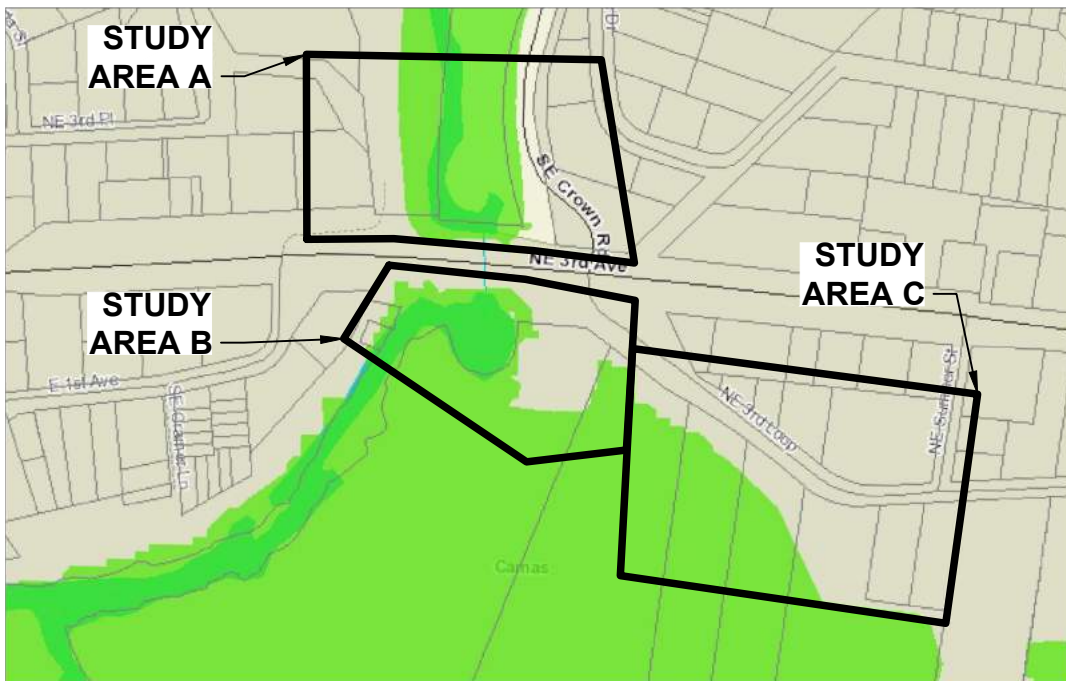


Clark County Priority Habitat and Species

- Taxlots
- Priority Habitat Buffer
- Priority Species Buffer

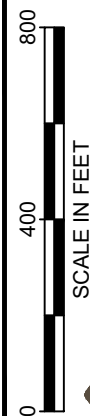
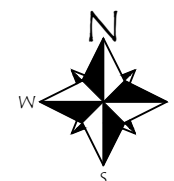
Priority Habitat and Species Areas

- Non-riparian Habitat Conservation Areas
- Species Areas
- Riparian Habitat Conservation Areas



Clark County Wetlands Inventory

- Taxlots
- Wetlands Presence



SCALE IN FEET

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



PROPOSED: Fill
IN: Lacamas Creek
NEAR: Camas
COUNTY: Clark
SHEET: 8 OF 14
DATE: 10/4/18

CLARK COUNTY SENSITIVE & HABITAT AREAS
APPLICANT: Wallis Engineering
PROJECT NAME: Lacamas Creek Sewer Pump Station
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS:

PURPOSE: Construct new pump station
DATUM: NAD83
ADJACENT PROPERTY OWNERS:

NOTE: Map provided online by Clark County, Washington at web address: <http://gis.clark.wa.gov/imf/imf.jsp?site=zoning>

Streams
Streams

-

PURPOSE: Construct new pump station

DNR STREAM TYPE MAP

PROPOSED: Fill

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

DATUM: NAD83

APPLICANT: Wallis Engineering
PROJECT NAME: Lacamas Creek Sewer Pump Station
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS:

IN Lacamas Creek
NEAR: Camas
COUNTY: Clark
SHEET 9 **OF** 14
DATE: 10/4/18

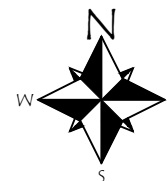
STATE: WA



Species and Habitat Lines
Species and Habitat Polygons As Mapped

Common Name	Scientific Name	Priority Area
Summer Steelhead (show)	Oncorhynchus mykiss	Occurrence/Migration
Cutthroat (show)	Oncorhynchus clarki	Occurrence
Freshwater Forested/Shrub Wetland (show)	Null	Aquatic Habitat
Caves Or Cave-rich Areas (show)	Null	Habitat Feature
Biodiversity Areas And Corridor (show)	Null	Terrestrial Habitat
Freshwater Forested/Shrub Wetland (show)	Null	Aquatic Habitat
Rainbow Trout (show)	Oncorhynchus mykiss	Occurrence/Migration
Winter Steelhead (show)	Oncorhynchus mykiss	Occurrence/Migration
Coho (show)	Oncorhynchus kisutch	Occurrence
Resident Coastal Cutthroat (show)	Oncorhynchus clarki	Occurrence/Migration
Fall Chinook (show)	Oncorhynchus tshawytscha	Occurrence/Migration
Coho (show)	Oncorhynchus kisutch	Occurrence/Migration
Riverine (show)	Null	Aquatic Habitat

NOTE: Map provided online by Washington Department of Fish & Wildlife at web address:
<http://apps.wdfw.wa.gov/phsontheweb/>



0 1000 2000
SCALE IN FEET



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

PROPOSED: Fill

IN LACAMAS CREEK

NEAR: Camas

COUNTY: Clark
SHEET 10 OF 14
DATE: 10/4/18

STATE: WA

WDFW PRIORITY HABITATS AND SPECIES

APPLICANT: Wallis Engineering

AFFILIANT: Wams Engineering
PROJECT NAME: Lacamas Creek Sewer Pump Station

REFERENCE #: Not Yet Assigned

PURPOSE: Construct new pump station

DATUM: NAD83

ADJACENT PROPERTY OWNERS:

Fish Distribution

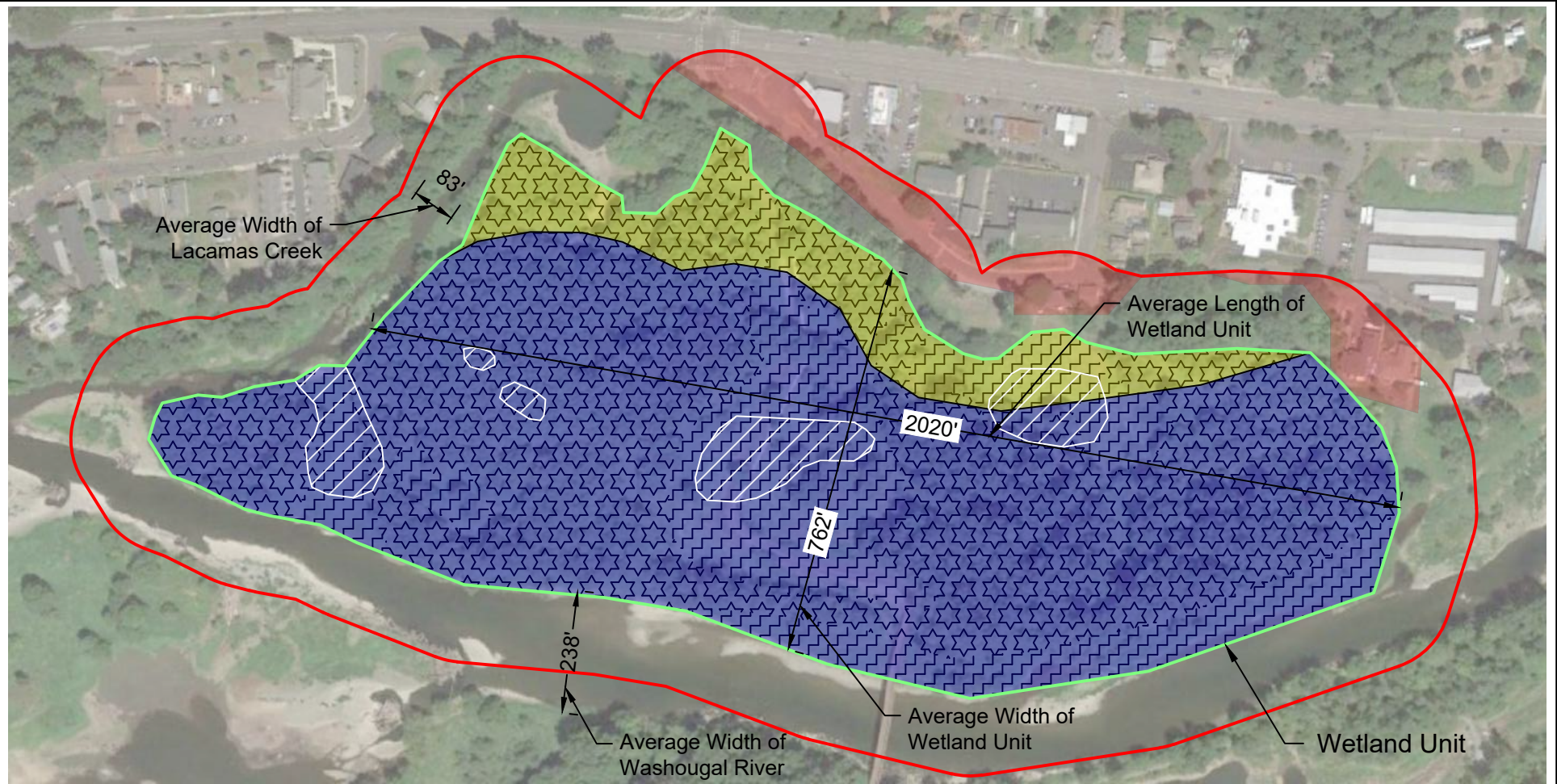
All SalmonScape Species

Summer Steelhead
Winter Steelhead
Coho
Fall Chinook
Fall Chum (Washougal River Only)

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Phone: (360) 578-1371

APPLICANT: Wallis Engineering
PROJECT NAME: Lacamas Creek Sewer Pump Station
REFERENCE #: Not Yet Assigned
SITE LOCATION ADDRESS:

IN Lacamas Creek
NEAR: Camas
COUNTY: Clark
SHEET 11 OF 1
DATE: 10/4/18



LEGEND:

- Wetland Unit Boundary
- 150' Wetland Offset
- Impervious Surfaces (13%)
- Ponded Depressions (7%)

Cowardin Vegetation Classes:

- Emergent
- Forested

Hydroperiods:

- Saturated Only
- Seasonally Flooded

NOTE(S):

1. Aerial photo (7/23/16) from Google Earth™.



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Phone: (360) 578-1371

PURPOSE: Construct new pump station

DATUM: NAD83

ADJACENT PROPERTY OWNERS:

WETLAND RATING FIGURE - 150' OFFSET

APPLICANT: Wallis Engineering

PROJECT NAME: Lacamas Creek Sewer Pump Station

REFERENCE #: Not Yet Assigned

SITE LOCATION ADDRESS:

PROPOSED: Fill

IN Lacamas Creek

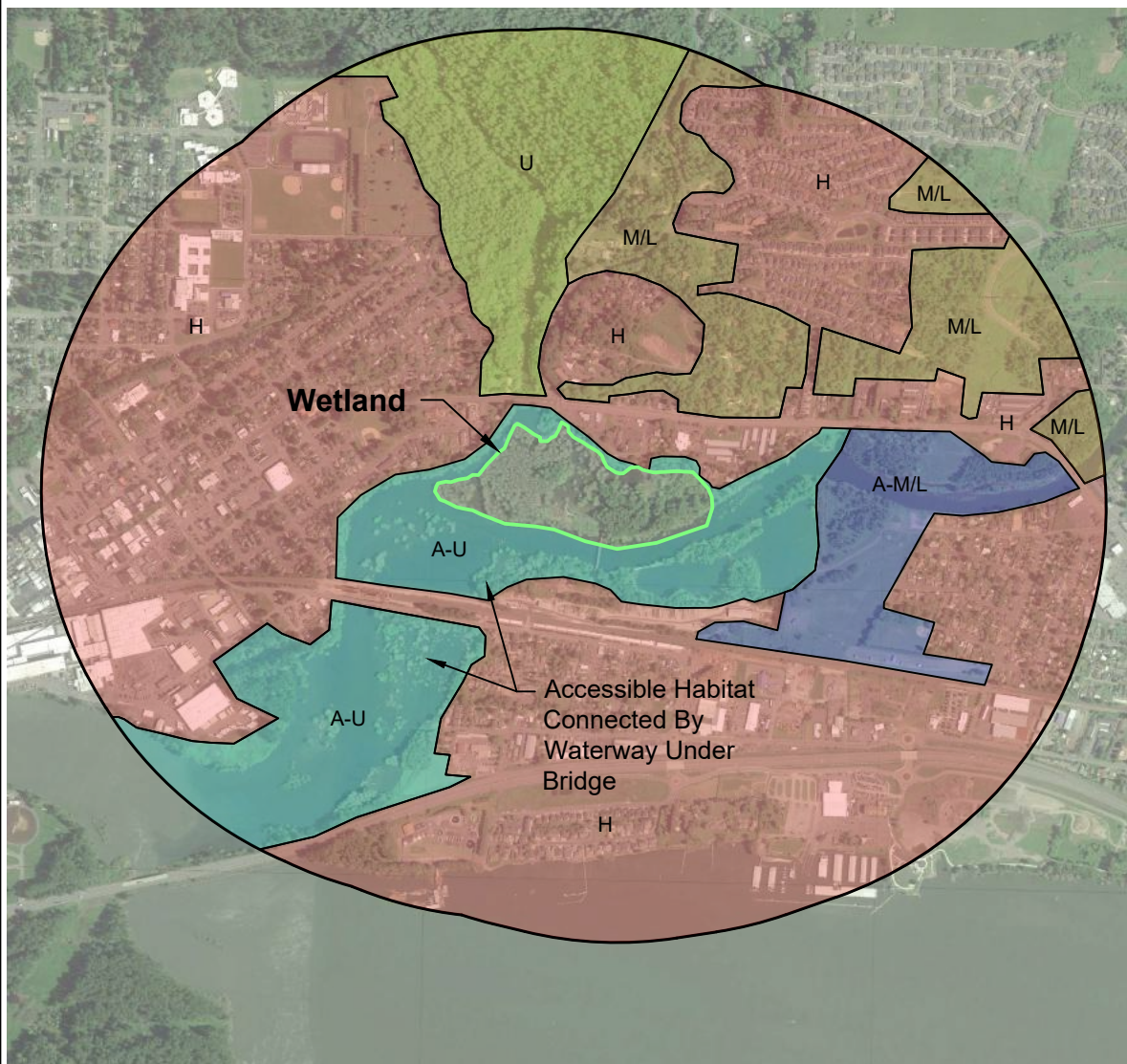
NEAR: Camas

COUNTY: Clark

STATE: WA

SHEET 12 OF 14

DATE: 10/4/18



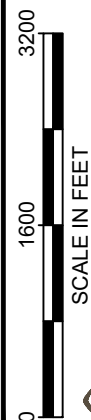
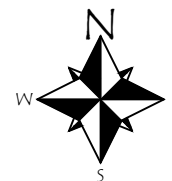
LEGEND:

- Wetland Unit Boundary
- H2.1 Accessible Habitat
 - A-U A-U (13%)
 - A-M/L A-M/L (5%)
- H2.2 Undisturbed Habitat
 - U U (8%)
 - M/L M/L (9%)
- H2.3 Land Use Intensity
 - H H (65%)

- H 2.1 - Accessible habitat is 10-19% of 1 km Polygon (15.5%).
- H 2.2 - Undisturbed habitat 10-50% and > 3 patches (28%).
- H 2.3 - > 50% of polygon is high land use intensity (65%).

NOTE(S):

1. Aerial photo (5/22/17) from Google Earth™.



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Phone: (360) 578-1371



PROPOSED: Fill

IN Lacamas Creek

NEAR: Camas

COUNTY: Clark

SHEET 13 **OF** 14

DATE: 10/4/18

STATE: WA

PURPOSE: Construct new pump station

WETLAND RATING FIGURE - 1 KM OFFSET

APPLICANT: Wallis Engineering

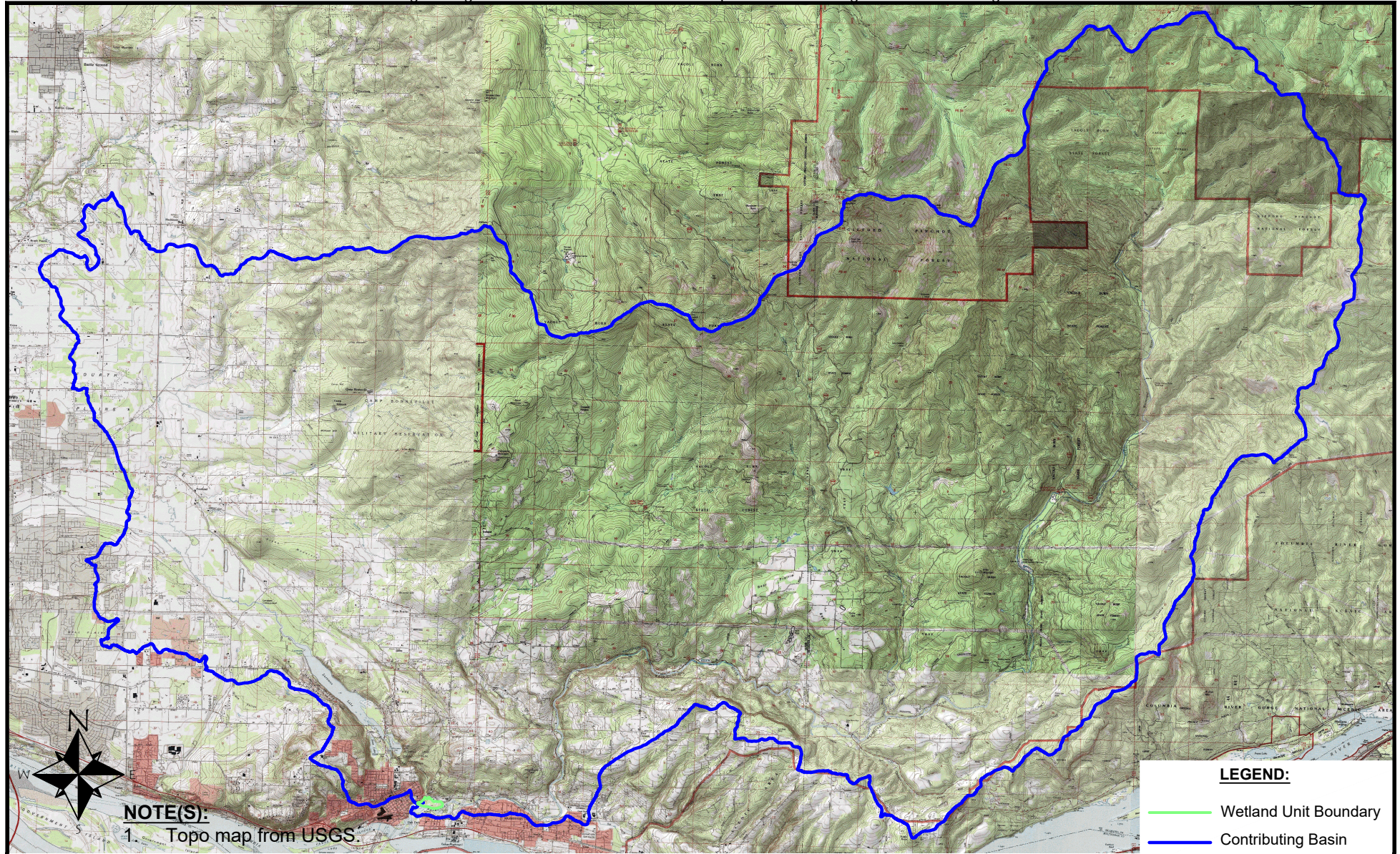
PROJECT NAME: Lacamas Creek Sewer Pump Station

REFERENCE #: Not Yet Assigned

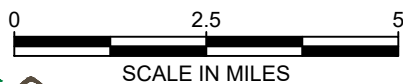
SITE LOCATION ADDRESS:

DATUM: NAD83

ADJACENT PROPERTY OWNERS:



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Phone: (360) 578-1371



PURPOSE: Construct new pump station

DATUM: NAD83

ADJACENT PROPERTY OWNERS:

WETLAND RATING FIGURE - CONTRIBUTING BASIN

APPLICANT: Wallis Engineering

PROJECT NAME: Lacamas Creek Sewer Pump Station

REFERENCE #: Not Yet Assigned

SITE LOCATION ADDRESS:

PROPOSED: Fill

IN Lacamas Creek

NEAR: Camas

COUNTY: Clark

STATE: WA

SHEET 14 OF 14

DATE: 10/4/18



Study Area



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

DATE: 8/29/18
DWN: BJ
PRJ. MGR: MM
PROJ.#: 805.11

Sheet 15
303(d) Listed Waters



Study Area



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

DATE: 8/29/18
DWN: BJ
PRJ. MGR: MM
PROJ.#: 805.11

Sheet 16
TMDLs for WRIA
28-Salmon/Washougal



Above: View west of the pump station, suspended pipe, and steel piling to be removed. July 19, 2018.

Below: Close up of suspended pipe and steel piling to be removed. July 19, 2018.



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

DATE: 10/26/18
DWN: LH
PRJ. MGR: MM
PROJ.#: 805.11

Photoplate 1
Site Photos
Lacamas Creek Sewer Pump Station
City of Camas
Camas, Clark County, Washington



Above: View north of culvert outlet for Lacamas Creek. July 19, 2018.

Below: View west of pump station portion below OHWM. July 19, 2018.



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

DATE: 10/26/18
DWN: LH
PRJ. MGR: MM
PROJ.#: 805.11

Photoplate 2
Site Photos
Lacamas Creek Sewer Pump Station
City of Camas
Camas, Clark County, Washington



Above: View west of suspended pipe and steel piling to be removed below OHWM. July 19, 2018.

Below: View north of pump station, suspended pipe, and steel piling to be removed. July 19, 2018.



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

DATE: 10/26/18
DWN: LH
PRJ. MGR: MM
PROJ.#: 805.11

Photoplate 3
Site Photos
Lacamas Creek Sewer Pump Station
City of Camas
Camas, Clark County, Washington

APPENDIX A: WETLAND DETERMINATION DATA FORMS

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

Project/Site: Lacamas Creek Sewer Pump Station City/County: Camas/Clark Sampling Date: 7/19/18
 Applicant/Owner: City of Camas State: WA Sampling Point: TP1
 Investigator(s): Fitzpatrick, Sarah; McGraw, Michele Section, Township, Range: S12 T1N R3E
 Landform (hillside, terrace, etc.): Mountain Slopes Local relief (concave, convex, none): Concave Slope (%): 3-30
 Subregion (LRR): LRR A Lat: 45.587491 Long: -122.387591 Datum: NAD83
 Soil Map Unit Name: Olympic stony clay loam, 3 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: This test plot was located in the northernmost northeast corner of Parcel #089800000, within wetland A. Three of three wetland parameters were met.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		=Total Cover			
Sapling/Shrub Stratum	(Plot size: <u> </u>)				Prevalence Index worksheet: Total % Cover of: <u>25</u> Multiply by: OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u>25</u> (A) <u>100.0%</u> (B) Prevalence Index = B/A = <u>4.0</u>
1. <u>Rubus armeniacus</u>		25	Yes	FAC	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		=Total Cover			
Herb Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>		80	Yes	FACW	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
		=Total Cover			
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>					
2. <u> </u>					
		=Total Cover			
% Bare Ground in Herb Stratum <u>20</u>					

Remarks:
The hydrophytic vegetation criterion is met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					Loamy/Clayey	
8-16	10YR 3/2	97	10YR 4/6	3	C	M	Loamy/Clayey	Prominent redox concentrations

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Remarks:
The observed soils in this test plot meet the hydric soil indicator F3, Depleted Matrix.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	--	--	--	---

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

Remarks:
The secondary hydrological indicators Geomorphic Position (D2) and a positive FAC-Neutral Test (D5) were observed within this test plot.

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

Project/Site: Lacamas Creek Sewer Pump Station City/County: Camas/Clark Sampling Date: 7/19/18
 Applicant/Owner: City of Camas State: WA Sampling Point: TP2
 Investigator(s): Fitzpatrick, Sarah; McGraw, Michele Section, Township, Range: S12 T1N R3E
 Landform (hillside, terrace, etc.): Mountain Slopes Local relief (concave, convex, none): Convex Slope (%): 3-30
 Subregion (LRR): LRR A Lat: 45.587465 Long: -122.387597 Datum: NAD83
 Soil Map Unit Name: Olympic stony clay loam, 3 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: This test plot was taken in the northernmost northeast corner of Parcel #089800000, just north of Wetland A. One of three wetland parameters was met; hydrophytic vegetation criterion was met.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		<u>70</u> =Total Cover			
Sapling/Shrub Stratum	(Plot size: <u>15</u>)				Prevalence Index worksheet: Total % Cover of: <u>70</u> Multiply by: OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u>70</u> (A) <u>100.0%</u> (B) Prevalence Index = B/A = <u>1.0</u>
1. <u>Rubus armeniacus</u>		<u>70</u>	<u>Yes</u>	<u>FAC</u>	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		<u>70</u> =Total Cover			
Herb Stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>		<u>10</u>	<u>Yes</u>	<u>FACW</u>	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
		<u>10</u> =Total Cover			
Woody Vine Stratum	(Plot size: <u>15</u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>					
2. <u> </u>					
		<u> </u> =Total Cover			
% Bare Ground in Herb Stratum <u>90</u>					

Remarks:
The hydrophytic vegetation criterion is met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/2	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed):		Hydric Soil Present?	Yes	No
Type: _____	Rocks			
Depth (inches): _____	3			

Remarks:
There was no evidence of hydric soils within this test plot. Digging to a depth greater than 3 inches was hindered by the abundance of rock in the soil.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> ? Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations:				Wetland Hydrology Present?	Yes	No
Surface Water Present?	Yes _____	No <input checked="" type="checkbox"/>	Depth (inches): _____			
Water Table Present?	Yes _____	No <input checked="" type="checkbox"/>	Depth (inches): _____			
Saturation Present?	Yes _____	No <input checked="" type="checkbox"/>	Depth (inches): _____			
(includes capillary fringe)						

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

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

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

Project/Site: Lacamas Creek Sewer Pump Station City/County: Camas/Clark Sampling Date: 7/19/18
 Applicant/Owner: City of Camas State: WA Sampling Point: TP3
 Investigator(s): Fitzpatrick, Sarah; McGraw, Michele Section, Township, Range: S12 T1N R3E
 Landform (hillside, terrace, etc.): Mountain Slopes Local relief (concave, convex, none): Concave Slope (%): 3-30
 Subregion (LRR): LRR A Lat: 45.587527 Long: -122.388224 Datum: NAD83
 Soil Map Unit Name: Olympic stony clay loam, 3 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: This test plot was located in the northeast corner of Parcel #089872000, within Wetland A. Three of three wetland parameters were met.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>80</u>	<u>Yes</u>	<u>FACW</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>80</u> =Total Cover				
Sapling/Shrub Stratum (Plot size: <u> </u>)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> =Total Cover				
Herb Stratum (Plot size: <u> </u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	<u>70</u>	<u>Yes</u>	<u>FACW</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>70</u> =Total Cover				
Woody Vine Stratum (Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> =Total Cover				
% Bare Ground in Herb Stratum <u>30</u>				

Remarks:
The hydrophytic vegetation criterion is met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP3

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
(includes capillary fringe)		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
The secondary hydrological indicators Geomorphic Position (D2) and a positive FAC-Neutral Test (D5) were observed within this test plot.			

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

Project/Site: Lacamas Creek Sewer Pump Station City/County: Camas/Clark Sampling Date: 7/19/18
 Applicant/Owner: City of Camas State: WA Sampling Point: TP4
 Investigator(s): Fitzpatrick, Sarah; McGraw, Michele Section, Township, Range: S12 T1N R3E
 Landform (hillside, terrace, etc.): Mountain Slopes Local relief (concave, convex, none): Convex Slope (%): 3-30
 Subregion (LRR): LRR A Lat: 45.587605 Long: -122.388203 Datum: NAD83
 Soil Map Unit Name: Olympic stony clay loam, 3 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: This test plot was located in the northeast corner of Parcel #089872000, just north of wetland A. One of three wetland parameters was met; hydrophytic vegetation criterion was met.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		<u>20</u> =Total Cover			Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
Sapling/Shrub Stratum (Plot size: <u> </u>)					
1. <u>Rubus armeniacus</u>		<u>20</u>	<u>Yes</u>	<u>FAC</u>	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
		<u>20</u> =Total Cover			
Herb Stratum (Plot size: <u> </u>)					Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Rosa nutkana</u>		<u>50</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>		<u>5</u>	<u>No</u>	<u>FACW</u>	
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
11. <u> </u>					
		<u>55</u> =Total Cover			
Woody Vine Stratum (Plot size: <u> </u>)					Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>					
2. <u> </u>					
		<u> </u> =Total Cover			
% Bare Ground in Herb Stratum <u>90</u>					

Remarks:
The hydrophytic vegetation criterion is met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP4

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2	
<input type="checkbox"/> High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:			
There was no evidence of hydrology within this test plot.			

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

Project/Site: Lacamas Creek Sewer Pump Station City/County: Camas/Clark Sampling Date: 7/19/18
 Applicant/Owner: City of Camas State: WA Sampling Point: TP5
 Investigator(s): Fitzpatrick, Sarah; McGraw, Michele Section, Township, Range: S12 T1N R3E
 Landform (hillside, terrace, etc.): Mountain Slopes Local relief (concave, convex, none): Concave Slope (%): 0-3
 Subregion (LRR): LRR A Lat: 45.588247 Long: -122.389944 Datum: NAD83
 Soil Map Unit Name: Sauvie silt loam, sandy substratum, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This test plot was located in the northwest corner of Parcel #089873000, within wetland A. Three of three wetland parameters were met.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		=Total Cover			
Sapling/Shrub Stratum	(Plot size: <u> </u>)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
1. <u>Fraxinus latifolia</u>		30	Yes	FACW	
2. <u>Salix lasiandra</u>		10	Yes	FACW	
3. <u> </u>					
4. <u> </u>					
		40 =Total Cover			
Herb Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>		100	Yes	FACW	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
		100 =Total Cover			
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>					
2. <u> </u>					
		=Total Cover			
% Bare Ground in Herb Stratum <u> </u>					

Remarks:
 The hydrophytic vegetation criterion is met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP5

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2	
<input type="checkbox"/> High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)			
		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
The secondary hydrological indicators Water-Stained Leaves (B9), Geomorphic Position (D2) and a positive FAC-Neutral Test (D5) were observed within this test plot.			

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

Project/Site: Lacamas Creek Sewer Pump Station City/County: Camas/Clark Sampling Date: 7/19/18
 Applicant/Owner: City of Camas State: WA Sampling Point: TP6
 Investigator(s): Fitzpatrick, Sarah; McGraw, Michele Section, Township, Range: S12 T1N R3E
 Landform (hillside, terrace, etc.): Mountain Slopes Local relief (concave, convex, none): Convex Slope (%): 0-3
 Subregion (LRR): LRR A Lat: 45.588473 Long: -122.389901 Datum: NAD83
 Soil Map Unit Name: Sauvie silt loam, sandy substratum, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This test plot was taken in the northeast corner of Parcel #090910000, just north of Wetland A. One of three wetland parameters was met; hydrophytic vegetation criterion was met.	

VEGETATION – Use scientific names of plants.

<p>Tree Stratum (Plot size: <u> </u>)</p> <table style="width: 100%;"> <thead> <tr> <th></th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Populus balsamifera</u></td><td style="text-align: center;">60</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;">60 = Total Cover</td><td></td><td></td></tr> </tbody> </table> <p>Sapling/Shrub Stratum (Plot size: <u> </u>)</p> <table style="width: 100%;"> <thead> <tr> <th></th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Rubus armeniacus</u></td><td style="text-align: center;">15</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td></tr> <tr><td>2. <u>Salix lasiandra</u></td><td style="text-align: center;">10</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>5. <u> </u></td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;">25 = Total Cover</td><td></td><td></td></tr> </tbody> </table> <p>Herb Stratum (Plot size: <u> </u>)</p> <table style="width: 100%;"> <thead> <tr> <th></th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Phalaris arundinacea</u></td><td style="text-align: center;">5</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>5. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>6. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>7. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>8. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>9. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>10. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>11. <u> </u></td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;">5 = Total Cover</td><td></td><td></td></tr> </tbody> </table> <p>Woody Vine Stratum (Plot size: <u> </u>)</p> <table style="width: 100%;"> <thead> <tr> <th></th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Rubus ursinus</u></td><td style="text-align: center;">5</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACU</td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;">5 = Total Cover</td><td></td><td></td></tr> </tbody> </table> <p>% Bare Ground in Herb Stratum <u> </u></p>		Absolute % Cover	Dominant Species?	Indicator Status	1. <u>Populus balsamifera</u>	60	Yes	FAC	2. <u> </u>				3. <u> </u>				4. <u> </u>				60 = Total Cover					Absolute % Cover	Dominant Species?	Indicator Status	1. <u>Rubus armeniacus</u>	15	Yes	FAC	2. <u>Salix lasiandra</u>	10	Yes	FACW	3. <u> </u>				4. <u> </u>				5. <u> </u>				25 = Total Cover					Absolute % Cover	Dominant Species?	Indicator Status	1. <u>Phalaris arundinacea</u>	5	Yes	FACW	2. <u> </u>				3. <u> </u>				4. <u> </u>				5. <u> </u>				6. <u> </u>				7. <u> </u>				8. <u> </u>				9. <u> </u>				10. <u> </u>				11. <u> </u>				5 = Total Cover					Absolute % Cover	Dominant Species?	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Remarks:
 The hydrophytic vegetation criterion is met due to 80% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/3	50					Loamy/Clayey	
	10YR 2/2	50						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed):		Hydric Soil Present?	Yes	No	X
Type:	Rock				
Depth (inches):	3				

Remarks:
There was no evidence of hydric soils within this test plot. Digging to a depth greater than 3 inches was hindered by the abundance of rock in the soil.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> ? Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations:				Wetland Hydrology Present?	Yes	No	X
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):				
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):				
Saturation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):				
(includes capillary fringe)							

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

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

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

Project/Site: Lacamas Creek Sewer Pump Station City/County: Camas/Clark Sampling Date: 7/19/18
 Applicant/Owner: City of Camas State: WA Sampling Point: TP7
 Investigator(s): Fitzpatrick, Sarah; McGraw, Michele Section, Township, Range: S12 T1N R3E
 Landform (hillside, terrace, etc.): Mountain Slopes Local relief (concave, convex, none): Concave Slope (%): 0-3
 Subregion (LRR): LRR A Lat: 45.587774 Long: -122.390426 Datum: NAD83
 Soil Map Unit Name: Caliche Soil, Sandy Substratum, 0 to 5 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: This test plot was located in the northeast corner of Parcel 090910000, within Wetland A. Three of three wetland parameters were met.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u>100</u>	<u>=Total Cover</u>	<u> </u>	
Sapling/Shrub Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Herb Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
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11. <u> </u>	<u>100</u>	<u>=Total Cover</u>	<u> </u>	
Woody Vine Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> =Total Cover				
% Bare Ground in Herb Stratum <u> </u>				

Remarks:
The hydrophytic vegetation criterion is met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/3	50					Loamy/Clayey	
	10YR 3/2	50						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed): Type: <u>Rock</u> Depth (inches): <u>3</u>		Hydric Soil Present? Yes <u>X</u> No <u> </u>
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Remarks:
Redox concentrations are presumed to be in this test plot, but due to the restrictive layer, none were observed.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> ? Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)				Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
---	--	--	--	---

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

Remarks:
The secondary hydrological indicators Geomorphic Position (D2) and a positive FAC-Neutral Test (D5) were observed within this test plot.

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

Project/Site: Lacamas Creek Sewer Pump Station City/County: Camas/Clark Sampling Date: 7/19/18
 Applicant/Owner: City of Camas State: WA Sampling Point: TP8
 Investigator(s): Fitzpatrick, Sarah; McGraw, Michele Section, Township, Range: S12 T1N R3E
 Landform (hillside, terrace, etc.): Mountain Slopes Local relief (concave, convex, none): Convex Slope (%): 0-3
 Subregion (LRR): LRR A Lat: 45.587913 Long: -122.390480 Datum: NAD83
 Soil Map Unit Name: Sauvie silt loam, sandy substratum, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: This test plot was located in the northeast corner of Parcel #090910000, north of Wetland A. One of three wetland parameters was met; hydrophytic vegetation criterion was met.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		<u> </u> = Total Cover			
Sapling/Shrub Stratum	(Plot size: <u> </u>)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
1. <u>Rubus armeniacus</u>		<u>25</u>	<u>Yes</u>	<u>FAC</u>	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		<u>25</u> = Total Cover			
Herb Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>		<u>5</u>	<u>Yes</u>	<u>FACW</u>	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
		<u>5</u> = Total Cover			
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>					
2. <u> </u>					
		<u> </u> = Total Cover			
% Bare Ground in Herb Stratum <u>95</u>					

Remarks:
The hydrophytic vegetation criterion is met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

SOIL

Sampling Point: TP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	50					Loamy/Clayey	
	10YR 2/2	50						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed): Type: <u>Rock</u> Depth (inches): <u>3</u>		Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	--	---

Remarks:
There was no evidence of hydric soils within this test plot. Digging to a depth greater than 3 inches was hindered by the abundance of rock in the soil.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> ? Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> (includes capillary fringe)				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

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

APPENDIX B: WETLAND RATING FORM

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 7-19-18

Rated by M. McGraw Trained by Ecology? Yes X No Date of training 9/16

HGM Class used for rating Riverine 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 Google Earth

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	
<i>Circle the appropriate ratings</i>				
Site Potential	H <u>M</u> L	H <u>M</u> L	H <u>M</u> L	
Landscape Potential	<u>H</u> M L	<u>H</u> M L	H <u>M</u> L	
Value	<u>H</u> M L	H M <u>L</u>	<u>H</u> M L	TOTAL
Score Based on Ratings	8	6	7	21

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

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

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	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
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)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	12
Hydroperiods	H 1.2	12
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	12
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	12
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	12
Map of the contributing basin	R 2.2, R 2.3, R 5.2	14
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	13
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	15
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	15

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

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

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

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

☒ NO - go to 2

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

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

NO - **Saltwater Tidal Fringe (Estuarine)**

YES - **Freshwater Tidal Fringe**

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

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

☒ NO - go to 3

YES - The wetland class is **Flats**

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

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

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

☒ NO - go to 4

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

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

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

☒ NO - go to 5

YES - The wetland class is **Slope**

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

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

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

Wetland name or number A

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number A

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

R 1.0. Does the site have the potential to improve water quality?

R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		
Depressions cover $>\frac{3}{4}$ area of wetland	points = 8	2
Depressions cover $>\frac{1}{2}$ area of wetland	points = 4	
Depressions present but cover $<\frac{1}{2}$ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardin classes)		
Trees or shrubs $>\frac{2}{3}$ area of the wetland	points = 8	8
Trees or shrubs $>\frac{1}{3}$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) $>\frac{2}{3}$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) $>\frac{1}{3}$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous $<\frac{1}{3}$ area of the wetland	points = 0	
Total for R 1 Add the points in the boxes above		10

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

Record the rating on the first page

R 2.0. Does the landscape have the potential to support the water quality function of the site?

R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	Yes = 1 No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	Yes = 1 No = 0	1
Total for R 2 Add the points in the boxes above		6

Rating of Landscape Potential If score is: X 3-6 = H 1 or 2 = M 0 = L

Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to society?

R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 No = 0	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 No = 0	1
R 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 drainage in which the unit is found)	Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above		4

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

Record the rating on the first page

Wetland name or number A

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

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

R 4.1. Characteristics of the overbank storage the wetland provides:

Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).

If the ratio is more than 20	points = 9	4
If the ratio is 10-20	points = 6	
If the ratio is 5-<10	points = 4	
If the ratio is 1-<5	points = 2	
If the ratio is < 1	points = 1	

R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).*

Forest or shrub for $> \frac{1}{3}$ area OR emergent plants $> \frac{2}{3}$ area	points = 7	7
Forest or shrub for $> \frac{1}{10}$ area OR emergent plants $> \frac{1}{3}$ area	points = 4	
Plants do not meet above criteria	points = 0	

Total for R 4 Add the points in the boxes above 11

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

Record the rating on the first page

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

R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	1
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R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	1
---	----------------	---

R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	1
---	----------------	---

Total for R 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

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

R 6.1. Distance to the nearest areas downstream that have flooding problems?

Choose the description that best fits the site.

The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	0
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	

R 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

Total for R 6	Add the points in the boxes above	0
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Rating of Value If score is: 2-4 = H 1 = M X 0 = L

Record the rating on the first page

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

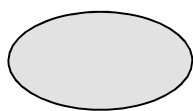
Count the number of plant species in the wetland that cover at least 10 ft².

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

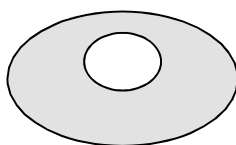
- | | | |
|------------------------------|------------|---|
| If you counted: > 19 species | points = 2 | 2 |
| 5 - 19 species | points = 1 | |
| < 5 species | points = 0 | |

H 1.4. Interspersion of habitats

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



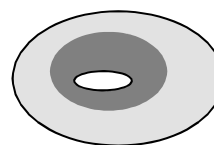
None = 0 points



Low = 1 point

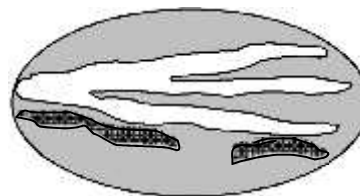
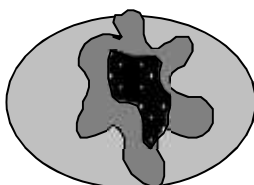
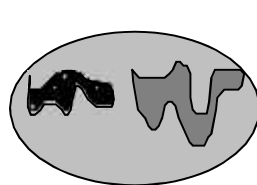


Moderate = 2 points



1

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



Wetland name or number A

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input checked="" type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		3
Total for H 1	Add the points in the boxes above	9

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

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

<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat <u>13</u> + [(% moderate and low intensity land uses)/2] <u>3</u> = <u>16</u> % If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>		1
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p>Calculate: % undisturbed habitat <u>21</u> + [(% moderate and low intensity land uses)/2] <u>7</u> = <u>28</u> %</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		2
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>		-2
Total for H 2	Add the points in the boxes above	1

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

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

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

Site meets ANY of the following criteria: points = 2

☒ It has 3 or more priority habitats within 100 m (see next page)

☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)

☒ It is mapped as a location for an individual WDFW priority species

☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources

☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

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

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

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

Record the rating on the first page

Wetland name or number A

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*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <div style="text-align: right;">Yes – Go to SC 1.1 No = Not an estuarine wetland</div>	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <div style="text-align: right;">Yes = Category I No = Go to SC 1.2</div>	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <div style="text-align: right;">Yes = Category I No = Category II</div>	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <div style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</div> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <div style="text-align: right;">Yes = Category I No = Not a WHCV</div> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf <div style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</div> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <div style="text-align: right;">Yes = Category I No = Not a WHCV</div>	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <div style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</div> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <div style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</div> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <div style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</div> NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <div style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</div>	Cat. I

Wetland name or number A

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

Wetland name or number A

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