DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Ave NE., P.O. BOX 90012
BELLEVUE, WA 98009-9012

OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) NOTICE MATERIALS

The attached materials are being sent to you pursuant to the requirements for the Optional DNS Process (WAC 197-11-355). A DNS on the attached proposal is likely. This may be the only opportunity to comment on environmental impacts of the proposal. Mitigation measures from standard codes will apply. Project review may require mitigation regardless of whether an EIS is prepared. A copy of the subsequent threshold determination for this proposal may be obtained upon request.

File No.	13-134209-LO/13-134210-WA/13-134211-WG
Project Name/Address:	City of Bellevue Utilities Department Bellefield Wastewater Pump Station and Pipe – System Replacement and Capacity Improvements 1402 112th Ave SE
Planner:	David Pyle / dpyle@bellevuewa.gov
Phone Number:	425-452-2973
Minimum Comment Period:	January 6, 2014, 5 PM

Materials included in this Notice:

- ☒ Blue Bulletin
- ☒ Checklist
- ☒ Vicinity Map
- ☒ Plans
- ☐ Other:

City of Bellevue File Numbers
13-134209-LO/13-134210-WA/13-134211-WG
12/05/2013
City of Bellevue Utilities Department Bellefield Wastewater Pump Station and Pipe - System Replacement and Capacity Improvements
Project SEPA Checklist
SEPA Checklist Reviewed By:
David Pyle, Land Use Planner
425-452-2973 - dpyle@bellevuewa.gov

City of Bellevue Submittal Requirements

ENVIRONMENTAL CHECKL

Thank you in advance for your cooperation and adherence to these p
completing the checklist or have any questions regarding the enviror
call Development Services (425-452-6800) between 8 a.m. and 4 p.r
10 to 4). Assistance for the hearing impaired: Dial 711 (Telecommu

INTRODUCTION
Purpose of the Checklist:

The State Environmental Policy Act (SEPA), Chapter 43.21c RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the City of Bellevue identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the City decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Answer the questions briefly, with the most precise information known, or give the best description you can. You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer or if a question does not apply to your proposal, write "do not know" or "does not apply." Giving complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the Planner in the Permit Center can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. Include reference to any reports on studies that you are aware of which are relevant to the answers you provide. The City may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impacts.

Use of a Checklist for Nonproject Proposals: *A nonproject proposal includes plans, policies, and programs where actions are different or broader than a single site-specific proposal.*

For nonproject proposals, complete the Environmental Checklist even though you may answer "does not apply" to most questions. In addition, complete the Supplemental Sheet for Nonproject Actions available from Permit Processing.

For nonproject actions, the references in the checklist to the words *project*, *applicant*, and *property* or *site* should be read as *proposal*, *proposer*, and *affected geographic area*, respectively.

Attach an 8 ½" x 11 vicinity map which accurately locates the proposed site.

BACKGROUND INFORMATION

Property Owner: Bellefield Office Park

Proponent: City of Bellevue Utilities Department; Jay Hummel, P.E., Project Manager, (425)-452-4160

Contact Person: Nikki Olson, Environmental Consultant at RH2 Engineering, Inc.
(If different from the owner. All questions and correspondence will be directed to the individual listed.)

Address: 22722 29th Drive SE, Suite 210, Bothell, WA 98021

Phone: (425) 951-5303

Proposal Title: Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement

Proposal Location: In and near 112th Avenue SE and SE 15th Street from Bellevue Way to adjacent to Surrey Downs Park. Township 24N, Range 05E, Section 05, and Township 25N, Range 05E, Section 32. See attached **Vicinity Map**.

Give an accurate, brief description of the proposal's scope and nature:

1. General description:

The City of Bellevue's (City) Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement project (Bellefield Sewer Project) is proposed to expand the capacity of an existing pump station and collection and conveyance pipelines in Bellevue, Washington. The Bellefield pump station and associated collection system serves the Mercer Slough area, called Sewer Basin 10, as well as the East Central Business District (ECBD) of the City. The pump station was built in the early 1980s and is reaching capacity with a flow rate of 2,800 gallons per minute (gpm). The pump station is identified in the City's 2002 *Comprehensive Wastewater Plan* as needing additional capacity with flows up to 8,000 gpm to accommodate future growth in the City's downtown area. The ECBD sewer trunk line that serves the pump station also needs to be replaced to handle the additional downtown growth and increase capacity to the replacement pump station. In addition, Sound Transit (ST) started planning the East Link Light Rail development (Light Rail Project), a section of which will use 112th Avenue SE, with pre-loading and construction to begin in October 2015. The City intends to start the construction for replacing the Bellefield pump station and ECBD sewer trunk line prior to the beginning of the Light Rail Project construction.

The Bellefield Sewer Project will include replacement of the sewer pump station wet and dry wells and mechanical and electrical equipment and controls, installation of an emergency power generator and odor control facility, and construction of a proposed control building and sewer pipelines, which are as follows.

- Approximately 1,900 linear feet (lf) of double sewer force main (22-inch-diameter HDPE pipe each) downstream of the pump station to a sewer manhole in the intersection of 112th Avenue SE and Bellevue Way SE and 210 lf of 30-inch ductile iron (DI) gravity main across the intersection to a sewer manhole on the west side of the intersection.
- Approximately 1,800 lf of sewer main constructed under the ECBD phase from the proposed pump station upstream to tie-in with an existing sewer manhole in 112th Avenue SE adjacent to Surrey Downs Park (36-inch DI pipe).
- Approximately 200 lf of sewer main from the Bellefield Park Lane residential community to the new pump station (8-inch pipe);
- Approximately 110 lf of sewer main from an existing manhole near the edge of Mercer Slough to the

proposed pump station to pick up flows from the Bellefield Office Park (8-inch DI pipe); and

- Approximately 300 lf of water main across 112th Avenue SE to serve the replacement pump station (8-inch pipe).

The wetwell will be one below-grade concrete structure. The above-grade building will house the electrical equipment, controls, and odor control facility, and will be approximately 560 square feet (sf). Combined with the above-grade concrete pad, backup generator, and other components, the total pump station footprint will be approximately 1,400 sf. The footprint of the pump station and its associated impervious surfaces (e.g., emergency overflow, parking, etc.) is about 8,600 sf, which will be expanded to roughly 9,000 sf after ST realigns SE 15th Street and re-grades and paves the pump station access area. No expansion of impervious surfaces will result from the construction of the proposed pipelines. The backup power generator will be located outside the above-grade building, complete with noise-control measures to satisfy noise ordinance requirements. The existing sewer pump station and associated pipelines will be abandoned once the proposed sewer pump station and associated pipelines are accepted and wastewater flow is transferred to the new facilities.

The ECBD sewer trunk line will be located within 112th Avenue SE to the extent practicable. The ECBD sewer trunk line could not be wholly located within the roadway, due to the large amount of fill anticipated with the light rail tunnel and re-grades of 112th Avenue SE and SE 15th Street. However, the selected alternative for the ECBD sewer trunk line will be located outside the wetlands associated with Mercer Slough, which makes it the most feasible alternative with the lowest environmental impact among those evaluated.

2. Acreage of site: Overall construction impact area of the entire project, including work in roads and rights-of-way, is about 2.66 acres.

3. Number of dwelling units/buildings to be demolished: None.

4. Number of dwelling units/buildings to be constructed: None.

5. Square footage of buildings to be demolished: No buildings will be demolished; the existing pump station is not housed in a building. It will be abandoned after the proposed pump station is accepted.

6. Square footage of buildings to be constructed: Under 600 sf.

7. Quantity of earth movement (in cubic yards): Approximately 18,000 cubic yards (cy) over the whole project, including work in roads and rights-of-way.

8. Proposed land use: Continue existing land use: sewer utility, road right-of-way, and Mercer Slough habitat within a zone designated as Office.

9. Design features, including building height, number of stories and proposed exterior materials: The maximum building height limitation in the Shoreline Overlay District is 35 feet, and 30 feet in the Office Zoning District. The pump station will be approximately 16 feet tall, with one above-grade floor on top of a below-grade structure. Proposed exterior materials are currently concrete masonry units (CMU) with metal roofing; however, proposed exterior materials may change. Security fencing may be installed using architectural wire fence or other aesthetically pleasing fence options.

10. Other

Estimated date of completion of the proposal or timing of phasing:

- Project Bidding: October 2014
- Contractor selection and contract preparation finished: February 2015
- Construction start: March or April 2015
- Construction end: March or April 2016, with continued compensatory mitigation of 3 to 5 years if on-site mitigation is accepted.

Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Other improvements are planned to occur concurrently and in the future within the City's wastewater system. No further additions or facility expansion is expected to occur (beyond regular maintenance) directly related to this project in the near future.

List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- Bellefield Sewer Project Critical Areas Land Use Permit application, City of Bellevue.
- Wetland Report, Anchor/QEA for ST East Link Project. This report is indirectly related to and covering the same area as the Bellefield Sewer Project; excerpts from the Draft Wetland Report relevant to the location of the sewer project were adopted and utilized for the Bellefield Sewer Project's Critical Areas Land Use Permit application.

Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. List dates applied for and file numbers, if known.

Yes. The ST Light Rail Project will also be undergoing permitting and approval processes. That project will utilize the 112th Avenue SE corridor as well. The Bellefield Sewer Project must be designed to fit along with ST's Light Rail Project in the narrow 112th Avenue SE corridor, and must be constructed prior to the Light Rail Project.

List any government approvals or permits that will be needed for your proposal, if known. If permits have been applied for, list application date and file numbers, if known.

The Bellefield Sewer Project is anticipated to require the following local and state permits.

- State Environmental Policy Act Checklist (SEPA) – City
- Critical Areas Land Use Permit (CALUP) – City
- Shoreline Conditional Use Permit (SCUP) – City/Washington State Department of Ecology (Ecology)
- Shoreline Substantial Development Permit (SSDP) – City
- Clearing/Grading Permits (for both the pump station and ECBD phases) – City
- Right Of Way Use Permit (for both the pump station and ECBD phases) – City
- King County Metro Discharge Permit – King County
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit (CSGP) – Ecology

Please provide one or more of the following exhibits, if applicable to your proposal. (Please check appropriate box(es) for exhibits submitted with your proposal):

☐ Land Use Reclassification (rezone) Map of existing and proposed zoning

☐ Preliminary Plat or Planned Unit Development
Preliminary plat map

☐ Clearing & Grading Permit
Plan of existing and proposed grading
Development plans

☐ Building Permit (or Design Review)
Site plan
Clearing & grading plan

☐ Shoreline Management Permit
Site plan

A. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site: ☐ Flat ☒ Rolling ☐ Hilly ☐ Steep slopes ☐ Mountains ☐ Other

b. What is the steepest slope on the site (approximate percent slope)? About 33 percent.

c. What general types of soil are found on the site (for example, clay, sand, gravel, peat, and muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Per the National Resources Conservation Services (NRCS) online mapping service, the project area consists of Alderwood gravelly sandy loams (6 to 30 percent slopes) with Seattle muck and Everett-Alderwood gravelly sandy loams are the primary soils on the site. Seattle muck is "Prime Farmland if Drained" and Alderwood gravelly sandy loams are "Farmlands of Statewide Importance."

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Several interactive map services (King County iMap and NWMaps.net) indicate that the Everett-Alderwood gravelly sandy loam soil unit in the vicinity of Bellevue Way and 112th Ave SE is an erosion hazard. Steep slopes are mapped in small areas associated with residential development along the western side of 112th Avenue SE, as well as small areas near the edge of Mercer Slough east of the Bellefield Sewer Project, and near the intersection of Bellevue Way and 112th Avenue SE. The Bellefield Sewer Project will not disturb steep slopes and will be located primarily in roadway and right-of-way in the vicinity of most of these mapped steep slope areas. No landslide hazards or moderate to high liquefaction zones were mapped or observed in the project vicinity.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Earthwork (grading) is associated with the replacement pipelines and pump station. For the pipelines, the estimated cut quantity for the whole project (not just in buffers) is about 16,000 cy. Import fill is expected to be used for all excavated material. Fill will be installed to maintain existing grades. For the pump station, the estimated cut quantity for the whole project (not just in buffers) is 2,000 cy, half of which is anticipated from the construction of the below-grade part of the pump station structure. Fill quantity is estimated at 1,000 cy. Fill is expected to be imported to support the below-ground structure of the pump station. Total project grading is anticipated to be 18,000 cy across the project area, including work in roads and rights-of-way.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Much of the project will be conducted through existing impervious surfaces, which presents less of an erosion concern. However, erosion could occur in the project areas that will occur in existing pervious surfaces during clearing and grading due to construction vehicles and equipment use on slopes.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

The only element of the project that will expand impervious surfaces is the pump station. The tract parcel on which the pump station will be constructed is 15.4 acres. The parcel currently has 2.98 percent impervious surfaces. The pump station will expand impervious surfaces by about 3,000 sf (both critical area buffer and non-buffer impacts), which is an increase of 0.5 percent in the parcel.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Temporary erosion and sediment control (TESC) measures will be employed during construction, following the guidance and requirements in the *Stormwater Management Manual for Western Washington* (Ecology, 2012). Methods may include covering exposed soils with mulch, straw, or hydroseed; limiting/phasing soil exposure; straw wattle barriers, etc. More information will be contained in the Stormwater Pollution Prevention Plan (SWPPP) to be produced in accordance with the NPDES CSGP.

2. Air

a. What types of emissions to the air would result from the proposal (i.e. dust, automobile odors, and industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Dust and exhaust from construction vehicles and equipment will occur during project construction. The finished project will include an odor control facility and a backup generator.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts to the air, if any:

Dust control measures will be outlined in the project SWPPP and employed during construction, as necessary.

3. Water

a. Surface

(1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Yes. Several waterbodies are present in the project vicinity. Mercer Slough is regulated as a shoreline critical area, wetland, and stream. It is directly east of the project and flows to Lake Washington. Alcove Creek flows through wetlands located in the Bellefield Park Lane residential community, crosses 112th Avenue SE south of the proposed pump station location, and empties into Mercer Slough. Two wetlands, Bellefield North and South, occur east of the existing pump station. A wetland identified as the 8th Street wetland is located west of the intersection of SE 8th Street and 112th Avenue SE. Classification, buffers, and setbacks of the waterbodies are as follows (*Draft East Link Wetland Report*, Anchor/QEA, November 2013).

Shoreline:

- Mercer Slough Shoreline – 200-foot jurisdiction, 50-foot critical area buffer from the ordinary high watermark (OHWM).

Streams:

- Mercer Slough West Branch – Type F water, 100-foot buffer; and
- Alcove Creek – Type O water, 25-foot buffer.

Wetlands:

- Mercer Slough West Branch Wetland – Category II, 110-foot buffer;
- Bellefield North Wetland – Category II, 75-foot buffer;
- Bellefield South Wetland – Category II, 75-foot buffer;
- Alcove Creek Wetland – Category II, 75-foot buffer; and
- 8th Street Wetland – Category III, 60-foot buffer.

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes. Work will occur within 200 feet of these waters, in the designated Shoreline Overlay District of Mercer Slough. The force main will cross the Alcove Creek culvert in the roadway of 112th Avenue SE, which will not affect the stream or its culvert. The project will be located in critical area buffers, but will not impact critical areas.

(3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material will be placed waterward of the OHWM or in wetlands.

(4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No, the project will not involve surface water withdrawals or diversions.

(5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No. The 100-year floodplain level for Mercer Slough is 20.3 feet; a review of the available Federal Emergency Management Agency (FEMA) floodplain maps shows the project will be outside of the floodplain.

(6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No. All wastewater is simply conveyed to the wastewater treatment facility. The wastewater conveyance system will continue operating with the existing pump station until the proposed pump station is accepted. An emergency sewer overflow will be provided in the rare and unlikely event that the pump station experiences a failure.

During construction, the contractor must have a Spill Prevention, Control and Countermeasure Plan (SPCC) to prevent and handle potential spills of construction fluids, etc.

b. Ground

(1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description.

Excavation for the pump station and ECBD may encounter groundwater at depths as shallow as 8 feet, and soft soil overlying dense glacial till and outwash. Construction will likely require shoring and groundwater control to maintain the integrity of the excavation during construction. Water will be disposed of as identified in the SWPPP; currently, the City plans to obtain a King County Metro Discharge permit to discharge water to the sanitary sewer

(2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.) Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be purposefully discharged to the ground.

c. Water Runoff (Including storm water)

(1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Runoff sources include high groundwater and direct precipitation. Stormwater from 112th Avenue SE is collected by catch basins and flows to existing outfalls. Runoff generally flows towards and into Mercer Slough from the project site. Runoff collection and disposal during construction will be maintained following the guidance of the SWPPP. The final project will have gutters and a downspout for ground infiltration of stormwater collected from the pump station roof. Runoff from the parking pad outside of the pump station will flow into adjacent vegetated areas.

(2) Could waste materials enter ground or surface waters? If so, generally describe.

Waste materials such as oils, lubricants, and stockpiled materials could accidentally spill into ground or surface waters from construction vehicles and equipment during construction.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Construction of the project will adhere to the guidance of the SWPPP and SPCC to avoid and minimize potential impacts to ground and surface waters.

4. Plants

a. Check or circle types of vegetation found on the site:

☒ deciduous tree: alder, maple, aspen, other
☒ evergreen tree: fir, cedar, pine, other
☒ shrubs
☒ grass
☐ pasture
☐ crop or grain
☒ wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
☐ water plants: water lily, eelgrass, milfoil, other
☐ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

The project will remove up to 9 significant trees (deciduous and coniferous), shrubs, herbaceous vegetation, and grass along the ECBD sewer trunk line route. Grass will be removed at the pump station site. Invasive plant species may be removed as part of the mitigation plan.

c. List threatened or endangered species known to be on or near the site.

The Washington State Department of Natural Resources (DNR) Natural Heritage Program List of Sections that Contain Natural Heritage Features was reviewed for this project. Township 24N, Range 05E, Section 05 and Township 25N, Range 05E, Section 32 were not on the list, nor were any neighboring sections. There are no known rare or Endangered Species Act (ESA) listed plants at the project site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Mitigation will be necessary for impacts to critical areas buffers per the City's Critical Areas regulations, unless it is waived. ST will be conducting a large amount of mitigation and landscaping in the project vicinity for the Light Rail Project as well.

5. Animals

a. Check or circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

- ☒ Birds: hawk, heron, eagle, songbirds, other:
- ☒ Mammals: deer, bear, elk, beaver, other:
- ☒ Fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

According to the Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) database, the only federal or state threatened or endangered species known in or near the Bellefield Sewer Project area are Puget Sound Chinook (*Oncorhynchus tshawytscha)*, which utilize the east branch of Mercer Slough as a migration corridor, destined for spawning grounds in Kelsey Creek. Chinook are also on the City's List of Species of Local Importance. The west branch of Mercer Slough provides poor salmonid habitat, but migrating salmonids do have the opportunity to enter the west branch.

c. Is the site part of a migration route? If so, explain.

The region is part of the Pacific Flyway for migratory birds; the slough provides habitat for migratory water fowl. The west branch of Mercer Slough is connected to the east branch of Mercer Slough which, according to PHS data, serves as aquatic habitat for breeding, migration, and occurrence of Puget Sound Chinook (*O. tshawytscha*), breeding and occurrence of coho salmon (*O. kisutch*), occurrence and migration of sockeye salmon (*O. nerka*), occurrence and migration of rainbow trout (*O. mykiss*), and occurrence and migration of coast resident cutthroat trout (*O. clarki*).

d. Proposed measures to preserve or enhance wildlife, if any:

Mitigation for impacts to stream and wetland habitat and buffers will result in improved wildlife habitat through enhancing vegetative biodiversity and removing invasive plant species.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy need? Describe whether it will be used for heating, manufacturing, etc.

The completed project will primarily use electric energy with a backup diesel generator.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of the proposal? List other proposed measures to reduce or control energy impacts, if any:

Proposed use of flow matching wastewater pumps operated on variable frequency drives, occupancy sensors, and photocells.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

Accidental spills of equipment fluids and fuels may occur during construction. An SPCC and SWPPP will be created and used in accordance with the *Western Washington Stormwater Management Manual* (Ecology, 2012). The final project will have an emergency overflow for wastewater in the rare and unlikely event of a failure of the pump station, which would allow for wastewater to flow to the slough.

(1) Describe special emergency services that might be required.

No special emergency services are anticipated. Should an accident or fire occur during construction, normal emergency response services will be contacted.

(2) Proposed measures to reduce or control environmental health hazards, if any.

Fuel spill kits and other spill prevention, containment, and pollution control materials will be on hand and employed in the event of a leak or spill in accordance with the SPCC Plan.

b. Noise

(1) What types of noise exist in the area which may affect your project (for example, traffic, equipment, operation, other)?

None. Traffic noise is prevalent along 112th Avenue SE, but is not expected to affect the project.

(2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example, traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Temporary construction noise will occur during project construction on a short-term basis. Construction is expected to be limited to normal daylight business hours.

(3) Proposed measures to reduce or control noise impacts, if any:

Construction noise levels will comply with the Bellevue Municipal Code.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

Adjacent properties are office space and residential (west of 112th Avenue SE). The parcel on which the pump station will be located contains the existing Bellefield pump station, SE 15th Street, and landscaped open space/forest habitat adjacent to Mercer Slough.

b. Has the site been used for agriculture? If so, describe.

Unknown.

c. Describe any structures on the site.

There is a roundabout island in SE 15th Street with a sign for the office park, a bronze sculpture, and the existing pump station to the north.

d. Will any structures be demolished? If so, what?

The bronze sculpture will be moved to a new location. The Bellefield Office Park signage will be temporarily removed on SE 15th Street and replaced following construction. The existing pump station will be abandoned and may be removed during the SE 15th Street re-grade and realignment. No buildings will be demolished.

e. What is the current zoning classification of the site?

Office.

f. What is the current comprehensive plan designation of the site?

Office.

g. If applicable, what is the current shoreline master program designation of the site?

The shoreline environmental designation is Urban Conservancy according to the City's *Draft Shoreline Master Program* (2011).

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Portions of the site are located in critical area buffers.

I. Approximately how many people would reside or work in the completed project?

None.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

None.

i. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

None.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

None.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The proposed pump station is approximately 16 feet tall. Exterior building materials may change, but are currently conceptualized as a CMU building with metal roofing.

b. What views in the immediate vicinity would be altered or obstructed?

The proposed pump station will be visible to pedestrians and traffic on SE 15th Street and 112th Avenue SE, and future light rail traffic.

c. Proposed measures to reduce or control aesthetic impacts, if any:

The proposed pump station alternative will be partially hidden from the public by surrounding landscaping, compensatory mitigation planting, and potentially by architectural wire fence or other aesthetically attracting security fencing.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The project will not produce light and glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light or glare impacts, if any:

None.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Public use of the project area and adjacent shoreline consists of local residents walking, running, and exercising their dogs along 112th Avenue SE and SE 15th Street, and people parking their vehicles in the turnaround to enjoy the view.

b. Would the proposed project displace any existing recreational uses? If so, describe.

Pedestrians will still be able to access the area for passive recreation using sidewalks proposed for the realignment of SE 15th Street. The turnaround will be removed.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Signage alerting pedestrians to construction will be employed during construction.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

The National Register of Historic Places and the Washington Information System for Architectural and Archaeological Records Data (WISAARD) show one Register-listed site: the F.W. Winters House. A Historic Property Inventory has been conducted in nearby neighborhoods; some homes are more than 50 years old, but were not evaluated for historic status. It is unlikely any of the older neighborhood homes qualify for listing on the Register.

b. Generally describe any landmarks or evidence of historic, archeological, scientific, or cultural importance known to be on or next to the site.

The F.W. Winters House is located at 2102 Bellevue Way SE and is the only registered structure in the project vicinity.

c. Proposed measures to reduce or control impacts, if any:

No work will impact or occur in the vicinity of the F.W. Winters House.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

The major arterial serving the site is 112th Avenue SE via Bellevue Way SE. SE 15th Street is a business park access road running through the tract lot.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Yes, Sound Transit and King County Metro bus stops are within walking distance of the project.

c. How many parking s[illegible]s would be completed project have? [illegible]w many would the project eliminate?

Currently, there are no official parking spaces in the project vicinity, but the turnaround is used by people seeking informal recreation to park their cars. The existing turnaround can fit about 3 to 4 cars this way. The project, in conjunction with the Light Rail Project, will result in the removal of the turnaround. The project will provide enough space for parking four vehicles, at least, though these will be dedicated for City maintenance vehicles only.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No new roads or streets will be constructed. The pump station will alter SE 15th Street by removing the turnaround. The ECBD and double force main will be installed in 112th Avenue SE, resulting in temporary construction impacts.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project will not use, nor will it occur within the vicinity of, water, rail, or air transportation.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Less than one per day.

g. Proposed measures to reduce or control transportation impacts, if any:

The City is working with ST to coordinate construction with the proposed Light Rail Project. The Bellefield Sewer Project will require the temporary closure of SE 15th Street. This may happen concurrently with the Light Rail Project. There are other access points to the Bellefield Office Park. The Bellefield Sewer Project will maintain two-way traffic on 112th Avenue SE during and after construction.

15. Public Services

a. Would the project result in an increased need for the public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any:

None proposed.

16. Utilities

a. Circle utilities currently available at the site: **electricity,** natural gas, **water**, refuse service, **telephone**, **sanitary sewer**, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The project is a wastewater pump station and pipeline replacement project. Additionally, a new water line will feed the pump station.

Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

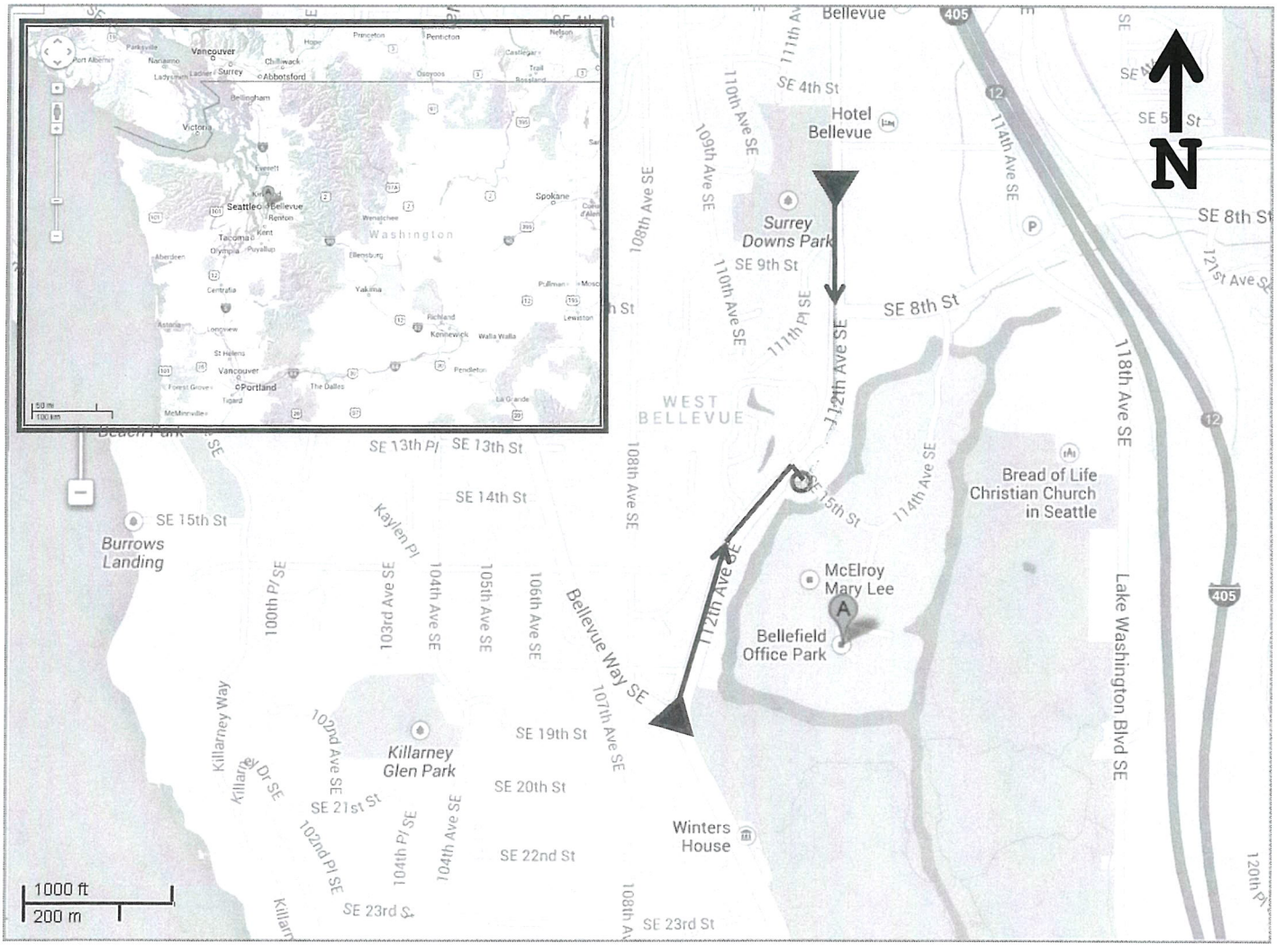
Mark Cross 11/15/13

SEPA Checklist Reviewed By: David Pyle
12/05/2013

Signature Mark Cross Date Submitted 11/15/13

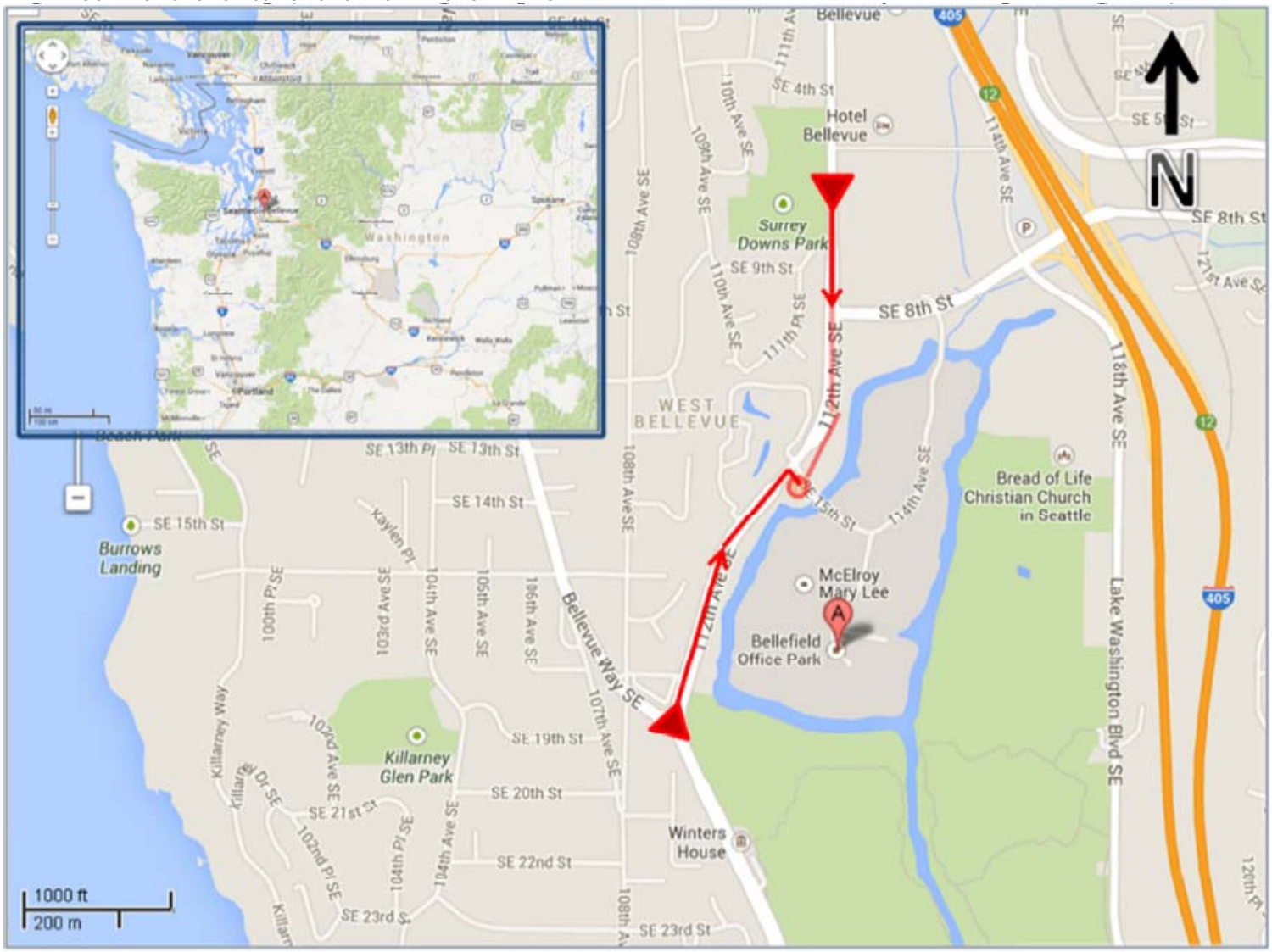
VICINITY MAP

Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement



SEPA Checklist Reviewed By: David Pyle
12/05/2013

City of Bellevue Utilities Department Bellefield Wastewater Pump Station and Pipe
COB File #'s 13-134209-LO/13-134210-WA/13-134211-WG



SEPA Checklist Reviewed By: David Pyle
12/05/2013

RH2 ENGINEERS PLANNERS SCIENTISTS

RH2 ENGINEERING, INC.
www.rh2.com
mailbox@rh2.com
1.800.720.8052

WASHINGTON LOCATIONS

BOTHELL
MAIN OFFICE
22722 29th Drive SE, Suite 210
Bothell, WA 98021

BELLINGHAM

EAST WENATCHEE

ISSAQUAH

RICHLAND

TACOMA

OREGON LOCATIONS

NORTHERN OREGON
MAIN OFFICE
6500 SW Macadam Avenue, Suite 125
Portland, OR 97239

SOUTHERN OREGON
Central Point

COASTAL OREGON
North Bend

November 15, 2013

Mr. David Pyle, Senior Planner – Environmental Team
City of Bellevue
Development Services Department
Land Use Division
450 1120th Avenue NE
Bellevue, WA, 98004

Sent via: *In-person Delivery*

Subject: City of Bellevue Bellefield Sewer Project – Shoreline Conditional Use, Shoreline Substantial Development, Critical Areas Land Use, and SEPA Environmental Checklist Submittal

Dear Mr. Pyle:

Please find enclosed the materials determined necessary to aid your review of the City of Bellevue (City) Bellefield Sewer Pump Station Relocation and East Central Business District (ECBD) Sewer Trunk Line Replacement projects (Bellefield Sewer Project) in regard to obtaining a Shoreline Conditional Use Permit, Shoreline Substantial Development Permit, Critical Areas Land Use Permit, and State Environmental Policy Act (SEPA) determination.

The two projects that make up the Bellefield Sewer Project (directly related projects being designed by different consulting firms, but presented as one project for land use permitting) are still in the early stages of design. The Bellefield Sewer project timeline is constrained by the indirectly related Sound Transit East Link Light Rail Project timeline, which will utilize much of the same area of impact as the sewer project for the construction of the East Link Light Rail line, a re-grade of 112th Avenue SE, and a re-grade and re-alignment of SE 15th Street. Both the Bellefield Sewer project and Sound Transit East Link Light Rail Project result in impacts to the wetland, stream and shoreline buffers of Mercer Slough, and wetland buffers of Bellefield North and Bellefield South wetlands, much of which is overlapping impact. Therefore, discussion of mitigation responsibilities for overlapping impacts between the City and Sound Transit are ongoing. Additionally, the projects have not obtained easements from the land owner (Bellefield Office Park); easement negotiations are ongoing.

RH2 Engineering, Inc., (RH2) is submitting the enclosed documentation based on the most recent information about all of the projects involved. A revised version will be submitted reflecting feedback received from the City's reviewing departments and any design changes, negotiations, and agreements.

If you have any questions regarding the enclosed submittal documentation, please do not hesitate to contact me at (425) 951-5303 or nolson@rh2.com.

Sincerely,

RH2 ENGINEERING, INC.

Nikki Olson

Nikki Olson
Environmental Scientist

NO/RB/jq/ms

Enclosures:
- Electronic Documents on CD
- City of Bellevue Critical Areas Land Use Permit and Shoreline Development Charts
- City of Bellevue Application For Land Use Approval
- "Bill To" Form
- Statistical Information Sheet
- Bellefield Sewer Project SEPA Environmental Checklist
- Critical Areas Assessment and Mitigation Plan and Appendices (including Wetland Report excerpt, wetland rating forms, and project narratives addressing decision criteria)
- Boundary and Topographic Survey Plans
- Site Plan B
- Building Elevations Plan
- Floor Plan
- Preliminary Clearing and Grading Plan
- Exterior Lighting Plan

cc: Mr. Jay Hummel, P.E., Project Manager, City of Bellevue – Utilities Engineering Design
Mr. Mark Cross, CIP Permit Coordinator, City of Bellevue – Utilities Department

CRITICAL AREAS ASSESSMENT AND MITIGATION PLAN

City of Bellevue – Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement Project

November 2013

Critical Areas Land Use Permit, Shoreline Conditional Use Permit, and Shoreline Substantial Development Permit Submittal Package

Completed on Behalf of the City of Bellevue Public Works Department by:
RH2 Engineering, Inc.
22722 29th Drive SE, Suite 210
Bothell, WA 98021

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APPENDICES

A. Draft East Link Wetland Report Excerpt and Wetland Determination and Rating Forms
B. Site Photographs
C. Project Narratives for Critical Areas Land Use, Shoreline Conditional Use, and Shoreline Substantial Development Permits
D. FEIS Segment B Excerpt
E. Triple Bottom Line Analysis
F. Conceptual Mitigation Plan

RESPONSIBLE PARTIES

Permittee
City of Bellevue, Washington
Jay Hummel, P.E., Senior Engineer
450 – 110th Avenue NE, PO Box 90012
Bellevue, WA 98009-9012
Phone: (425) 452-4160
Email: JHummel@bellevuewa.gov

Permittee's Agent
RH2 Engineering, Inc.
Nikki Olson, Environmental Services
22722 29th Drive SE, Suite 210
Bothell, WA 98021
Phone: (425) 951-5303; Fax: (425) 951-5401
Email: nolson@rh2.com

BACKGROUND AND HISTORY

The City of Bellevue's (City) Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement project (Bellefield Sewer Project) is proposed to expand capacity of an existing pump station and collection and conveyance pipelines in Bellevue, Washington. The project is comprised of two separate contracts with MWH Americas, Inc., (MWH) and RH2 Engineering, Inc., (RH2), but will be permitted through the shoreline, critical areas, and State Environmental Policy Act (SEPA) processes as one project comprised of two phases. MWH is designing the replacement East Central Business District (ECBD) sewer trunk line, located upstream of the Pump Station; RH2 is designing the replacement Bellefield pump station, downstream double force main, and two sewer mains that run directly to the pump station: one from the Bellefield Park Lane residential community; and one from a manhole associated with the Bellefield Office Park.

The Bellefield Pump Station and associated collection system serves the Mercer Slough area, called Sewer Basin 10, as well as the ECBD of the City. The pump station is located on a tract parcel owned by the Bellefield Office Park, west of Mercer Slough. It is accessible via 112th Avenue SE and SE 15th Street. The station was built in the early 1980s and is reaching capacity with a flow rate of 2,800 gallons per minute (gpm). The station and ECBD sewer trunk line are identified in the City's 2002 *Comprehensive Wastewater Plan and 2013 Draft Comprehensive Wastewater Plan* as needing additional capacity, with flows entering the pump station at up to 8,000 gpm, to accommodate future growth in the City's downtown area.

In addition, Sound Transit (ST) has begun planning the East Link Light Rail development (Light Rail Project), a section of which will use 112th Avenue SE, with pre-loading and construction to begin in October 2015. The Light Rail Project will involve constructing the light rail tracks in and adjacent to the 112th Avenue SE roadway, rebuilding the road over a proposed light rail tunnel to heights of approximately 25 feet above current grade (adjacent to the existing and proposed Bellefield pump station), and realigning and adding height to SE 15th Street to accommodate the light rail project and maintain a connection to 112th Avenue SE. The Light Rail Project will involve impacts to the existing Bellefield Pump Station site through pre-loading and grading necessary for the SE 15th Street and 112th Avenue SE alterations, so it is necessary for the City to replace the Bellefield Pump Station and its associated pipelines and transfer wastewater to the replacement facilities before construction of the Light Rail Project.

This Critical Areas Assessment (Assessment) will address the permanent and temporary impacts of the Bellefield Sewer Project on critical areas and their buffers to satisfy the City's Critical Areas Overlay Code (Bellevue Land Use Code (LUC) Title 20.25H). These regulations direct project proponents to identify and characterize critical areas within the project area, including shorelines, wetlands, streams, habitats for species of local importance, geologic hazard areas, and flood hazard areas. Furthermore, these regulations require an assessment of probable project impacts and a description of the mitigation sequence conducted to avoid, minimize, and mitigate impacts to critical areas.

The Bellefield Sewer Project is anticipated to require the following local and state permits.

- SEPA Checklist – City
- Critical Areas Land Use Permit (CALUP) – City
- Shoreline Conditional Use Permit (SCUP) – City/Washington State Department of Ecology (Ecology)
- Shoreline Substantial Development Permit (SSDP) – City
- Clearing/Grading Permits (for both the Pump Station and ECBD phases) – City
- Right-of-Way Use Permit (for both the Pump Station and ECBD phases) – City
- King County Metro Discharge Permit – King County
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit (CSGP) – Ecology

RH2 and the City are producing the initial permit submittal package for both phases of the Bellefield Sewer Project, consisting of documentation to satisfy the requirements of the CALUP, SCUP, and SSDP, which includes SEPA approval. Following approval of the initial permit submittal package and obtainment of those permits, each phase will submit for Clearing/Grading permits and Right-of-Way Use permits separately. RH2 will obtain an NPDES CSGP from Ecology to cover both phases of the Bellefield Sewer Project, and a Metro Discharge Permit from King County for the Pump Station phase.

RH2, MWH, ST, and the City conducted a Pre-Application Conference with reviewing departmental staff on October 24, 2013. A meeting was held with RH2, ST, and the City to discuss the mitigation plan and strategy for the Bellefield Sewer Project and Light Rail Project (since the two projects are interrelated and involve overlapping critical areas impacts) on November 4, 2013. This Assessment adopts and includes an excerpt of the *Draft East Link Wetland Report* (Anchor/QEA, November 2013) relevant to the Bellefield Sewer Project vicinity, complete with wetland rating and wetland determination forms (**Appendix A**).

This Assessment has been prepared for use by the City and its consultants. In preparing this Assessment, RH2 used site information from an environmental field investigation of the existing pump station site and five pump station alternatives completed by RH2 on May 7, 2013; a topographic survey completed by Triad Associates; the Final Environmental Impact Statement (FEIS) for the ST East Link Light Rail Project (ST, July 2011); an excerpt of the *Draft East Link Wetland Report* and associated wetland rating and determination data transferred to RH2 on November 5, 2013 (produced by Anchor/QEA); the October 24, 2013 Pre-Application Conference and subsequent meetings with City staff and ST; and engineering designs prepared by RH2 and MWH. Findings detailed in this Assessment are based on information gathered in the field at the time of investigation by RH2's Environmental Group and Anchor/QEA, as well as RH2's understanding of the federal, state, and local regulations governing critical areas. Relevant site-specific information also used in preparing this Assessment was obtained from the City, King County, Ecology, Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species Program (PHS), the Washington Department of Natural Resources (DNR) Natural Heritage Program (NHP), U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). The wetland boundary is based on Anchor/QEA's *Draft East Link Wetland Report* prepared for ST's Light Rail Project. Wetland and stream classification and recommended buffers were provided by the City and Anchor/QEA. The mitigation plan is based on RH2's best professional judgment of the circumstances and site conditions. The final mitigation alternatives are subject to change pending review by the appropriate local and state agencies with jurisdiction.

INTRODUCTION

Project Overview

The Bellefield Sewer Project will replace the existing Bellefield Pump Station, upstream gravity sewer main, downstream sewer force main, and some associated smaller sewer mains generally within and adjacent to a roughly 4,000-foot stretch of 112th Avenue SE, between Bellevue Way and Surrey Downs Park (just north of SE 8th Street).

The Bellefield Sewer Project involved five alternatives for the replacement pump station and three alternatives for the replacement ECBD sewer trunk line. The chosen pump station and ECBD alternatives present the lowest environmental impacts practicable among the field of alternatives evaluated. The Bellefield Sewer Project will include replacement of the sewer pump station wet and dry wells, and mechanical and electrical equipment and controls; installation of an emergency power generator and odor control facility; and construction of a proposed control building and sewer pipelines, which are as follows.

- About 1,900 lineal feet (lf) of double sewer force main (22-inch-diameter high density polyethylene (HDPE) pipe each) downstream of the pump station to a sewer manhole in the intersection of 112th Avenue SE and Bellevue Way SE, and 210 lf of 30-inch ductile iron (DI) gravity main across the intersection to a sewer manhole on the west side of the intersection.
- About 1,800 lf of sewer main constructed under the ECBD phase from the proposed pump station upstream to tie-in with an existing sewer manhole in 112th Avenue SE adjacent to Surrey Downs Park (42-inch DI pipe).
- About 200 lf of sewer main from the Bellefield Park Lane residential community to the new pump station (8-inch pipe).
- About 110 lf of sewer main from an existing manhole near the edge of Mercer Slough to the new pump station to pick up flows from the Bellefield Office Park (8-inch DI pipe).
- About 300 lf of water main across 112th Avenue SE to serve the relocated pump station (8-inch pipe).

The wet wells will be located within a below-grade concrete structure. The above-grade building will house the electrical equipment, controls, and odor control facility, and will be approximately 560 square feet (sf). Combined with the above-grade concrete pad, backup generator, and other components, the total pump station footprint will be approximately 1,400 sf. The footprint of the pump station and its associated impervious surfaces (e.g., emergency overflow, parking, etc.) is about 8,600 sf, which will be expanded to roughly 9,000 sf after ST realigns SE 15th Street and re-grades and paves the pump station access area. No expansion of impervious surfaces will result from the construction of the proposed pipelines. The backup power generator will be located outside the above-grade building, complete with noise-control measures to satisfy noise ordinance requirements. The existing sewer pump station and associated pipelines will be abandoned once the proposed sewer pump station and associated pipelines are accepted and wastewater flow is transferred to the new facilities.

The ECBD sewer trunk line will be located within 112th Avenue SE to the extent practicable. The ECBD sewer trunk line could not be wholly located within the roadway, due to the large amount of fill anticipated with the light rail tunnel and re-grades of 112th Avenue SE and SE 15th Street. However, the selected alternative for the ECBD sewer trunk line will be located outside of wetlands associated with Mercer Slough, which makes it the most feasible alternative with the lowest environmental impact among those evaluated.

Project Location

The overall project site is set between 112th Avenue SE and Mercer Slough, and within the 112th Avenue SE roadway, in the City of Bellevue, in King County, Washington, Section 05, Township 24 North, Range 05 East; however, the northern end of the ECBD sewer trunk line is in Section 32, Township 25 North, Range 05 East. Construction of the pump station will occur on a tract parcel that is owned by the Bellefield Office Park. The existing pump station is located just north of SE 15th Street, and just east of 112th Avenue SE. The replacement pump station will be located mostly on the paved turnaround in SE 15th Street, approximately 185 feet to the south of the existing pump station. Refer to **Figure 1.**

The double force main element of the project will replace force main that conveys wastewater from the pump station downstream to a gravity main in the intersection of Bellevue Way and 112th Avenue SE, a span of about 2,000 feet. It will primarily be located in the northbound lanes of 112th Avenue SE, except where it must cross grass from the road to the replacement pump station. The construction impact width will be about 20 feet on average for the length of the double force main. Construction, including stockpiles and staging, will remain in the City's right-of-way. Two-way traffic on 112th Avenue SE will be maintained during construction.

Construction of the Bellefield Park Lane residential community sewer line will run about 200 lf from a manhole adjacent to the community eastward across 112th Avenue SE to the replacement pump station. Construction impacts are expected to be limited to a trench about 20 feet wide, unless the contractor chooses to use a trenchless construction method. The Bellefield Office Park sewer line will run east about 110 feet from the replacement pump station to a manhole located at the edge of Mercer Slough, about 12 feet west of the ordinary high water mark (OHWM) and outside of the 100-year floodplain (manhole rim is at 22.75 feet elevation). Construction impacts are expected to be limited to a trench about 55 feet wide, also, unless the contractor chooses to utilize trenchless construction.

The ECBD sewer trunk line will run about 1,800 lf from a manhole near the replacement pump station northward to a manhole in 112th Avenue SE adjacent to the entrance to Surrey Downs Park. The southern half of the ECBD, between SE 15th Street and the northern Bellefield Office parking lot, will be located in the buffer between 112th Avenue SE and the Mercer Slough. The second half of the ECBD will shift to the 112th Avenue SE roadway or median at the edge of the northern office parking lot, where it will remain until it ties in with the designated manhole at the northern terminus of the project. At some points the ECBD will be between 20 to 25 feet deep below existing ground level, which is considered very deep for a sewer pipeline and which will require a wider construction easement and impact area. The permanent easement has been estimated at 30 feet wide on average for the length of the ECBD; the construction easement has been estimated at 55 feet wide on average, measured from the edge of 112th Avenue SE right-of-way. Two-way traffic on 112th Avenue SE will be maintained during construction to the extent possible.

Project Vicinity

The tract parcel where the existing and replacement pump station are located is an Office-designated zone of the City. Residential housing is located generally to the west of 112th Avenue SE, including the Bellefield Park Lane residential community. The community features single-family and duplex-style homes with yards and ornamental plantings, and a paved access road (Bellefield Park Lane). The Bellefield Office Park is located to the east of 112th Avenue SE, and is accessible via SE 15th Street. At the northern terminus of the ECBD sewer trunk line replacement, Surrey Downs Park is located to the west, and commercial facilities are located to the east (The Bellevue Club). The intersections of 112th Avenue SE and SE 8th Street, and 112th Avenue SE and Bellevue Way SE are fairly large and busy intersections. In addition, 112th Avenue SE is a major north-south collector with two northbound lanes and two southbound lanes separated by a wide, treed, vegetated strip, with an occasional turn lane. There are sidewalks on both sides of the street, and

additional right-of-way landscaping. The street is about 10 to 30 feet higher than Mercer Slough along the length of the Bellefield Sewer Project, with the riparian zone sloping from the eastern 112th Avenue SE sidewalk to the slough. The distance between the sidewalk and the slough varies between 50 to 200 feet along the project alignment, up to the northern Bellefield Office building, where the slough bends eastward away from 112th Avenue SE.

The proposed pump station location is about 80 feet east of 112th Avenue SE, mostly within the existing SE 15th Street roundabout. SE 15th Street is an access road for the Bellefield Office Park, featuring a landscaped island with a sign designating the office park in the center of the roundabout and a bridge over Mercer Slough. Between 112th Avenue SE and the roundabout is a set of bronze statues and a landscaped patch of trees and shrubs, with another office park sign. The pump station will require grading and removal of the roundabout.

The site is served by a King County Metro bus stop. There is a short gravel path leading from the sidewalk on the east side of the statues into the project area, a spur of which stops under two large trees. The site and adjacent sidewalk is used for passive recreation, including running, dog walking, and nature appreciation.

In the vicinity of the proposed pump station, the site is mostly comprised of mowed grass and weeds. There are wooden railroad ties buried in the ground which form terraces; these are also stacked at the edge of the slough as a sort of retaining wall. The ground near the terraces and slough is firm and has visible gravel. A patch of English ivy and ornamental groundcover is growing over the wood terraces. There are several planted trees along the edges of the site. To the southwest of the proposed pump station, a large thicket of Himalayan blackberry covers the slope to the slough. Other riparian vegetation consists of willow, red osier dogwood, alders, and other hydrophytic plants.

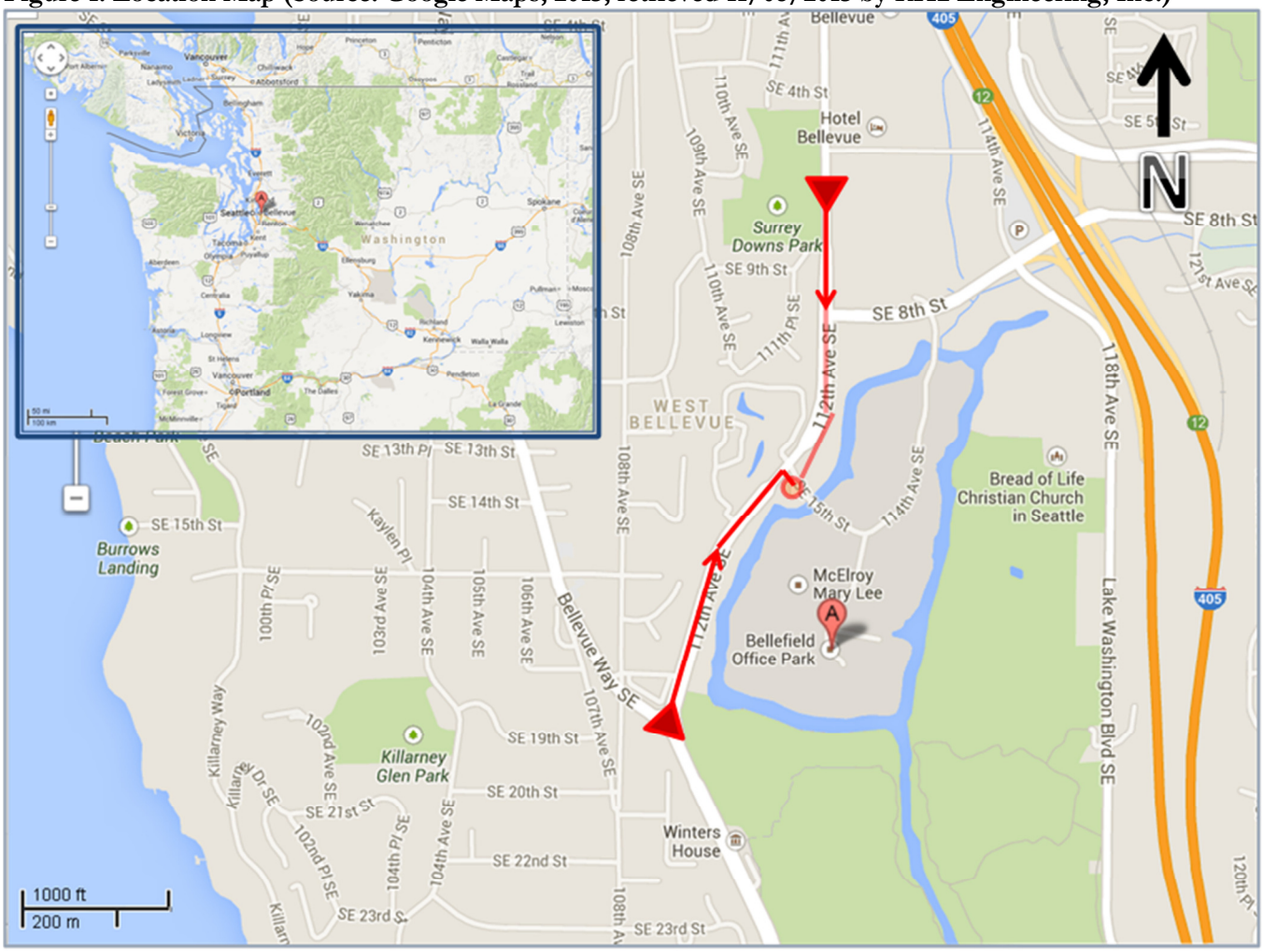
Excavation for the pump station may encounter groundwater at depths as shallow as 8 feet, and soft soil overlying dense glacial till and outwash. Construction of the pump station will likely require shoring and groundwater control to maintain the integrity of the excavation during construction.

The project site is located in the Cedar River/Lake Washington Watershed Water Resource Inventory Area (WRIA) 8), adjacent to Mercer Slough. Mercer Slough is the largest wetland that remains connected to Lake Washington. Kelsey Creek and Sturtevant Creek are tributaries to the north. The topography of the wider landscape includes flat to moderately sloping uplands, moderate to steep hill slopes, and the flat valley. The Mercer Slough has a slope of less than 1 percent between the uplands. To the east of the project is the whole of Mercer Slough and the Bellefield Office Park, east of which is Interstate 405. The site is bound to the west by 112th Avenue SE and residential development. The Mercer Slough Nature Park and historic agricultural sites (including the Blueberry Farm) are to the south of the project. SE 8th Street is the northern boundary of Mercer Slough; the ECBD sewer trunk line will be installed north of SE 8th Street, in 112th Avenue SE, and will be bound by commercial development to the north and east, and Surrey Downs Park to the west. The slough has been partially dredged several times in the past 100 years and was significantly disturbed in the 1970s with the establishment of the Bellefield Office Park, which to this day consistently experiences drainage issues.

Mercer Slough has two associated slope/riverine wetlands in the vicinity of the Bellefield Sewer Project, named Bellefield North and Bellefield South by Anchor/QEA ecologists during delineations for the Light Rail Project. Both are rated as Category II wetlands, containing forested, scrub-shrub, and emergent vegetation classes. The two riverine wetlands are located in a forested riparian area in the buffer between 112th Avenue SE and the slough, near the existing pump station. Outside of this forested area, vegetation is mowed grass or blackberry thicket, with some large trees. The ECBD sewer trunk line has been designed to avoid crossing these wetlands, but will be located in Mercer Slough wetland buffer and Shoreline Overlay District. Alcove Creek, a Type O stream, crosses 112th Avenue SE in a culvert and outfalls to Mercer Slough

south of the proposed pump station. The downstream double force main will cross below Alcove Creek in the road, and will have no impact on the culvert. Upstream of the culvert, west of 112th Avenue SE, Alcove Creek flows through several wetlands located at the center of the Bellefield Park Lane residential community. The nearest Alcove Creek wetland was identified as a Category II depressional and riverine wetland with forested, scrub-shrub, and emergent vegetation classes. A Category III depressional wetland was visually delineated on private property (no right-of-entry allowed onsite) and in the right-of-way adjacent to the SE 8th Street and 112th Avenue SE intersection. Refer to the *Draft East Link Wetland Report Excerpt* (**Appendix A**) and Site Photographs (**Appendix B**).

Figure 1. Location Map (Source: Google Maps, 2013, retrieved 11/08/2013 by RH2 Engineering, Inc.)



CRITICAL AREAS

Prior to field investigation, a cursory review of previously gathered environmental data was conducted. The following documents were reviewed.

- Bellevue City Code (Critical Areas Chapter 20.25H, etc.) and existing critical areas maps produced by the City.
- National Wetlands Inventory data (USFWS).
- NRCS Web Soil Survey.
- WDFW PHS and DNR NHP data.

- Sound Transit, East Link Project, *Final EIS* (July, 2011).

The Bellefield Sewer Project will not involve work in Mercer Slough or its associated wetlands, but it will involve work within their buffers. The project is within the Shoreline Overlay District of Mercer Slough and will have impacts within the shoreline critical area buffer (50 feet from the OHWM of Mercer Slough). The classifications of and impacts to critical areas is described in **Table 1**. Note that buffer coverage ends at the edge of rights-of-way; therefore, any construction within existing rights-of-way and roadways does not count as impacts to critical areas. Temporary impacts for the ECBD sewer trunk line were evaluated using an estimated 55-foot temporary construction easement measured east from the 112th Avenue SE right-of-way.

Table 1. Square Footage of Permanent and Temporary Buffer Impacts of the Bellefield Sewer Project on Mercer Slough Critical Areas. Impacts are not double-counted. (Source: *Draft East Link Wetland Report* Excerpt and David Pyle, City of Bellevue Planner).

Critical Areas	Classification	Buffer Width (feet)	Permanent Impacts in Critical Area Buffers	Temporary Impacts in Critical Area Buffers
Bellefield North & South Wetlands	Category II	75	Pump station: 3,100 sf ECBD: 22,500 sf **Total: 25,600 sf**	Pump station: 18,300 sf ECBD: 22,400 sf **Total: 40,700 sf**
Mercer Slough Wetland	Category II	110		
Mercer Slough Stream	Type F	100	Overlapping impacts included above	Overlapping impacts included above
Mercer Slough Shoreline	Shoreline of the State	50		
sf = square feet			**Total Temporary and Permanent Impacts: 62,100 sf**	

Mercer Slough is regulated as a shoreline, wetland, and stream, resulting in layers of buffers in the project area. The largest buffer width was used for the purposes of calculating mitigation ratios a single time. The Mercer Slough wetlands buffer is the largest-width buffer at 110 feet, and has been used in conjunction with the 75-foot and 60-foot wetland buffers of the Bellefield wetlands and 8th Street wetland to evaluate impacts to critical areas. The total square footage of permanent and temporary impacts in critical area buffers is estimated at 62,100 square feet (sf); 25,600 sf of which is permanent. Temporary impacts for the ECBD sewer trunk line were evaluated using an estimate 55-foot temporary construction easement measured east from the 112th Avenue SE right-of- way. The impacts within the wetland buffers will be mitigated through a combination of on-site, in-kind, and off-site, in-kind compensatory mitigation, to satisfy the 1:1 mitigation ratio for impacts to critical area buffers.

Wetlands

Wetland and stream habitat was delineated and characterized by Anchor/QEA ecologists for the Sound Transit East Link Light Rail Project from February through May, 2013. See the *Draft East Link Wetland Report Excerpt* and Wetland Delineation and Rating Data (**Appendix A**), which has been adopted for wetland report compliance for the Bellefield Sewer Project. The ST Light Rail Project has a much larger area of impact than the Bellefield Sewer Project; therefore, only the pages of the wetland report relevant to the sewer project have been included.

Wetlands delineated for the Light Rail Project include those identified as Bellefield North and Bellefield South, a wetland associated with Alcove Creek west of 112th Avenue SE, and a wetland west of and adjacent to the SE 8th Street and 112th Avenue SE intersection. Another wetland near the project is identified as the Sturtevant Creek wetland, fed by Sturtevant Creek and near the northern terminus of the ECBD sewer trunk line, to the east. The project will not involve impacts to the Alcove Creek wetland or 8th Street wetland or their buffers; therefore, these wetlands will not be discussed further. The project will be located wholly within 112th Avenue SE near the Sturtevant Creek wetland and will not impact this wetland; therefore, this wetland will also not be discussed further. Below is a summary of the habitat of each wetland in the vicinity

of the Bellefield Sewer Project (excerpted from the *Draft East Link Wetland Report*). A summary of the wetland determination data is located in **Table 2**.

The Bellefield North Wetland is located in the buffer between 112th Avenue SE and Mercer Slough, north of SE 15th Street. It is a small wetland, delineated at 0.11 acres, and is considered an associated wetland of Mercer Slough. The two are connected hydrologically. Dominant vegetation includes trees such as Oregon ash, black cottonwood, red alder, and Pacific willow; shrubs such as prickly currant and Himalayan blackberry; and herbaceous species such as lady fern and stinging nettle. Soils were characterized as black (10YR 2/1) loam to below 18 inches deep. The NRCS shows the wetland is partially made up of Seattle muck and Alderwood gravelly sandy loam, 6 to 15 percent slopes. Hydrology was characterized as saturated to 6 inches from the ground surface, with no water table present to a depth of 18 inches. The Bellefield North Wetland has palustrine forested and scrub shrub vegetation classes, and slope and riverine hydrogeomorphic (HGM) classes. It was determined that wetland soils are saturated and seasonally inundated, with some riverine influence from the slough. Under Ecology's rating system for Western Washington, the Bellefield North Wetland was rated as a Category II wetland with a 75-foot buffer.

The Bellefield South Wetland is also located in the buffer between 112th Avenue SE and Mercer Slough, north of SE 15th Street, about 50 feet away from Bellefield North Wetland. It is hydrologically connected to and considered an associated wetland of Mercer Slough, and was delineated at about 0.29 acres. Dominant vegetation includes Oregon ash, red alder, Pacific willow, Himalayan blackberry, and stinging nettle. Soils were characterized as black loam with coarse organic material to about 14 inches deep. The NRCS shows the wetland is partially made up of Seattle muck and Alderwood gravelly sandy loam, 6 to 15 percent slopes. Hydrology was characterized as saturated soils to the surface with no water table present to a depth of 18 inches. The Bellefield South Wetland exhibits palustrine forested, scrub shrub, and emergent vegetation classes, and riverine and slope HGM classes. The wetland soils are saturated and seasonally inundated, with some riverine influence from the slough. Under Ecology's rating system for Western Washington, the Bellefield South Wetland was rated as a Category II wetland with a 75-foot buffer.

The west branch of Mercer Slough parallels the Bellefield Sewer Project to the east. The slough has fringe wetlands on either side of the west branch. The Bellefield North and Bellefield South wetlands are considered associated wetlands of the west branch of Mercer Slough. The shoreline of the west branch of Mercer Slough is dominated by Himalayan blackberry and mowed grass associated with the Bellefield Office Park. Aquatic vegetation includes floating water lilies. Hydrology sources to Mercer Slough include tributary creeks such as Kelsey Creek, Alcove Creek, stormwater system outfalls, precipitation, and nonpoint source runoff. Water flow is slow and stagnant, as the slough has less than a 1 percent grade to Lake Washington. Mercer Slough soils consist of peat upwards of 50 feet thick in some areas (DNR. Rigg, G.B., 1958). In the vicinity of the Bellefield pump station and ECBD sewer trunk line, the NRCS web soil survey shows Mercer Slough is partially made up of Seattle muck and Alderwood gravelly sandy loam, 6 to 15 percent slopes. Based on the rating of the Mercer Slough West wetland provided by ST to the City, the wetland is a Category II wetland qualifying for a 110-foot buffer. In the plans associated with this submittal, the 110-foot wetland buffer for Mercer Slough was drawn off of the OHWM provided to the City by ST. For more discussion about Mercer Slough, see the ***Streams*** section below.

Table 2. Wetland Data Summary. (Sources: Anchor/QEA East Link Wetland Report excerpt; East Link Project FEIS)

Wetland ID	Delineated Size (Acres)	HGM Class	Water Quality Rating	Hydrologic Rating	Habitat Rating	Total Rating Score	Rating Category
Bellefield North	0.11	**Riverine**/slope	20	16	17	53	2
Bellefield South	0.29	**Riverine**/slope	20	16	18	54	2
Mercer Slough West	~301	**Depressional**/ Riverine/ Lake-fringe/Slope	20	10	27	57	2

Streams

Alcove Creek is a tributary to the west branch of Mercer Slough. It flows through associated wetlands in the Bellefield Park Lane residential community, enters a culvert that crosses 112th Avenue SE, and outfalls into the slough south of the replacement pump station location. The outfall is a migration obstacle for aquatic species that could migrate upstream in Alcove Creek; however, fish habitat upstream of the culvert is poor. The double force main will cross below the Alcove Creek culvert and will not impact the culvert or the creek. No work will occur in the buffer of Alcove Creek. Therefore, Alcove Creek will not be discussed further in this document.

Sturtevant Creek is a north-south flowing creek that flows parallel to the northern end of the ECBD sewer trunk line, about 1,000 feet to the east, before it empties into Mercer Slough. The project will be located significantly far enough away from and will not impact Sturtevant Creek; therefore, it will not be discussed further in this document.

Mercer Slough is considered a Type F stream according to LUC 20.25H.075.B. Since it is a designated Shoreline Critical Area per LUC 20.25E.017D, it cannot be identified as a Type S stream. The west branch of Mercer Slough is a permanent water body with defined banks due to adjacent fill (112th Avenue SE to the west, Bellefield Office Park to the east). The west branch contains fish and provides some off-channel, slow water habitat for migrating fish, though the east branch of the slough is known to provide better fish habitat. The west branch lacks riffles and gravel and experiences high summer temperatures, resulting in poor aquatic habitat for salmonids (FEIS, 2011). Aquatic species do utilize the east branch of Mercer Slough to migrate to spawning grounds in Kelsey Creek, including Chinook (*Oncorhynchus tshawytscha*) and coho salmon (*O. kisutch*). All species destined for Kelsey Creek must pass through Mercer Slough. Species utilizing Mercer Slough are further discussed below under the ***Habitats Associated with Species of Local Importance*** section.

Shorelines

Mercer Slough is a designated shoreline per LUC 20.25E.017.D, since it is associated with Lake Washington. The Bellefield Sewer Project is an allowed use in the 200-foot Shoreline Overlay District associated with the slough. The shoreline critical areas buffer is 50 feet from the OHWM in undeveloped parcels, with no structure setback. The Bellefield Sewer Project is in compliance with the Shoreline Management Program element detailed in the City's 2010 *Comprehensive Plan*. See the attached Project Narrative for Shoreline Conditional Use Permit and Project Narrative for Shoreline Substantial Development (**Appendix C**) for ways the project will be consistent with the policies of the Bellevue Shoreline Master Program.

Geologic Hazard Areas

Regulations for geologic hazard areas is covered in LUC 20.25H.120. The three main geologic hazard areas are landslide hazards, steep slopes, and coal mine hazards. There are no mapped coal mine hazards in the vicinity of the project per the City's mapping service, NWMaps.net.

The definition of a steep slope is a slope of 40 percent or more. Steep slopes are mapped in small areas associated with residential development along the western side of 112th Avenue SE, as well as small areas near the edge of Mercer Slough east of the Bellefield Sewer Project near the intersection of Bellevue Way and 112th Avenue SE. The Bellefield Sewer Project will not disturb steep slopes and will be located primarily in roadway and rights-of-way in the vicinity of most of these mapped steep slope areas.

The definition of landslide hazard is areas of 15 percent or more slopes with more than 10 feet of rise and which display a history of failures, movement, seeps, stream incision, or bank erosion, or slopes parallel to planes of weakness in subsurface materials. There are no landslide hazard areas mapped in the vicinity of the project, and no areas with a known history of failure in the vicinity of the project.

There is one erosion hazard area mapped in the project vicinity, identified as Everett-Alderwood gravelly sandy loam soil by the NRCS, near the intersection of Bellevue Way and 112th Avenue SE. The sewer project will be located within roadway and right-of-way in the vicinity of this erosion hazard. There are no areas of moderate to high liquefaction mapped in the project vicinity. Erosion hazards and liquefaction zones are important to acknowledge, but they are not critical area hazards listed under the geologic hazard areas section of LUC 20.25H.120. Therefore, the project site does not include any geologic hazard areas.

Habitat Associated with Species of Local Importance

Regulations for habitats associated with species of local importance are covered in LUC 20.25H.150. According to WDFW's PHS database, the only federal or state threatened or endangered species known in or near the Bellefield Sewer Project area are Puget Sound Chinook, which utilize the east branch of Mercer Slough as a migration corridor, destined for spawning grounds in Kelsey Creek. Chinook are also on the City's List of Species of Local Importance. The west branch of Mercer Slough provides poor salmonid habitat, but migrating salmonids do have the opportunity to enter the west branch. PHS-listed fish species mapped for the east branch of Mercer Slough include Puget Sound Chinook (*O. tshawytscha*) for breeding, coho salmon (*O. kisutch*) for breeding and occurrence, sockeye salmon (*O. nerka*) for occurrence and migration, rainbow trout (*O. mykiss*) for occurrence and migration, and coast resident cutthroat trout (*O. clarki*) for occurrence and migration. According to PHS data, the confluence of the east and west branches also contains a breeding area (or rookery) for great blue heron (*Ardea herodias*). The west branch of Mercer Slough does not show any ESA-listed fish species use; it is only mapped for palustrine wetland habitat in the PHS data. Several bald eagle nests are mapped in the City, but they are all over 0.5 miles from the Bellefield Sewer Project. A regular concentration of semipalmated plover (*Charadrius semipalmatus*) is mapped approximately 0.3 miles northwest of the northern terminus of the ECBD sewer trunk line. The plover is not on the City's List of Species of Local Importance, but known concentrations of wildlife are identified as Priority Habitats for having a comparatively high fish/wildlife density or species diversity.

Per the *Mercer Slough Basin Fish Use Memo* (City of Bellevue, 2009) provided on the City's Mercer Slough Basin Drainage Details web page, other fish that might use Mercer Slough, particularly the east branch, include peamouth (*Mylocheilus caurinus*) as they migrate to Kelsey Creek. The memo states that the slough provides rearing habitat, especially for juvenile coho and peamouth, and juveniles of other species, though it asserts that there is no suitable salmon spawning habitat, and there was likely none historically. It also mentions that City staff have observed lake fish in the slough, such as three-spined stickleback. According to the Bellevue Stream Team's report titled *Peamouth Spawning Events in Bellevue, 2005-2010* (City of Bellevue, 2011), peamouth spawning near the Wilburton Railroad Trestle provides food for raccoons, bald eagles (*Haliaeetus leucocephalus*), and great blue herons. Peamouth live in Lake Washington, but they have been observed using the Mercer Slough fish ladder to access Kelsey Creek to spawn.

ST conducted a review of all federal endangered, threatened, and candidate species and state endangered, threatened, and sensitive species likely to occur in the study area for the East Link Light Rail Project FEIS.

The Bellefield Sewer Project is located in ST FEIS's Segment B. The table listing federal and state species (Table 4.8-3) is included in the East Link FEIS Segment B Excerpt (**Appendix D**). Table 4.8-3 also assesses the presence of species listed on the City's List of Species of Local Importance, in LUC 20.25H.150. Species of Local Importance identified as potentially being located in and adjacent to Segment B include bald eagle, peregrine falcon (*Falco peregrinus*), pileated woodpecker (*Dryocopus pileatus*), purple martin (*Progne subis*), merlin (*Falco columbarius*), great blue heron, red-tailed hawk (*Buteo jamaicensis*), osprey (*Pandion haliaetus*), green heron (*Butorides virescens*), Vaux's swift (*Chaetura vauxi*), western toad (*Bufo boreas*), Puget Sound coho, and river lamprey (*Lampetra fluviatilis*). The forested patch between 112th Avenue SE and Mercer Slough, just north of 15th Street SE, may provide habitat for any of the birds listed above. Red-tailed hawks are observed in the Mercer Slough Nature Park and known to nest in the area. Mercer Slough provides wetland and aquatic habitat for any of the water fowl listed, including a breeding colony of herons listed in PHS data at the confluence of the west and east branches of Mercer Slough. Bald eagles are a regular fixture near Lake Washington; they are known to nest closer to the lake, but are also known to forage near Mercer Slough.

The Bellefield Sewer Project will involve removal of a maximum of nine significant trees from the project vicinity. These trees will be replaced through the compensatory mitigation responsibility of the City. Construction work will remain outside of the drip lines of significant trees that are not slated for removal. Wildlife species could also be affected temporarily during construction due to noise. The finished project will have no impact on species of local importance during normal operations.

DNR Natural Heritage Program

The sections in which the Bellefield Sewer Project is located (Section 5, Township 24N, Range 05E and Section 32, Township 25N, Range 05E) are not listed on the most recent DNR NHP List of Sections that Contain Natural Heritage features (data current as of March 1, 2013). No rare plant species were observed during the environmental assessment of the site.

Areas of Special Flood Hazard

Regulations for areas of special flood hazard are covered in LUC 20.25H.175. Mercer Slough is influenced by Lake Washington; therefore, it is considered to be at approximately the same water level. The 100-year floodplain utilized by the City for permitting purposes is 20.3 feet elevation (City of Bellevue, D. Pyle, 10/24/13, Pre-Application Conference). All proposed work will be conducted outside of the 100-year floodplain.

CONSTRUCTION IMPACT AVOIDANCE AND MINIMIZATION

Project Impacts

The overall construction footprint for the pump station is 21,400 sf, plus 40,700 sf for all associated pipelines (including the ECBD sewer trunk line) in critical area buffers, including work in pervious and impervious surfaces.

- The proposed pump station will be located within Mercer Slough shoreline, wetland, and stream buffers, as well Bellefield North and Bellefield South wetland buffers.
- The downstream double force main will be located almost completely within the roadway of 112th Avenue SE, except where it connects to the proposed pump station, which is within the Mercer Slough shoreline jurisdiction.
- The ECBD will cross through wetland and stream buffers.
- The Bellefield Park Lane Sewer will be within the Mercer Slough shoreline jurisdiction, wetland, and stream buffers, but will be outside of the Alcove Creek wetland buffer.

- The Bellefield Office Park sewer line will be located within shoreline, wetland, and stream buffers.

The City ruled that all permanent access easements will be considered impacts and must be included in the calculation of the square footage of critical areas impacts; the reason being that if the pipelines must be accessed, the permanent easement areas will likely be cleared. Temporary construction impacts will occur during construction of pipelines located in critical area buffers, including vegetation removal in the pipeline alignments. The contractor may choose to use micro-tunneling construction methods instead of open cut for some pipeline connections to the pump station, resulting in less ground disturbance. Impacts of pipelines (including easements) in the 110-foot Mercer Slough wetland buffer and 75-foot buffers of the Bellefield wetlands are 40,700 sf. Permanent easements, determined to be permanent impacts by the City, comprise about 22,500 sf, and temporary construction impacts comprise an additional 22,400 sf. In the plans associated with this submittal, the 110-foot wetland buffer for Mercer Slough was drawn off of the OHWM provided to the City by ST. An estimated 35-foot easement was used to calculate permanent impacts. A temporary construction easement of 55 feet was estimated as necessary for the construction of the project. Although at this time the anticipated limits of clearing for the ECBD sewer trunk line are described as a 55-foot off-set from the edge of the 112th Avenue SE right-of-way, high-visibility fencing will mark the edge of clearing to avoid any clearing or work in the Bellefield North and Bellefield South wetlands. No expansion of impervious surfaces will result from the pipeline elements of the project.

The pump station will be located in buffers of critical areas and result in some permanent impact. Two large trees near the proposed pump station site will be retained if possible, considering shoring needs of the pump station construction. The island in the center of the SE 15th Street turnaround will be removed, including existing landscaping vegetation consisting of two small birch trees, hedge shrubs, and groundcover. The turnaround does not count as buffer because buffers end at the edge of right-of-way, and the island is surrounded by SE 15th Street. Impacts of the pump station and its associated pipelines (not counting the ECBD) in the 110-foot Mercer Slough wetland buffer and the 75-foot buffers of the Bellefield wetlands is 21,400 sf. Of those, 3,100 sf is permanent (permanent easement of the associated pipelines not including the ECBD, and impervious surface expansion of the pump station) and 18,300 sf is temporary construction impacts. The only element of the project that will expand impervious surfaces is the pump station. The tract parcel on which the pump station will be constructed is 15.4 acres. The parcel currently has 2.98 percent impervious surfaces. The pump station will expand impervious surfaces by about 3,000 sf (both critical area buffer and non-buffer impacts), which is an increase of 0.5 percent in the parcel.

Overall, the Bellefield Sewer Project will result in unavoidable permanent and temporary impacts to the Category II wetland buffers of the Mercer Slough West, Bellefield North, and Bellefield South wetlands, for a total of 62,100 sf. The mitigation ratio for impacts to these buffers is 1:1. The impacts within the wetland buffers will be mitigated through a combination of on-site, in-kind, and off-site, in-kind compensatory mitigation to satisfy the 1:1 mitigation ratio for impacts to critical area buffers. Mitigation will include invasive species removal and revegetation and enhancement of buffers with forested and scrub-shrub habitat using native tree, shrub, and groundcover species.

Grading

Earthwork (grading) is associated with the replacement pipelines and pump station. For the pipelines, the estimated cut quantity for the whole project (not just in buffers) is about 16,000 cubic yards (cy). Fill is expected to be for pipe bedding. Fill will be installed to maintain existing grades. For the pump station, the estimated cut quantity for the whole project (not just in buffers) is 2,000 cy, half of which is anticipated from the construction of the below-grade part of the pump station structure. Fill quantity is estimated at 1,000 cy. Fill is expected to be imported to support the below-ground structure of the pump station. Total

project grading is anticipated to be approximately 18,000 cy across the project area, including work in roads and rights-of-way.

Staging and Stockpiling

Specific project staging and stockpiling locations are to be selected by the contractor and are largely unknown at this time. Staging and stockpiling will occur in rights-of-way and construction easements. Staging and stockpiling will not occur below the 100-year floodplain or in any critical areas.

Stormwater

Stormwater collection will be installed with the construction of the Bellefield Pump Station, to be hooked up in the future to the collection and treatment facilities in the realignment of SE 15th Street. Roof runoff will be collected and drained to a swath of wetland buffer adjacent to the pump station. Construction stormwater impacts will be avoided and minimized through the application of the Stormwater Pollution Prevention Plan (SWPPP) and Clearing and Grading Plan, to be developed for compliance with City grading requirements and Ecology's NPDES CSGP.

Lighting

The project will install security lighting on the pump station and regular night-time running lights near the entrance of the building. These will be directed away from Mercer Slough to avoid light pollution effects on species utilizing the slough.

Project Timeline

Project bidding is anticipated to occur in October 2014, with contractor selection and contract preparation completed by February 2015. Construction of the Bellefield Sewer Project will be conducted under separate contracts for the ECBD sewer trunk line and pump station/force main/additional system pipes, just as the design of the two projects was divided into separate contracts. Construction of the combined projects is anticipated to begin in March or April 2015, and will require about 1 year to complete. Pre-loading for the Light Rail Project is anticipated in late 2015 for the re-grading and realignment of SE 15th Street and the re-grading of 112th Avenue SE; therefore, construction in those areas will be completed early. The City intends to have the Bellefield Sewer Project completed, tested, and ready to incorporate into the wastewater system so that the old pump station can be abandoned prior to the Light Rail Project construction.

The SE 15th Street realignment will result in re-grading the access to the proposed pump station and hooking up the pump station site to the new stormwater facilities in SE 15th Street. Mitigation will be monitored for a period (length to be determined) following project construction, unless an agreement is made with ST to incorporate the City's mitigation requirements into ST's own mitigation plan associated with the Light Rail Project. The responsibility of compensatory mitigation for impacts incurred by the Bellefield Sewer Project is the City's, but an agreement could be made in the future with ST to ensure efficient use of resources by combining mitigation plans. ST landscaping and mitigation plantings are already planned around the proposed pump station, and will be installed after the realignment of SE 15th Street and the construction of the light rail line.

Mitigation Sequence and Best Management Practices

Below is a description of the initial alternatives analysis and subsequent mitigation sequencing conducted per LUC 20.25H.215 to avoid, minimize, and mitigate for project impacts of the chosen alternatives.

Alternatives Analysis

Five alternatives were initially evaluated for the Bellefield Pump Station. A triple bottom line analysis and conceptual probable construction cost analysis were also performed during this phase. The results of the

triple bottom line analysis are in **Appendix E**. Alternatives 2 and 4 had potentially moderate impacts to the shoreline, wetlands, and environment in general; the other alternatives had potentially high impacts. The chosen pump station location is Alternative 2.

The design of Alternative 2 has minimized impacts to critical areas and buffers to the greatest extent possible. The pump station must be located in coordination with the proposed realignment of SE 15th Street and grade changes to 112th Avenue SE and SE 15th Street. The pump station and associated pipelines have been proposed for locations as far from Mercer Slough as possible, with consideration to the proposed Light Rail Project.

The alternatives analysis for the ECBD pipeline is ongoing at this time, but the area in which the ECBD may occur is very narrow; it must stay outside of the proposed toe-slope of the ST East Link project, and must stay out of the Bellefield North and Bellefield South wetlands, while staying up and away from Mercer Slough to the greatest extent practicable. At this point, the greatest derivation in the alignment may occur in the northern half of 112th Avenue SE; this section of pipe may be placed in either the northbound lanes or the median, depending on traffic impacts.

Avoidance Design Measures

The three major elements of the Bellefield Sewer Project – the pump station, double force main, and ECBD sewer trunk line – were all sited to avoid impacting wetlands and to stay outside of the OHWM of Mercer Slough and the 100-year floodplain. The double force main will be installed within the roadway of 112th Avenue SE, with use of the right-of-way for temporary construction use (except where it will cross grass to attach to the pump station). The ECBD will be located outside of the forested habitat near the pump station, and will be located partially within the roadway of 112th Avenue SE to the extent possible. Avoiding the road re-grade areas was also a priority because burying the sewer under a significant re-grade is an undesirable outcome for any future repairs or maintenance. The pump station has also been sited on as much existing impervious surface as possible, utilizing the turnaround in SE 15th Street. These efforts will minimize ground disturbance, clearing and grading in pervious surfaces of the wetland buffer, and impacts to the forest habitat near the existing pump station.

The pipeline elements of the project will have temporary construction and permanent access easements. It is not necessary to avoid planting shrubs and groundcover in the easements, but if the pipelines ever need to be accessed for repair, the areas in the easements will be cleared.

Minimization Design Measures

Design features of the Bellefield Sewer Project will minimize impacts as a whole. Subsequent design efforts will involve identification and planning to address the installation and maintenance of effective erosion, water, and spill control measures for all elements of the construction of the Bellefield Sewer Project. Ecology's *Stormwater Management Manual for Western Washington* (2012) will be used as the basis for these measures, which will be defined in a SWPPP to be developed for the Bellefield Sewer Project. A Preliminary Clearing and Grading Plan is provided in the initial permit submittal package showing the extent of project clearing. At a minimum, erosion and spill control measures shall include the following.

Prior to the start of construction activities, temporary erosion and sedimentation control (TESC) measures shall be installed per approved plans. All TESC measures shall be maintained for the duration of construction and until vegetation is established. The following minimization measures will ensure that the project will result in the smallest amount of impacts to critical areas and their buffers.

- In addition to the SWPPP, a Spill Prevention, Control, and Countermeasure Plan (SPCC) will be developed and implemented for the project to ensure that all pollutants and products are controlled and contained to reduce potential discharge to land or surface waters.
- A Clearing and Grading Plan will be developed and implemented prior to construction to control sediments and erosion from all vegetation and ground-disturbing activities.
- All permits will be attached to the construction plans and referred to in the special provisions so the contractor is aware of necessary requirements.
- A Certified Erosion and Sedimentation Control Lead (CESCL) will be appointed to implement and maintain approved erosion control measures and correct deficiencies as they occur. The appointed CESCL will follow the SWPPP and make adaptive management changes as necessary to prevent sediment-laden water and contaminants from entering natural water bodies and sensitive areas.
- High-visibility fencing will be installed to mark the limits of clearing, thereby limiting vegetation removal in critical area buffers. Although at this time the anticipated limits of clearing for the ECBD sewer trunk line are described as a 55-foot off-set from the edge of the 112th Avenue SE right-of-way, high-visibility fencing will mark the edge of clearing to avoid any clearing or work in the Bellefield North and Bellefield South wetlands.
- Silt fence and other sediment/erosion barriers (e.g., coir logs) will be installed and maintained to prevent erosion and sedimentation into adjacent critical areas.
- The contractor will protect inlets and catch basins from fresh concrete, tackifier, paving, and paint applications to prevent contaminated construction materials from entering surface waters.
- On-site availability of soil stabilization materials and spill control materials will be maintained.
- Dust control measures will be implemented as needed.
- All exposed and unworked soils will be stabilized during the first available period to prevent wind and water erosion. This condition applies to all unstable soils within the project site. Within the dry season (May 1 to September 30), soils shall not remain exposed or unworked for longer than 7 days. Within the wet season (October 1 through April 30), soils shall not remain exposed or unworked for longer than 2 days.
- No paving, chip sealing, or stripe painting will be initiated in rainy weather.
- Vegetation will be grubbed only where there will be permanent impacts, such as the expansion of impervious surfaces into a vegetated area or pipeline construction. Vegetation shall not be grubbed in temporary impact areas.
- Disturbed areas will be restored using hydroseed at a minimum, followed by eventual mitigation and landscaping planting required for construction of the Bellefield Sewer Project or the ST Light Rail Project. Compensatory wetland mitigation efforts will be completed to compensate for critical area buffer impacts.
- Temporary fills shall be removed entirely as a part of site cleanup.

CONCEPTUAL MITIGATION PLAN

The Bellefield Sewer Project will involve permanent and temporary impacts of about 62,100 sf to critical area buffers in the vicinity of Mercer Slough, 25,600 sf of which are permanent impacts to critical area buffers. However, some of these impacts will be overlapped by impacts made by ST during the construction of the new East Link Light Rail Project and realignment of SE 15th Street (see Temporary and Permanent Impacts To Critical Areas By Entity figure and tables in **Appendix F**). ST and the City will negotiate what percentage of these overlapping impacts each entity is responsible for; this may also result in an agreement between the

two entities to combine compensatory mitigation efforts under one plan. Until those negotiations are completed, the City proposes on-site mitigation of approximately 17,000 sf by enhancing wetland and buffer habitat not already included in the proposed mitigation plan by ST; any additional compensatory mitigation responsibility will be conducted off-site and in-kind, preferably within the Mercer Slough basin. See the Conceptual Mitigation Plan (**Appendix F**) for a map of the proposed on-site compensatory mitigation location; **Appendix F** also contains a figure that shows the overlapping areas of permanent and temporary impacts in the critical areas buffer incurred by ST and the City, titled Temporary and Permanent Impacts To Critical Areas By Entity. The following goals and objectives are guiding the Bellefield Sewer Project mitigation efforts.

- The mitigation plan is intended to replace the lost acreage and functions of the impacted critical areas buffers at a 1:1 ratio. This mitigation will be accomplished by enhancing existing wetland and wetland buffer areas through a combination of on-site, in-kind, and off-site, in-kind compensatory mitigation.
- For the on-site, in-kind portion of compensatory mitigation, the mitigation plan is designed to permanently remove invasive plant species (Himalayan blackberry) in the area not already designated for compensatory mitigation by ST, and enhancing vegetative diversity, thereby improving habitat in the Mercer Slough wetland complex. Invasive species eradication and replacement with native plant species will augment habitat complexity of the existing Bellefield North, Bellefield South, and Mercer Slough wetland and buffer areas. Additional anticipated indirect benefits of the mitigation plan include improved wildlife usage in this corridor.
    - Goal 1: Permanently remove invasive species from 17,000 sf of wetland and buffer in the designated on-site compensatory mitigation area.
    - Goal 2: Enhance vegetative diversity with native plant species, thereby increasing habitat complexity of the area.
- Wetland enhancement as mitigation is obliged to meet the requirements of LUC 20.25H.110 and 20.25H.230 to demonstrate how enhancement will increase the functions of the degraded wetland and how this increase will adequately mitigate for the loss of wetland area and function at the impact site. This enhancement proposal is intended to mitigate for impacts to critical area buffers, and the project will not have impacts on wetland area and function. Ideally, the enhancement proposal would only involve improvements to critical area buffers so as not to trigger any additional permitting or reporting requirements; however, the available space on the parcel for compensatory mitigation is limited to a small area following the compensatory mitigation proposal of ST for its Light Rail Project. The area left includes a large blackberry thicket that crosses both wetlands and wetland buffers. Removing blackberries and enhancing the area with native vegetation could not logically be limited to just buffers, as any blackberries left in the wetlands would likely invade the surrounding mitigation area. Therefore, the entire blackberry thicket in the available area for compensatory mitigation is proposed for invasive species removal and native vegetation enhancement.
- This conceptual restoration work is proposed to partially occur in delineated wetlands because the existing blackberry patch is located in both wetlands and buffer. Restoration work in wetlands requires a U.S. Army Corps of Engineers (Corps) Nationwide Permit (NWP). This should be obtained prior to conducting restoration activities in wetlands.

Mitigation Timeline

Mitigation and invasive species eradication efforts shall be completed by a contractor experienced in sensitive areas restoration. Himalayan blackberry removal in the mitigation site is proposed to occur in

spring and summer 2015, ahead of the compensatory mitigation planting. The preferred mitigation planting period for the Pacific Northwest climate is fall; therefore, compensatory mitigation will be planted in fall 2015. Maintenance efforts shall begin immediately following native vegetation planting. Monitoring efforts shall begin the first growing season following successful installation (spring 2016).

Mitigation activities shall occur in the following general sequence.

1. In fall 2014 (September to October), while blackberry canes are actively growing and after berries have formed, the contractor shall complete the first round of herbicide treatment in the proposed mitigation areas. Herbicide treatment is proposed to include spraying of leaves with a glyphosate-based aquatic herbicide, such as Rodeo® or Aquamaster®. The contractor, who shall be experienced in noxious weed control methods and applications, shall select an appropriate aquatic herbicide and apply for and receive necessary Aquatic Noxious Weed Control NPDES General Permit coverage prior to application.
2. In May 2015, the contractor shall mow and hand-excavate treated areas to remove canes and root balls. The contractor shall take care to properly dispose blackberry offsite. Removal of blackberry in delineated wetlands must be done by hand; mowing will not be allowed in these areas due to the risk of soil compaction. Mowing in buffers will be allowed to remove blackberry canes. Following blackberry removal, the contractor shall apply temporary groundcover (i.e., wood fiber mulch; natural, biodegradable fiber matting; temporary seeding) to prevent blackberry re-sprout and stabilize treated areas until planting occurs.
3. In fall 2015 (September to October), the contractor shall remove by hand any re-spouted blackberries, and plant the proposed on-site mitigation area using approved native plant species. Planting activities will occur by hand and soil amendment using organic compost or the equivalent will be completed in all planting pits at a minimum. The contractor shall water-in all plants following installation and ensure adequate water is available to plantings for the first two summers following establishment. Prior to planting activities, the contractor shall consult the City regarding planting activities.
4. Following planting activities, the contractor shall warrant all plant material to remain healthy and alive and shall maintain the site for a period of 1 year. Blackberry control and eradication efforts shall continue into this period, with hand-control methods preferred to prevent damage to newly installed plantings.
5. Monitoring of the site shall begin the first growing season following successful plant installation (spring 2016). Monitoring activities shall be conducted in accordance with the approved monitoring program. Monitoring efforts are expected to continue for a period of 3 to 6 years, depending on the approved terms. If, after the final year of monitoring, the site has satisfied the goals outlined in the mitigation plan, the City will prepare a letter to the regulatory agencies requesting final approval.

Site Preparation

Mitigation patches and delineated wetlands shall be clearly marked in the field using high-visibility orange fencing.

The contractor shall minimize site disturbance in mitigation areas, especially during blackberry removal work. All planting activities shall be completed by hand in delineated wetlands, where only light-duty equipment (wheel-barrows, shovels, etc.) shall be used for mitigation activities. Mowing is an acceptable form of blackberry cane removal in the wetland buffer. All mitigation activities shall be completed so as to avoid the impacts to adjacent Mercer Slough and the Bellefield North and Bellefield South wetlands. To this end, the contractor shall install appropriate TESC measures as needed during mitigation activities.

In all areas to be planted, the contractor shall hand-grub all noxious plants, such as Himalayan blackberry, Canada thistle, etc. Above-ground and root stock shall be removed as much as possible. Soil amendment shall be primarily limited to in-pit amendment.

Irrigation

Irrigation of planted areas is recommended for the first two summers. A temporary, passive irrigation system shall be designed by the contractor. Recommended methods include watering bags, anti-dessicant gel packs in planting pits or around plants, a water truck, drip hosing, or other similar methods. At a minimum, the irrigation system shall provide 1 inch of water per week to plants from July 1st to September 30th for a minimum of 2 years following plant installation. Temporary irrigation may cease after the second year provided the plantings are established and acclimated to on-site conditions.

Plant Material and Handling

All plant material will be native to Western Washington and propagated from native stock; no cultivars or horticultural varieties will be allowed. Plants shall be nursery-grown and obtained from a reputable supplier whose plants are adapted to the regional climate.

Substitutions are limited to those pre-approved by the City prior to delivery to the site. Plant stock which is larger than what is specified may be substituted without consultation, but plant stock that is smaller than what is specified will require prior approval.

All plant material shall be in containers, live stakes, plugs, or balled and burlapped. Bare root plant material is subject to special handling and planting installation requirements and must be preapproved by the City.

Plants shall be normal, healthy, well-branched, and vigorous, with well-developed root systems and free of pests and diseases. Damaged, diseased, or otherwise defective plant material will be rejected. Root-bound plants or plants with damaged, loose, or cracked root balls will be rejected. Immediately prior to installation, plants exhibiting minor root damage, such as twisted roots, will be root pruned. The contractor shall roughen-up, prune, and straighten sides of the root ball for all containerized plants prior to installation.

Plants shall be handled, transported, and stored to prevent all damage, including breaking, bruising, root damage, sunburn, freezing, wind damage, drying, or other injury. Container stocks shall not be lifted by trunks, stems, or tops. Plants shall not be removed from containers until ready to plant.

Plants stored onsite for longer than 24 hours must be kept in shaded, cool, moist conditions. The contractor shall take all precautionary measures to ensure plants are cared for and do not incur damage or dry out before planting. Wetland plants shall be shaded and well saturated until the time of installation.

Plants stored onsite for longer than 2 weeks shall be organized in rows, healed-in to topsoil or sawdust, and otherwise cared for by the contractor at no additional cost to the City. Plant material stored under temporary conditions is the sole responsibility of the contractor. Plant materials temporarily stored will be subject to re-inspection and approval by the City.

Table 3 details the plant material specified for this restoration project. The preferred plant pallet for planting onsite is the wetland pallet, C. There are several reasons why C was chosen; it represents facultative (FAC) and FAC-wet plant species that do well in areas that experience more saturation than inundations; the site will not receive year-round irrigation; the pallet represents some plant species that are already present at the site; and the area is relatively open, away from the mature forest canopy to the west, and will therefore require plants that will resist sunburn. The stream buffer templates were not chosen because Mercer Slough does not experience a great deal of dynamic activity that is expected of a typical stream, since its water level is highly influenced by Lake Washington and water flow is slow. The shoreline pallet was not

chosen because the site does not experience the wave action, highly fluctuating water level, or wind that lakes do, even though the area is identified as a shoreline.

Table 3. Proposed Mitigation Plant Material

	Scientific Name	Common Name	Indicator Status	Pot Size and Spacing	Planting Location	Average Height
Trees	*Picea sitchensis*	Sitka spruce	FAC	1 gallon; 9 feet oncenter (o.c.)	Wetland and wetter buffer	125 feet
	Salix lasiandra	Pacific willow	FACW			30 feet
	Fraxinus latifolia	Oregon ash	FACW		Drier buffer	50 feet
	Thuja plicata	Western red cedar	FAC			125 feet
Shrubs	*Cornus sericea*	Red-osier dogwood	FACW	1 gallon; 4 feet o.c.	Wetland and wetter buffer	15 feet
	Physocarpus capitatus	Pacific ninebark	FACW			11 feet
	Ribes lacustre	Prickly currant	FAC		Drier buffer	5 feet
	Rosa nutkana	Nootka rose	FAC			8 feet
Groundcover	*Athyrium filix-femina*	Lady fern	FAC	1 gallon; 2 feet o.c.	Shady wetland areas	3 to 6 feet
	Stachys cooleyae	Cooley's hedge nettle	FACW	4" pot; 2 feet o.c.		5 feet
	Lupinus polyphyllus	Large-leaved lupine	FACU	1 gallon; 1.5 feet o.c.	Buffer	3 to 6 feet
Emergents	*Carex obnupta*	Slough sedge	OBL	Plug; 3 plants clustered 1 foot o.c.	Plant within the wet edge of Mercer Slough and/or inundation	4.5 feet
	Scirpus acutus	Hardstem bulrush	OBL			6 feet
	Scirpus microcarpus	Small-fruited bulrush	OBL			4.5 feet

*Wetland indicator statuses are abbreviated from FAC: Facultative, FACW: Facultative-wet, FACU: Facultative-up, OBL: obligate

Plant Installation

All plant materials must be inspected by the City prior to installation to ensure they conform to the specified plant material in size, quality, and quantity. Any plant materials not meeting specifications will be rejected. All rejected plant material shall be immediately removed from the project site.

Plant material delivered and accepted shall be planted immediately or handled per the above notes on plant storage.

All plants shall be watered thoroughly prior to and immediately after installation. Plants shall be watered again within 24 to 48 hours following installation. Plants shall continue to be watered in sufficient quantity to ensure they become established prior to fall rains. Following successful installation, watering of the mitigation area shall occur per the irrigation notes above.

All planting pits will be circular with vertical sides and sized to accommodate the entire height and two times the width of the rootball. Plants shall be installed as follows (adapted from Sound Native Plants, 2002).

1. Dig a wide, shallow hole measuring at least two times the width of the rootball and just shy of the length of the rootball.
2. Remove plant from container carefully to prevent damage to plant and roots. Plants removed from their containers shall be planted immediately. Rough up the soil and outer inch of the root ball as

needed. If there are circling roots, tease them outward and prune any that will not fit into the planting pit.

3. Place plant in planting pit and ensure plant is planted upright with straight roots. Backfill planting pit with a mixture of native soil and organic compost, hand-mixed at a ratio of 2:1. The top of the installed root ball should be about 0.5 inches above the surrounding soil surface. Aim for a slightly mounded look with the surface of the potting soil exposed.
4. Stake plant as specified following planting. If plants can stand alone without staking, do not install stakes. Remove tree staking and ties from all plants after 1 year and dispose offsite.
5. Following plant installation, the contractor shall create a mulch watering basin around all plantings. The mulch watering basin shall be constructed out of medium-fine bark mulch or equivalent, measuring a minimum of 3 inches high and extending to the drip line of plant or a minimum of 2 feet in diameter. Contractor must not allow mulch to come in contact with plant base or trunks.

Inspection and Maintenance

Final inspection of the mitigation area and plantings will be conducted by the City following successful installation. Following approval, the contractor shall warrant, care for, maintain, and replace all unsatisfactory plant material for a period of 1 year following successful installation. Maintenance shall occur per the ***Maintenance Program***, as described below.

Maintenance Program

The maintenance program will be the responsibility of the contractor for the first year following successful installation. Following the first year, the City will assume responsibility of the maintenance program. At the City's discretion, City staff or a landscape maintenance contractor will complete the work as outlined below.

In order to achieve performance standards and ensure success of the mitigation plantings, maintenance activities shall continue throughout the duration of the monitoring period. Maintenance will include, but not be limited to, watering, weeding around the base of restoration plantings, replacing of mulch, pruning, replacing of dead or dying plant material, removing of all classes of noxious weeds, including Himalayan blackberry, and other measures needed to ensure plant survival.

For the first year following planting of the mitigation area, maintenance activities shall be performed quarterly to ensure plantings become established and any problems encountered are addressed shortly after being identified. Subsequent maintenance shall be performed quarterly or less frequently, depending on the needs of the site. Frequency of maintenance activities shall be determined by the City in coordination with the City's planning department.

Due to the proximity to sensitive areas, the following normal maintenance activities shall be prohibited at this site.

- No mowing is allowed within the mitigation area after mitigation planting. Mechanical trimming is permissible provided care is taken to prevent damage to mitigation plantings and to prevent discharge of plants or plant parts into nearby Mercer Slough. Trimming and control of invasive plant species will be especially prudent for the first 2 years of the monitoring and maintenance program.
- No placement of grass clippings, landscape debris, fill, or ornamental plant materials is allowed in the mitigation area.

During each site visit, the following maintenance activities shall be performed.

- Remove all litter, including debris, bottles, garbage, yard debris, etc.

- Remove all non-native, invasive, and noxious vegetation, including blackberry varieties, Scots broom, Reed canary grass, etc. All removal of invasive vegetation is to be completed manually without the use of herbicides or chemicals following mitigation planting. All debris shall be removed from the mitigation area and disposed of properly.
- Ensure irrigation measures are sufficient for plant survival. Contractor shall notify the City if otherwise.
- Replace damaged or missing structures upon discovery.
- Replace dead or failed plant material. Replacement plantings shall be in-kind unless otherwise specified by the City or City's representative. Replacement plantings shall be installed during the dormant period (fall thru winter).

Monitoring Program

Monitoring of the mitigation area shall begin the first growing season following successful plant installation (spring 2016). Monitoring efforts are expected to continue for a period of 3 to 5 years depending on the approved terms. Monitoring activities shall occur annually unless specified otherwise. The results of the monitoring activities shall be communicated to the City via an annual monitoring report, consistent with the Corps Regulatory Guidance Letter 08-03.

Proposed monitoring methods will include the following activities.

- Visually record mitigation site progress throughout the monitoring period. Establish up to four photopoint locations to capture the entire restoration area. A minimum of two photos shall be taken for each photopoint location during each monitoring site visit. Include photos from photopoints with monitoring reports. Record photopoint locations on a monitoring plan map included with monitoring reports.
- Report on plant survival, vigor, aerial coverage, etc. for every plant community. Establish up to three linear transects that will adequately assess percent cover of replacement plantings in the mitigation area. Include replacement plantings, invasive species, native recruitments and non-native recruitments in percent cover calculations. Percent cover calculations will be reported on and data forms will be provided with monitoring reports. Transect locations will be recorded on a monitoring plan map included with monitoring reports.
- Report on any dead or dying specimens and provide recommendations for replacement as necessary. Replace all dead plant material within 30 days of discovery.
- Report on site hydrology, including extent of inundation, saturation, depth to groundwater, inputs, outlets, etc.
- Report on buffer conditions (e.g., surrounding land use, human use, etc.).
- Report on wildlife use, including amphibians, birds, mammals, etc.
- Report on soils, including texture, Munsell soil color, rooting, oxidized rhizospheres, etc.
- Describe additional activities such as off-site dumping, replaced structural repair, or other materials associated with monitoring and maintenance activities.

If any of the standards of success are not being met, City staff shall be notified within the monitoring reports and provided with a list of applicable activities to bring the site into compliance. If, after the final

year of monitoring, the site has satisfied the goals outlined in the mitigation plan, the City will prepare a letter to the regulatory agencies requesting final approval.

Performance Measures and Standards

The success of this mitigation site shall be judged on the following performance criteria.

Native Plant Species

Performance Measure (First Year Plant Establishment Period):

> Planted native tree and shrub species in the Bellefield Sewer Project on-site mitigation area will achieve 85 percent survival 1 year after the site is planted. If all dead tree and shrub plantings are replaced, this performance measure will be met.

Performance Measure (Year 1 and Year 3):

> Aerial cover of planted and volunteer native species will be at least 30 percent in the Bellefield Sewer Project on-site mitigation area.

Performance Standard (Final Year of Monitoring Unless Monitoring Ends on Year 3):

> Aerial cover of planted and volunteer native species will be at least 60 percent in the Bellefield Sewer Project on-site mitigation area.

Invasive and Noxious Plant Species

Performance Measure (all years):

> The presence of King County-listed Class A and Class B noxious weeds will not exceed 10-percent aerial cover at the Bellefield Sewer Project on-site mitigation area.

Performance Standard (Year 3):

> The presence of non-regulated Class B and C noxious weeds (2013 list), including non-native blackberries (*Rubus armenicus* and *R. laciniatus*), Scot's broom (*Cytisus scoparius*), thistles (*Cirsium arvense* and *C. vulgare*), teasel (*Dipsacus fullonum*) and non-native knotweeds (*Polygonum cuspidatum*, *P. polystachyum*, *P. sachalinense* and *P. bohemicum*), will not exceed 20-percent aerial cover at the Bellefield Sewer Project on-site mitigation area.

Performance Standard (Final Year of Monitoring Unless Monitoring Ends on Year 3):

> The presence of non-regulated Class B and C noxious weeds (2013 list), including non-native blackberries (*Rubus armenicus* and *R. laciniatus*), Scot's broom (*Cytisus scoparius*), thistles (*Cirsium arvense* and *C. vulgare*), teasel (*Dipsacus fullonum*) and non-native knotweeds (*Polygonum cuspidatum*, *P. polystachyum*, *P. sachalinense* and *P. bohemicum*), will not exceed 20-percent aerial cover at the Bellefield Sewer Project on-site mitigation area.

Contingencies

A contingency plan involves identifying areas of failure of the mitigation plan and outlining corrective actions that could be taken. If monitoring results indicate that any of the performance standards are not being met, it may be necessary to implement all or part of the contingency plan. Careful attention to maintenance and establishment of replacement plantings is essential to ensuring that problems do not arise. Should any of the site fail to meet the criteria for success, a contingency plan will be developed on a case-by-case basis to address the problem at hand. Contingency activities may include, but are not limited to, the following.

- Replace all plants lost to vandalism, drought, disease, or pest infestation. Plant replacement shall follow the guidelines in the monitoring plan.
- Should a particular plant species continue to fail on the site (15-percent mortality rate or greater), replace with a similar, native species that would be better suited to site conditions.
- If informal monitoring determines that non-native invasive vegetation existing on the site is interfering with the establishment of native woody and emergent plants, it will be controlled using the best available method.
- Adjust supplemental irrigation and timing as needed to suit mitigation plantings. For example, if the plants appear dry within the supplemental watering phase despite watering following irrigation notes, increase watering to accommodate plant needs.
- Reseed area with approved grass mixture as necessary if erosion/sedimentation or general seeding failure occurs in one area.
- Remove all trash, debris, landscape debris, etc. per the maintenance plan.

CONCLUSION

This Assessment has been supplied to the City of Bellevue to document conditions associated with critical areas and buffer habitat present at the Bellefield Sewer Project site. This report has been prepared to comply with the current laws regulating wetlands and associated stream habitat. The work completed in preparing this report has conformed to the standard of care employed by wetland professionals. No other representation or warranty is made or implied.

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APPENDIX A

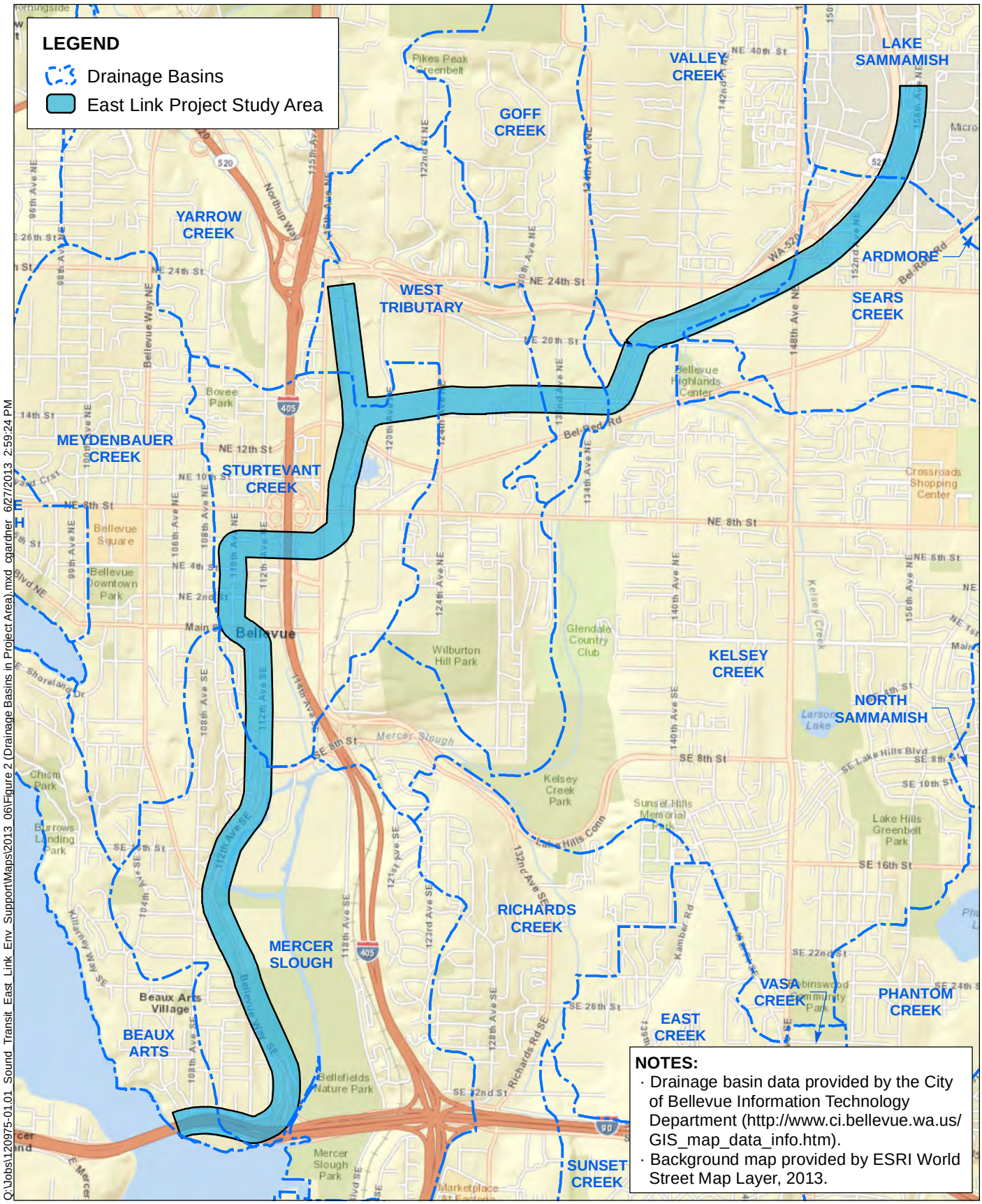
Draft East Link Wetland Report Excerpt and Wetland Determination and Rating Forms

720 Olive Way, Suite 1900
Seattle, Washington 98101
Phone 206.287.9130
Fax 206.287.9131
www.anchorqea.com

MEMORANDUM

To:	Ellie Ziegler, Sound Transit	**Date:**	November 5, 2013
From:	Ann Costanza, Anchor QEA, LLC	**Project:**	120975-01.01
Re:	Draft EastLink Wetland Report Excerpt		

Attached is an excerpt from the draft wetland report for the Eastlink project that includes information on wetlands in the vicinity of the Bellefield Pump Station. The wetland descriptions, figures, and field data sheets are included



NOTES:
- Drainage basin data provided by the City of Bellevue Information Technology Department (http://www.ci.bellevue.wa.us/GIS_map_data_info.htm).
- Background map provided by ESRI World Street Map Layer, 2013.

Q:\Jobs\120975-01.01_Sound_Transit_East_Link_Env_Support\Maps\2013_06\Figure 2 (Drainage Basins in Project Area).mxd cgardner 6/27/2013 2:59:24 PM

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Figure 2
Drainage Basins in Project Area
Wetlands, Stream Ordinary High Water Mark, and Jurisdictional Ditch Delineation Report
Sound Transit East Link

3.3 Wetland Descriptions

The 21 wetlands in the project area are described in the following sections, and wetland descriptions are grouped into one of the following nine drainage basins, depending on wetland location: Beaux Arts, Mercer Slough, Sturtevant Creek, West Tributary, Goff Creek, Kelsey Creek, Valley Creek, Sears Creek, and Lake Sammamish basins (Figure 2). Since Anchor QEA ecologists identified no wetlands within four of the basins (Beaux Arts, Goff Creek, Sears Creek, and Lake Sammamish), these basins are not included in the following sections.

Within each drainage basin, Anchor QEA ecologists described wetlands in location sequence from west to east. The following wetland description sections describe the characteristics of land use adjacent to wetlands in the project area, which typically include jurisdictional wetland buffers and existing adjacent structures or other developments. For this analysis, wetland buffers are vegetated areas, which are protected under local and state regulations, requiring compensatory mitigation when they are disturbed. Existing adjacent structures, such as buildings, road prisms, and paved or impervious surfaces, do not require compensatory mitigation for disturbance under local and state regulations, but provide information on the overall functions and values of the wetland systems. Most of the wetlands in the project area are adjacent to paved surfaces, buildings, or other structures. In calculating the wetland buffer area of wetlands in the project area, Anchor QEA ecologists only used vegetated areas.

3.3.1 Mercer Slough Basin

Anchor QEA ecologists identified five wetlands within the Mercer Slough basin within the project area: four Category II wetlands, Mercer Slough West Wetland, Alcove Creek Wetland, Bellefield South Wetland, and Bellefield North Wetland; and one Category III wetland, 8th Street Wetland. Within this basin, the project area generally extends from I-90 and about 110th Avenue SE to about 112th Avenue SE and SE 8th Street (Figure 2). All five of the wetlands are located near or adjacent to roads or commercial or residential development and receive water from surface water drainage or culverts. The Mercer Slough West Wetland is associated with Mercer Slough and streams A and B. Bellefield South and Bellefield North wetlands are associated with Mercer Slough. The Alcove Creek Wetland is

associated with Alcove Creek. The local jurisdiction within the basin is the City of Bellevue. Wetlands in the Mercer Slough basin are summarized on Table 4 and shown on the figures in Appendix D, Frames 2, 3, 4, and 5.

3.3.1.1 Mercer Slough West Wetland

- *Size and location:* Mercer Slough West Wetland is a large wetland system associated with Mercer Slough and Lake Washington. Anchor QEA ecologists delineated portions of Mercer Slough West Wetland within the project area. Mercer Slough West Wetland is also associated with streams A and B (Section 4.2). For this investigation, Anchor QEA ecologists only delineated the western boundary of the wetland associated with the proposed project alignment. The delineated boundary of the wetland is located adjacent to Bellevue Way SE and 112th Avenue SE (Appendix D, Frames 2, 3, and 4). Anchor QEA ecologists established ten sample plots during the delineation of Mercer Slough West Wetland (Appendices A and B). The wetland is identified on City of Bellevue critical areas maps (Bellevue 2013b). This wetland is also subject to regulation under the City of Bellevue Shoreline Master Program (BCC 20.25E) as an associated wetland.
- *Vegetation*: Due to the large size of Mercer Slough West Wetland, a variety of vegetation species are present within this wetland. Dominant vegetation includes red alder, black cottonwood, western red cedar (*Thuja plicata*), Pacific willow (*Salix lasiandra*), red-osier dogwood, twinberry (*Lonicera involucrata*), spirea, creeping buttercup (*Ranunculus repens*), reed canarygrass, lady fern, and salmonberry (Appendices A and B). Anchor QEA ecologists collected ten data plots for this large wetland system.
- *Soils:* Wetland soils ranged from black (10YR 2/1), to very dark brown (10YR 2/2), to very dark gray (10YR 3/1), to dark gray (10YR 4/1). Wetland soil textures ranged from silt, to silt loam, to clay loam, to sandy loam (Appendices A and B).
- *Hydrology*: Soils were typically saturated to the surface in the soil data pits. Anchor QEA ecologists encountered the water table at a depth ranging from the surface to a depth greater than 18 inches (Appendices A and B). The wetland is associated with Mercer Slough, Lake Washington, and streams A and B (Section 4.2).
- *Wetland classification*: Mercer Slough West Wetland is a large wetland with PFO,

PSS, PEM, and PAB vegetation classes and depressional, lake-fringe, riverine, and slope HGM classes. The wetland soils are saturated, seasonally inundated, and riverine and lake-fringe associated. Mercer Slough West Wetland is a Category II wetland under Ecology's rating system and the City of Bellevue's critical areas regulations (110-foot buffer).

- *Wetland function scores*: Mercer Slough West Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (20 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and does not provide the opportunity to reduce flooding and erosion (10 out of 32 possible maximum score). The wetland scores a high potential and moderate opportunity (27 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Mercer Slough West Wetland is 57 out of a possible 100.
- *Wetland adjacent land use:* Upland areas adjacent to the wetland are dominated by fill, paved areas, and buildings associated with roads and commercial development to the east, west, and north. Lake Washington is located to the south.
- *Wetland determination:* Anchor QEA ecologists delineated and mapped the jurisdictional boundary of Mercer Slough West Wetland in the vicinity of the project area in February 2013. They used 245 flags to delineate the boundary of Mercer Slough West Wetland within the project area. Anchor QEA ecologists identified Mercer Slough West Wetland as Wetland WR-1/2 Mercer Slough Wetland in the *East Link Light Rail Project Final Environmental Impact Statement* (Sound Transit 2011).

3.3.1.2 Alcove Creek Wetland

- *Size and location:* Alcove Creek Wetland is located in an area between residential development at SE 15th Street and 112th Avenue SE (Appendix D, Frame 5). Anchor QEA ecologists delineated approximately 0.64 acre of Alcove Creek Wetland within the project area. The wetland extends outside the project area to the west. The Alcove Creek Wetland northwest of the project alignment has been physically modified to create two residential pond features. The Alcove Creek Wetland is associated with Alcove Creek (Section 4.2). Anchor QEA ecologists established two

sample plots during the delineation of Alcove Creek Wetland (Appendices A and B). A portion of the wetland is identified on City of Bellevue critical areas maps (Bellevue 2013b).

- *Vegetation*: Dominant vegetation includes red alder, Oregon ash (*Fraxinus latifolia*), black cottonwood, Pacific willow, red-osier dogwood, lady fern, and skunk cabbage (*Lysichiton americanus*) (Appendices A and B).
- *Soils:* Soils are typically very dark gray (10YR 3/1) silt loam to below 18 inches deep (Appendices A and B).
- *Hydrology*: Soils are saturated to the surface in the soil data pit, with the water table present about 5 inches from the surface (Appendices A and B). The wetland is associated with two man-made ponded areas within the residential development and an unnamed stream, identified as Alcove Creek (Section 4.2), flows from the pond through part of the wetland system before flowing through a culvert beneath 12th Avenue SE. The wetland receives artificial hydrology via pumped and piped water from the Mercer Slough West Branch. The electric pump keeps the ponds flowing with water.
- *Wetland classification*: Alcove Creek Wetland is a small wetland with PFO, PSS, and PEM vegetation classes and depressional and riverine HGM classes. The wetland soils are saturated, seasonally inundated, and riverine associated. It is a Category II wetland under Ecology's rating system and the City of Bellevue's critical areas regulations (75-foot buffer).
- *Wetland function scores*: Alcove Creek Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (14 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (20 out of 32 possible maximum score). The wetland scores a high potential and moderate opportunity (19 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Alcove Creek Wetland is 53 out of a possible 100.
- *Wetland adjacent land use:* Upland areas adjacent to the wetland are dominated by fill associated with 12th Avenue SE and pavement and buildings associated with residential development.
- *Wetland determination:* In April 2013, Anchor QEA ecologists delineated and

mapped Alcove Creek Wetland based on topography and the corresponding fill associated with the adjacent roads and development, upland soils, and lack of hydrologic indicators. They used 24 flags to delineate the boundary of Alcove Creek Wetland within the project area.

3.3.1.3 Bellefield South Wetland

- *Size and location:* Bellefield South Wetland is located northeast of 112th Avenue SE 15th Street. Bellefield North Wetland is located north of the wetland (Appendix D, Frame 5). Anchor QEA ecologists delineated the entire wetland boundary, approximately 0.29 acre within the project area. Bellefield South Wetland is associated with Mercer Slough (Section 4.2). Anchor QEA ecologists established two sample plots during the delineation of Bellefield South Wetland (Appendices A and B). This wetland is also subject to regulation under the City of Bellevue Shoreline Master Program (BCC 20.25E) as an associated wetland.
- *Vegetation*: Dominant vegetation includes Oregon ash, red alder, Pacific willow, Himalayan blackberry, and stinging nettle (*Urtica dioica*) (Appendices A and B).
- *Soils:* Soils are typically black (10YR 2/1) loam with coarse organic material to about 14 inches deep. Anchor QEA ecologists frequently observed pieces of charcoal and brick within the soil profile, indicating past land use activities at the site (Appendices A and B).
- *Hydrology*: Soils were saturated to the surface in the soil data pit, with no water table present to a depth of 18 inches from the surface (Appendices A and B). The wetland is associated with the shoreline of Mercer Slough (Section 4.2).
- *Wetland classification*: Bellefield South Wetland is a small wetland with PFO, PSS, and PEM vegetation classes and riverine and slope HGM classes. The wetland soils are saturated and seasonally inundated and riverine associated. Bellefield South Wetland is a Category II wetland under Ecology's rating system and the City of Bellevue's critical areas regulations (75-foot buffer).
- *Wetland function scores*: Bellefield South Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (20 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (16

out of 32 possible maximum score). The wetland scores a moderate potential and moderate opportunity (18 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Bellefield South Wetland is 54 out of a possible 100.

- *Wetland adjacent land use:* Upland areas adjacent to the wetland are dominated by fill associated with 12th Avenue SE and SE 15th Street. Mowed lawn is located between the roads and the wetland.
- *Wetland determination:* In May 2013, Anchor QEA ecologists delineated and mapped Bellefield South Wetland based on topography and the corresponding fill associated with the adjacent roads and development, upland vegetation and soils, and lack of hydrologic indicators. They used 19 GPS data points to delineate the boundary of Bellefield South Wetland within the project area.

3.3.1.4 Bellefield North Wetland

- *Size and location:* Bellefield North Wetland is located in an area between 112th Avenue SE and Mercer Slough. Bellefield South Wetland is located approximately 50 feet south of Bellefield North Wetland (Appendix D, Frame 5). Anchor QEA ecologists delineated the entire wetland boundary, approximately 0.11 acre, within the project area. Bellefield North Wetland is associated with Mercer Slough (Section 4.2). Anchor QEA ecologists established two sample plots during the delineation of Bellefield North Wetland (Appendices A and B). This wetland is also subject to regulation under the City of Bellevue Shoreline Master Program (BCC 20.25E) as an associated wetland.
- *Vegetation*: Dominant vegetation includes Oregon ash, black cottonwood, red alder, Pacific willow, prickly currant (*Ribes lacustre*), Himalayan blackberry, lady fern, and stinging nettle (Appendices A and B).
- *Soils:* Soils are typically black (10YR 2/1) loam to below 18 inches deep (Appendices A and B).
- *Hydrology*: Soils were saturated at about 6 inches from the surface in the soil data pit, with no water table present to a depth of 18 inches from the surface (Appendices A and B). The wetland is associated with the shoreline of Mercer Slough (Section 4.2).
- *Wetland classification*: Bellefield North Wetland is a small wetland with PFO and PSS

vegetation classes and riverine and slope HGM classes. The wetland soils are saturated and seasonally inundated and riverine associated. Bellefield North Wetland is a Category II wetland under Ecology's rating system and the City of Bellevue's critical areas regulations (75-foot buffer).

- *Wetland function scores*: Bellefield North Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (20 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (16 out of 32 possible maximum score). The wetland scores a moderate potential and moderate opportunity (17 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for Bellefield North Wetland is 53 out of a possible 100.
- *Wetland adjacent land use:* Upland areas adjacent to the wetland are dominated by fill associated with 12th Avenue SE. Mowed lawn is located between the roads and the wetland.
- *Wetland determination:* In May 2013, Anchor QEA ecologists delineated and mapped Bellefield North Wetland based on topography and the corresponding fill associated with the adjacent roads and development, upland vegetation and soils, and lack of hydrologic indicators. They used ten GPS data points to delineate the boundary of Bellefield North Wetland within the project area.

3.3.1.5 8th Street Wetland

- *Size and location:* 8th Street Wetland is located in a narrow area between 112th Avenue NE and residential development (Appendix D, Frame 5). 8th Street Wetland is an approximately 0.13-acre wetland. Due to lack of ROE, Anchor QEA staff only delineated the portion of the wetland located within the City of Bellevue right-of-way of 112th Avenue NE. They evaluated the wetland area located on private property by visual observations from the right-of-way. Anchor QEA ecologists established two sample plots during the delineation of 8th Street Wetland (Appendices A and B).
- *Vegetation*: Dominant vegetation includes stinging nettle and reed canarygrass (Appendices A and B).

- *Soils:* Soils are very saturated and black (10YR 2/1) loam to below 18 inches deep with some sand and rocks (Appendices A and B).
- *Hydrology*: The wetland had standing water adjacent to the fill slope from the City of Bellevue street. The remaining wetland area was saturated to the surface (Appendices A and B).
- *Wetland classification*: 8th Street Wetland is a small, narrow wetland with PFO, PSS, and PEM vegetation classes and a depressional HGM class. 8th Street Wetland is a Category III wetland under Ecology's rating system and the City of Bellevue's critical areas regulations (60-foot buffer).
- *Wetland function scores*: 8th Street Wetland scores a moderate potential to improve water quality and provide opportunities to improve water quality (6 out of 32 possible maximum score). The wetland scores a moderate potential to reduce flooding and erosion and provides the opportunity to reduce flooding and erosion (24 out of 32 possible maximum score). The wetland scores a low potential and low opportunity (11 out of 36 possible maximum score) to provide habitat functions. Overall, the total Ecology wetland functions score for 8th Street Wetland is 41 out of a possible 100.
- *Wetland adjacent land use:* Upland areas adjacent to the wetland are dominated by fill and pavement associated with 112th Avenue NE and residential landscaping and development. Commercial development is also located north, south, and west of the wetland.
- *Wetland determination:* In May 2013, Anchor QEA ecologists delineated the area of 8th Street Wetland located within the right-of-way of 112th Avenue NE based on topography and the corresponding fill associated with the adjacent road, upland vegetation and soils, and lack of hydrologic indicators. Due to lack of ROE, they visually evaluated the portion of the wetland located within private property from outside the property boundary. Anchor QEA ecologists used 20 flags to delineate the boundary of 8th Street Wetland within the right-of-way of 112th Avenue NE.

3.3.2 Sturtevant Creek Basin

Anchor QEA ecologists identified four wetlands in the Sturtevant Creek basin within the project area: three Category III wetlands, Lake Bellevue, South Lake, and Central Lake wetlands; and one Category IV wetland, North Lake Wetland. Within this basin, the project

4.3.1.4 Mercer Slough West Branch

Anchor QEA ecologists delineated the OHWM of the right bank of the Mercer Slough West Branch within the project area (Appendix D, Frames 2, 4, and 5) where the slough primarily flows south to Lake Washington. Three of the wetlands delineated as part of the investigation, Mercer Slough West, Bellefield South, and Bellefield North wetlands, are associated with the right bank of Mercer Slough West Branch (Section 3.3).

Within the project area, the right bank of Mercer Slough West Branch shoreline is dominated by Himalayan blackberry and mowed grass adjacent to 112th Avenue SE. Anchor QEA ecologists delineated an approximately 2,700-foot reach of the Stream OHWM within the project area. The Mercer Slough West Branch is identified as Type S waters on City of Bellevue critical area maps (Bellevue 2013b). Under the City of Bellevue's critical areas regulations, Type S waters have a 100-foot protective buffer. This stream is also identified on WDFW PHS maps (WDFW 2013a). Due to ROE conditions, Anchor QEA ecologists collected OHWM data with a GPS unit. They used these GPS data points to delineate the right bank OHWM of the Mercer Slough West Branch within the project area. In addition, due to the density of Himalayan blackberry along the stream shoreline, Anchor QEA ecologists performed the OHWM delineation using kayaks.

4.3.1.5 Alcove Creek

Anchor QEA ecologists delineated the OHWM of an unnamed stream system within the project area, identified as Alcove Creek (Appendix D, Frame 5). One of the wetlands delineated as part of the investigation, Alcove Creek Wetland, is associated with Alcove Creek (Section 3.3).

Alcove Creek flows southeast from a ponded area and a wetland within residential development, and then southeast through a culvert under 112th Avenue SE. There is no open water reach of Alcove Creek east of 112th Avenue SE where the stream falls into the West Branch of Mercer Slough from a hanging culvert. A second pond is located upstream of the first pond that is located outside the project area. The upstream location of the stream is located outside the project area boundary and was not identified during the investigation.

The project drainage team identified an artificial hydrology source, which pumps water from the Mercer Slough West Branch to the upper pond. Within the project area, Alcove Creek averaged about 2 to 6 feet wide and ranged from about 2 to 10 inches deep at the time of the investigation. Anchor QEA ecologists delineated an approximately 240-foot reach of Alcove Creek within the project area. Alcove Creek appears to meet the criteria of Type O waters under the City of Bellevue's critical areas regulations (25-foot buffer), not physically connected to Type S, F, or N waters by an aboveground channel system, stream, or wetland. Alcove Creek is not identified on City of Bellevue critical areas maps (Bellevue 2013b) or WDFW PHS maps (WDFW 2013a).

4.3.2 Sturtevant Creek Basin

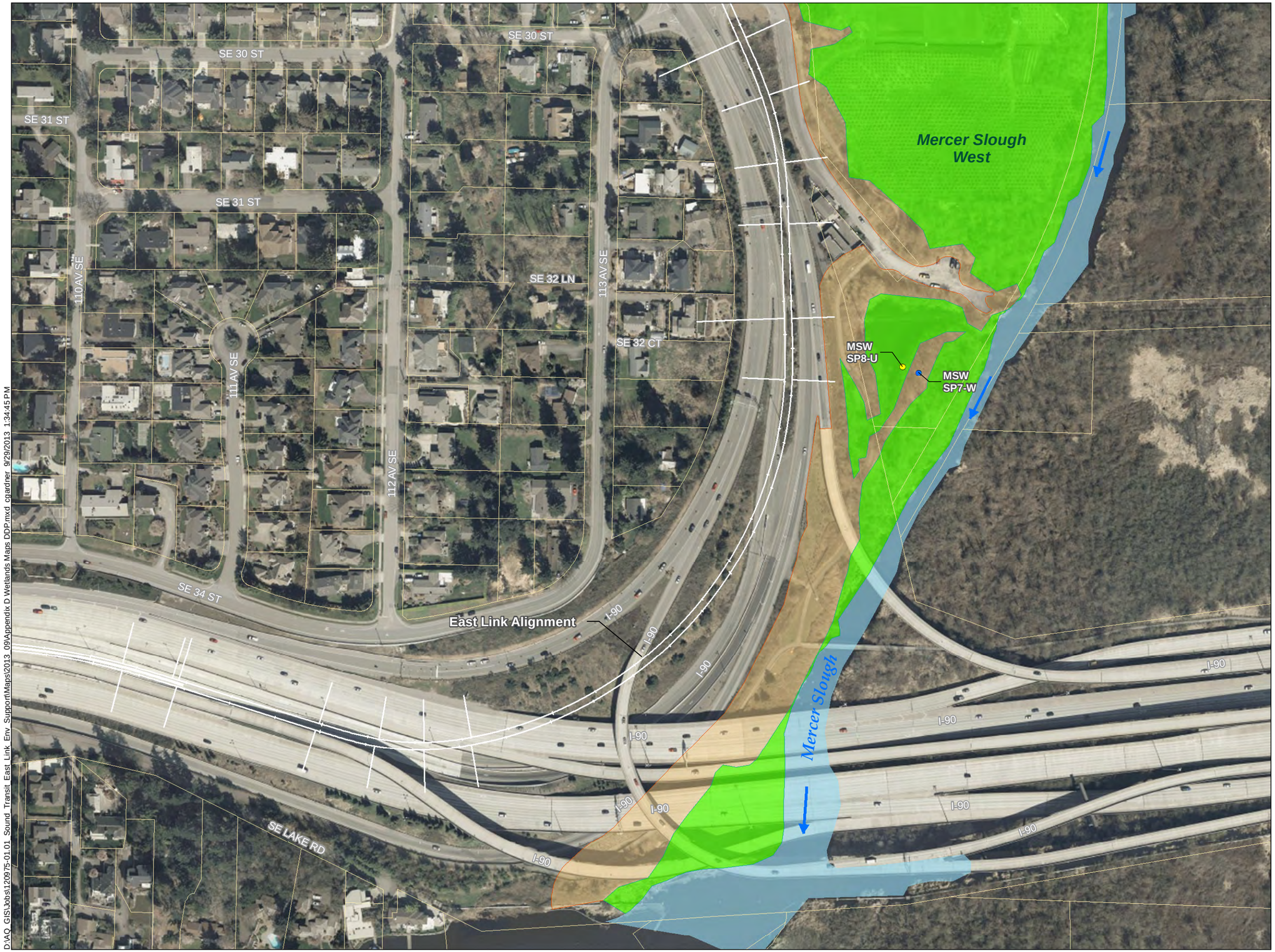
Anchor QEA ecologists delineated the OHWM of one stream, within the Sturtevant Creek basin in the project area. Sturtevant Creek is a Type F stream. Within this basin, the project area generally extends from about 112th Avenue SE and SE 8th Street to about 120th Avenue NE and NE 12th Street (Figure 2). The local jurisdiction within the basin is the City of Bellevue. The stream in the Sturtevant Creek basin is shown on Table 11 and the figures in Appendix D, Frame 9.

4.3.2.1 Sturtevant Creek

Anchor QEA ecologists delineated the OHWM of Sturtevant Creek within the project area (Appendix D, Frame 9). Within the project area, Sturtevant Creek flows south out of Lake Bellevue.

Within the project area, Sturtevant Creek flows from Lake Bellevue south along the former BNSF railway for approximately 600 feet before flowing through another approximately 35-foot-long culvert located beneath railroad tracks. The stream then flows west for approximately 20 feet before flowing into a culvert of unknown length to the west near I-405. Sturtevant Creek passes under I-405 through an approximately 250-foot culvert located 700 feet south of Main Street. Within the project area, Sturtevant Creek averaged about 3 to 6 feet wide and ranged from about 6 to 18 inches deep at the time of the investigation. Anchor QEA ecologists delineated an approximately 689-foot reach of Sturtevant Creek within the project area. Sturtevant Creek is identified as a Type F water on

Appendix D
Wetland/Stream/Ditch Locations
Sound Transit East Link
Extension Project
Frame 2



LEGEND

- Wetland Location[1]
- Non-delineated Wetland Areas[2]
- Wetland Area Buffers[3]
- Jurisdictional Ditch Location[1]
- Stream or Creek Location[1]
- Stream Buffers[3]
- Uplands Sample Plot
- Wetlands Sample Plot
- Mercer Slough Flow Direction
- Stream or Ditch Flow Direction
- Culvert Locations (Approximate)
- Water Bodies (King County)[4]
- Tax Parcels (King County)
- Proposed Light Rail Alignment

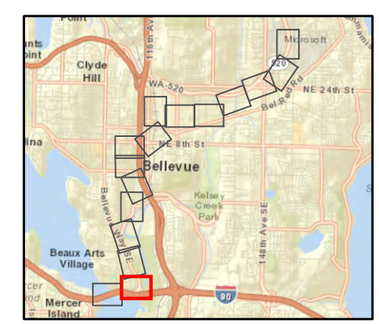
NOTES:

1. Locations determined from field survey activities carried out by Anchor QEA, LLC, in 2013.
2. Non-delineated areas were approximated using available aerial imagery and were not accessible due to a lack of access or agreed right-of-entry.
3. Wetland buffers and stream buffers have been modified to not extend over impervious areas or structures. Wetland and stream buffers may overlap in some areas.
4. King County water body data were modified by Anchor QEA where necessary to match field-delineated ordinary high water mark (OHWM).

· Background imagery provided by ESRI.
· Parcel and water body data provided by King County.

ANCHOR QEA

Scale in Feet
0 100 200 400



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Appendix D
Wetland/Stream/Ditch Locations
Sound Transit East Link
Extension Project
Frame 3

LEGEND

- Wetland Location[1]
- Non-delineated Wetland Areas[2]
- Wetland Area Buffers[3]
- Jurisdictional Ditch Location[1]
- Stream or Creek Location[1]
- Stream Buffers[3]
- Uplands Sample Plot
- Wetlands Sample Plot
- Mercer Slough Flow Direction
- Stream or Ditch Flow Direction
- Culvert Locations (Approximate)
- Water Bodies (King County)[4]
- Tax Parcels (King County)
- Proposed Light Rail Alignment

NOTES:

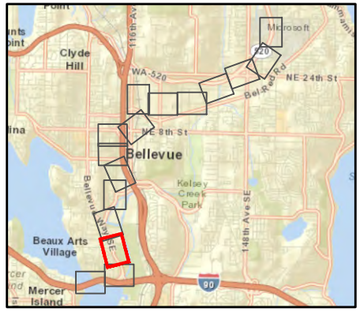
1. Locations determined from field survey activities carried out by Anchor QEA, LLC, in 2013.
2. Non-delineated areas were approximated using available aerial imagery and were not accessible due to a lack of access or agreed right-of-entry.
3. Wetland buffers and stream buffers have been modified to not extend over impervious areas or structures. Wetland and stream buffers may overlap in some areas.
4. King County water body data were modified by Anchor QEA where necessary to match field-delineated ordinary high water mark (OHWM).

· Background imagery provided by ESRI.
· Parcel and water body data provided by King County.

ANCHOR QEA

Scale in Feet

0 100 200 400



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Appendix D
Wetland/Stream/Ditch Locations
Sound Transit East Link
Extension Project
Frame 4

LEGEND

- Wetland Location[1]
- Non-delineated Wetland Areas[2]
- Wetland Area Buffers[3]
- Jurisdictional Ditch Location[1]
- Stream or Creek Location[1]
- Stream Buffers[3]
- Uplands Sample Plot
- Wetlands Sample Plot
- Mercer Slough Flow Direction
- Stream or Ditch Flow Direction
- Culvert Locations (Approximate)
- Water Bodies (King County)[4]
- Tax Parcels (King County)
- Proposed Light Rail Alignment

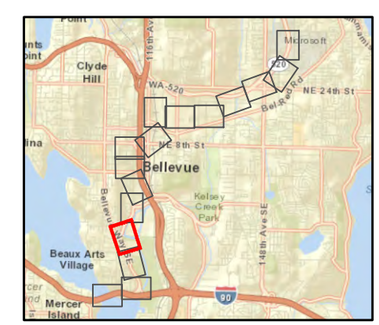
NOTES:

1. Locations determined from field survey activities carried out by Anchor QEA, LLC, in 2013.
2. Non-delineated areas were approximated using available aerial imagery and were not accessible due to a lack of access or agreed right-of-entry.
3. Wetland buffers and stream buffers have been modified to not extend over impervious areas or structures. Wetland and stream buffers may overlap in some areas.
4. King County water body data were modified by Anchor QEA where necessary to match field-delineated ordinary high water mark (OHWM).

· Background imagery provided by ESRI.
· Parcel and water body data provided by King County.

ANCHOR QEA

Scale in Feet
0 100 200 400



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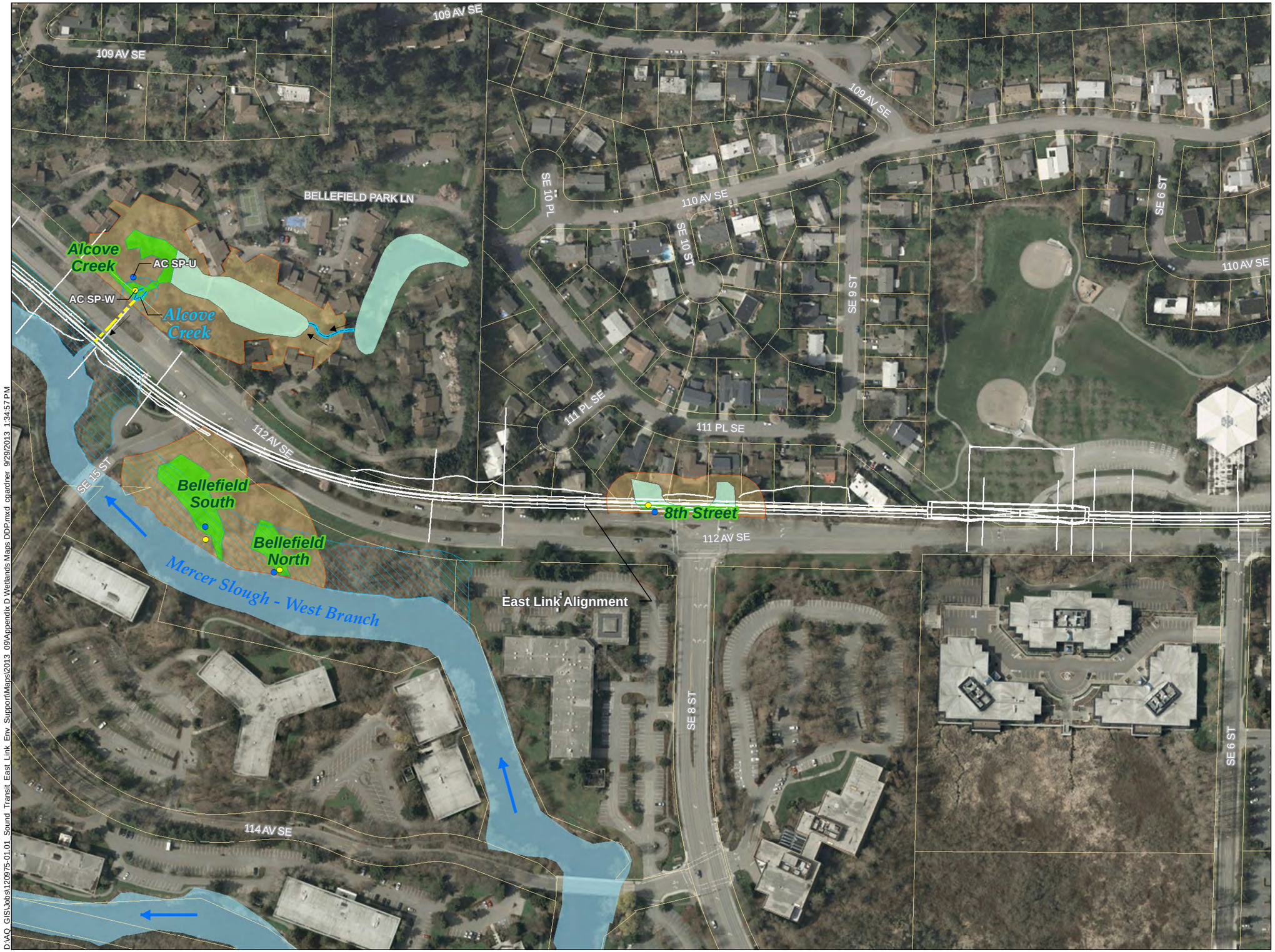
Appendix D
Wetland/Stream/Ditch Locations
Sound Transit East Link
Extension Project
Frame 5



LEGEND

- Wetland Location[1]
- Non-delineated Wetland Areas[2]
- Wetland Area Buffers[3]
- Jurisdictional Ditch Location[1]
- Stream or Creek Location[1]
- Stream Buffers[3]
- Uplands Sample Plot
- Wetlands Sample Plot
- Mercer Slough Flow Direction
- Stream or Ditch Flow Direction
- Culvert Locations (Approximate)
- Water Bodies (King County)[4]
- Tax Parcels (King County)
- Proposed Light Rail Alignment

NOTES:

1. Locations determined from field survey activities carried out by Anchor QEA, LLC, in 2013.
2. Non-delineated areas were approximated using available aerial imagery and were not accessible due to a lack of access or agreed right-of-entry.
3. Wetland buffers and stream buffers have been modified to not extend over impervious areas or structures. Wetland and stream buffers may overlap in some areas.
4. King County water body data were modified by Anchor QEA where necessary to match field-delineated ordinary high water mark (OHWM).

· Background imagery provided by ESRI.
· Parcel and water body data provided by King County.

ANCHOR QEA

Scale in Feet

0 100 200 400

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 21, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP10-U

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus latifolia*	5	no	FACW
2. *Salix lasiandra*	30	yes	FACW
3. _____	_____	____	____
4. _____	_____	____	____
50% = 1, 20% = 0	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Cornus sericea*	15	no	FACW
2. *Polygonum cuspidatum*	10	no	FACU
3. *Rubus armeniacus*	25	yes	FACU
4. *Sambucus racemosa*	15	no	FACU
5. *Symphoricarpos albus*	50	yes	FACU
50% = 0, 20% = 2	100	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	0	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	37	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 37% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP10-U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 10	10YR 3/2	100	None	None	None	None	Loam	
10 to 18+	10YR 4/2	100	None	None	None	None	Loam	w/cobble

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 2 chroma with no redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: No saturation or water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 6, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP1-W

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	40	yes	FAC
2. *Thuja plicata*	40	yes	FAC
3. _____	_____	____	____
4. _____	_____	____	____
50% = 2, 20% = 0	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Rubus armeniacus*	10	yes	FACU
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 0	10	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Athyrium filix-femina*	20	no	FAC
2. *Equisetum telmateia*	10	no	FACW
3. *Phalaris arundinacea*	80	yes	FACW
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	100	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 75% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP1-W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 7	10YR 2/1	100	None	None	None	None	Silt loam	w/dense root material
7 to 10	10YR 2/1	100	None	None	None	None	Silt	
10 to 18+	10YR 2/1	100	None	None	None	None	Silt	w/dense organic material

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 1 chroma

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	6 inches
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	Surface

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

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

Remarks: Saturation and water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 6, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP2-U

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	20	no	FAC
2. *Betula papyrifera*	90	yes	FAC
3. *Thuja plicata*	10	no	FAC
4. _____	_____	____	____
50% = 1, 20% = 0	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Rubus armeniacus*	30	yes	FACU
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 0	30	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Phalaris arundinacea*	50	yes	FACW
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	50	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 67% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP2-U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 to 4	10YR 3/2	100	None	None	None	None	Loam	
4 to 18+	10YR 3/4	100	None	None	None	None	Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 2 chroma with no redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: No saturation or water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 6, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP3-W

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	70	yes	FAC
2. *Betula papyrifera*	5	no	FAC
3. *Picea sitchensis*	30	yes	FAC
4. *Salix hookeriana*	15	no	FACW
50% = 1, 20% = 2	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Rubus spectabilis*	40	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 0	40	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Athyrium filix-femina*	15	yes	FAC
2. *Carex obnupta*	20	yes	OBL
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 1	35	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 65

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 100% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP3-W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 6	10YR 2/1	100	None	None	None	None	Loam	
6 to 9	10YR 2/1	100	None	None	None	None	Silt loam	
9 to 12	10YR 2/2	100	None	None	None	None	Silt	w/dense organic material
12 to 18+	10YR 3/1	100	None	None	None	None	Sandy silt	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 1 chroma

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: Saturation and water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 6, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP4-U

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	20	yes	FAC
2. *Pseudotsuga menziesii*	80	yes	FACU
3. _____	_____	____	____
4. _____	_____	____	____
50% = 1, 20% = 1	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Gaultheria shallon*	40	yes	FACU
2. *Holodiscus discolor*	20	no	UPL
3. *Rosa gymnocarpa*	35	yes	FACU
4. *Rubus spectabilis*	30	yes	FAC
5. _____	_____	____	____
50% = 0, 20% = 3	100	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 0, 20% = 0	0	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 40% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP4-U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 4	10YR 2/2	100	None	None	None	None	Sandy loam	
4 to 18+	10YR 3/6	100	None	None	None	None	Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 2 & 6 chromas with no redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: No saturation or water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 6, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP5-W

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiandra*	30	yes	FACW
2. *Thuja plicata*	15	yes	FAC
3. _____	_____	____	____
4. _____	_____	____	____
50% = 0, 20% = 1	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Rubus spectabilis*	80	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 0	80	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 0, 20% = 0	0	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 100% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP5-W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 7	10YR 2/1	100	None	None	None	None	Silt loam	
7 to 10	10YR 2/1	100	None	None	None	None	Silt	w/organic material
10 to 18+	10YR 2/1	100	None	None	None	None	Silt	w/dense organic material

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 1 chroma

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: Saturation observed at the surface in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 6, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP6-U

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophylum*	60	yes	FACU
2. *Pseudotsuga menziesii*	20	no	FACU
3. *Thuja plicata*	20	yes	FAC
4. _____	_____	____	____
50% = 1, 20% = 1	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Ilex aquifolium*	20	no	FACU
2. *Oemleria cerasiformis*	10	no	FACU
3. *Rubus spectabilis*	60	yes	FAC
4. *Sambucus racemosa*	20	yes	FACU
5. _____	_____	____	____
50% = 1, 20% = 1	100	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Equisetum telmateia*	5	yes	FACW
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	5	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 60% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP6-U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 10	10YR 2/2	100	None	None	None	None	Sandy loam	
10 to 18+	10YR 3/3	100	None	None	None	None	Sandy loam	w/dense roots

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 2 and 3 chroma with no redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: No saturation or water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 21, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP7-W

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	70	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = 1, 20% = 0	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Solanum dulcamara*	5	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 0	5	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Epilobium watsonii*	5	no	FACW
2. *Juncus effusus*	5	no	FACW
3. *Phalaris arundinacea*	90	yes	FACW
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	100	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 100% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP7-W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 10	10YR 4/1	100	None	None	None	None	Sandy loam	w/cobbles & coarse wood layers
10 to 18+	10YR 5/1	100	None	None	None	None	Sandy loam	w/coarse wood layers

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 1 chroma

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	7 inches
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	Surface

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

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

Remarks: Saturation and water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 21, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP8-U

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	60	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = 1, 20% = 0	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Acer circinatum*	30	yes	FAC
2. *Ilex aquifolium*	10	no	FACU
3. *Rubus armeniacus*	30	yes	FACU
4. *Rubus spectabilis*	40	yes	FAC
5. _____	_____	____	____
50% = 0, 20% = 3	100	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Phalaris arundinacea*	5	yes	FACW
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	5	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 80% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP8-U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 to 18+	10YR 3/3	100	None	None	None	None	Sandy loam	w/gravel & cobble

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 2 and 3 chroma with no redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: No saturation or water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: Feb. 21, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: MSW SP9-W

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Large wetland system - Mercer Slough Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.58N Long: 122.18W Datum: _____

Soil Map Unit Name: Seattle Muck NWI classification: PFO, PSS, PEM

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

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

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

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

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

Remarks: Wetland Mercer Slough West is a large wetland associated with the Mercer Slough and Lake Washington. Only a portion of the west boundary of wetland delineated as part of this investigation. Area west of wetland boundary includes roads and associated fill prisms. Wetland includes depressional, lake-fringe, riverine, and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiandra*	90	yes	FACW
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = 1, 20% = 0	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Cornus sericea*	30	yes	FACW
2. *Rubus armeniacus*	5	no	FACU
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 0	35	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Ranunculus repens*	50	yes	FACW
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	50	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 100% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: MSW SP9-W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 6	10YR 3/1	100	None	None	None	None	Loam	w/gravel
6 to 18+	10YR 4/1	95	10YR 6/2	5	D	M	Clay loam	w/cobble & gravel

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 1 chroma with redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: Saturation at surface with no water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: April 6, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: AC SP-U

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Riparian, ponded, slope Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.59N Long: 122.19W Datum: _____

Soil Map Unit Name: AgC & Sk NWI classification: None mapped

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

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

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

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

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

Remarks: Wetland is located adjacent to residential development and public roads. Wetland includes depressional and riverine HGM classes. Depressional area is pond like feature within apartment setting.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Abies grandis*	5	no	FACU
2. *Fraxinus latifolia*	75	yes	FACW
3. *Pinus monticola*	5	no	FACU
4. _____	_____	_____	_____
50% = 1, 20% = 0	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Rubus armeniacus*	40	yes	FACU
2. *Symphoricarpos albus*	45	yes	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 1, 20% = 1	95	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = 1, 20% = 0	0	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. *Hedera hibernica*	10	yes	UPL
2. _____	_____	_____	_____
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	25	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 25% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: AC SP-U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 to 18+	10YR 2/2	100	None	None	None	None	Sandy loam	w/gravel & cobble

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 2 chroma with no redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: No saturation or water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: April 4, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: AC SP-W

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Riparian, ponded, slope Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.59N Long: 122.19W Datum: _____

Soil Map Unit Name: AgC & Sk NWI classification: None mapped

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

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

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

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

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

Remarks: Wetland is located adjacent to residential development and public roads. Wetland includes depressional and riverine HGM classes. Depressional area is pond like feature within apartment setting.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	5	no	FAC
2. *Fraxinus latifolia*	5	no	FACW
3. *Populus trichocarpa*	85	yes	FAC
4. _____	_____	____	____
50% = 1, 20% = 0	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Cornus sericea*	30	yes	FACW
2. *Lonicera involucrata*	5	no	FAC
3. *Oemleria cerasiformis*	20	yes	FACU
4. *Rubus armeniacus*	10	no	FACU
5. _____	_____	____	____
50% = 0, 20% = 2	65	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 0, 20% = 0	0	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 100

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 67% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: Alcove Creek SP-W

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 1	Duff	100	None	None	None	None	Duff	w/leaf litter
1 to 18+	10YR 3/1	100	None	None	None	None	Silt loam	w/dense organic material

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 1 chroma

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: Saturation and water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: May 17, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: Bellefield North SP-U

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Riparian, slope Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.59N Long: 122.19W Datum: _____

Soil Map Unit Name: AgC & Sk NWI classification: None mapped

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

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

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

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

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

Remarks: Wetland is located between Mercer Slough and 12th Avenue SE. Wetland Bellefield South is located south of the wetland. Area between roads is dominated by mowed grass and thick growth of Himalayan blackberry. Wetland includes riverine and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	5	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = 1, 20% = 0	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Rubus armeniacus*	80	yes	FACU
2. *Sambucus racemosa*	20	yes	FACU
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 1	100	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Urtica dioica*	60	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	60	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 50% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: Bellefield North SP-U

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 12	10YR 3/4	100	None	None	None	None	Loam	w/brick & charcoal pieces
0 to 12	10YR 5/4	100	None	None	None	None	Loam	w/brick & charcoal pieces
12 to 18+	10YR 2/2	100	None	None	None	None	Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 2 and 4 chroma with no redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: No saturation or water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: May 17, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: Bellefield North SP-W

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Riparian, slope Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.59N Long: 122.19W Datum: _____

Soil Map Unit Name: AgC & Sk NWI classification: None mapped

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

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

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

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

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

Remarks: Wetland is located between Mercer Slough and 12th Avenue SE. Wetland Bellefield South is located south of the wetland. Area between roads is dominated by mowed grass and thick growth of Himalayan blackberry. Wetland includes riverine and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus latifolia*	70	yes	FACW
2. *Populus trichocarpa*	40	yes	FAC
3. _____	_____	____	____
4. _____	_____	____	____
50% = 1, 20% = 1	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Cornus sericea*	40	yes	FACU
2. *Rubus armeniacus*	30	yes	FACU
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 1	70	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Urtica dioica*	20	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	20	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 80% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: Bellefield North SP-W

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 18+	10YR 2/1	100	None	None	None	None	Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 1 chroma

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☐	No	☒	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	6 inches

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

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

Remarks: Saturation observed at 6 inches in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: May 17, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: Bellefield South SP-U

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Riparian, slope Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.59N Long: 122.19W Datum: _____

Soil Map Unit Name: AgC & Sk NWI classification: None mapped

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

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

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

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

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

Remarks: Wetland is located between Mercer Slough and 12th Avenue SE with SE 15th Street to the south. Wetland Bellefield North is located north of the wetland. Area between roads is dominated by mowed grass and thick growth of Himalayan blackberry. Wetland includes riverine and slope HGM classes.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = 0, 20% = 0	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Rubus armeniacus*	10	yes	FACU
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 0	10	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Urtica dioica*	70	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 1, 20% = 0	10	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. *Convolvulvus arvensis*	40	yes	UPL
2. _____	_____	____	____
50% = 1, 20% = _____	40	= Total Cover	

% Bare Ground in Herb Stratum 90

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 33% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: Bellefield South SP-U

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 15	10YR 2/2	100	None	None	None	None	Loam	
15 to 18+	10YR 2/2	100	None	None	None	None	Loam	w/coarse organic material

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 2 chroma with no redox features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: No saturation or water table observed in sample plot

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

Project Site: Sound Transit East Link Extension Project City/County: Bellevue/King Sampling Date: May 17, 2013

Applicant/Owner: Sound Transit State: WA Sampling Point: Bellefield South SP-W

Investigator(s): C Douglas & J. Pursley Section, Township, Range: S5, T24N, R5E

Landform (hillslope, terrace, etc.): Riparian, slope Local relief (concave, convex, none): concave Slope (%): 0% to 4%

Subregion (LRR): A Lat: 47.59N Long: 122.19W Datum: _____

Soil Map Unit Name: AgC & Sk NWI classification: None mapped

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

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

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

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

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

Remarks: Wetland is located between Mercer Slough and 12th Avenue SE with SE 15th Street to the south. Area between roads is dominated by mowed grass and thick growth of Himalayan blackberry. Wetland includes riverine and slope HGM classes. .

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	20	yes	FAC
2. *Fraxinus latifolia*	75	yes	FACW
3. _____	_____	____	____
4. _____	_____	____	____
50% = 1, 20% = 1	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 foot radius)			
1. *Rubus armeniacus*	10	yes	FACU
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 1, 20% = 0	10	= Total Cover	
Herb Stratum (Plot size: 3 foot radius)			
1. *Brassica campestris*	5	no	UPL
2. *Epilobium watsonii*	5	no	FACW
3. *Urtica dioica*	70	yes	FAC
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 2, 20% = 0	80	= Total Cover	
Woody Vine Stratum (Plot size: 3 foot radius)			
1. *Convolvulvus arvensis*	30	____	____
2. _____	_____	____	____
50% = 1, 20% = _____	30	= Total Cover	

% Bare Ground in Herb Stratum 20

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: 60% dominant wetland vegetation per the Dominance Test

Project Site: Sound Transit East Link Extension Project

SOIL

Sampling Point: Bellefield South SP-W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 to 14	10YR 2/1	100	None	None	None	None	Loam	w/organic matter & brick & charcoal pieces
14 to 18+	10YR 3/3	100	None	None	None	None	Silt loam	w/coarse organic material

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks: 1 chroma

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Remarks: Saturation observed at surface in sample plot

Wetland name or number: 8th Street

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): 8th Street Date of site visit: April 4, 2013

Rated by: C. Douglas & J. Pursley Trained by Ecology? Yes ☒ No ☐ Date of training: May 2007

SEC: 5 TOWNSHP: 24N RNGE: 5E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: ☐ I ☐ II ☒ III ☐ IV

Category I =	Score > 70	Score for Water Quality Functions	6
Category II =	Score 51 - 69	Score for Hydrologic Functions	24
Category III =	Score 30 – 50	Score for Habitat Functions	11
Category IV =	Score < 30	TOTAL Score for Functions	41

Category based on SPECIAL CHARACTERISTCS of Wetland ☐ I ☐ II ☒ **Does not apply**

Final Category (choose the "highest" category from above") **III**

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine	☐	**Depressional**	☒
Natural Heritage Wetland	☐	**Riverine**	☐
Bog	☐	**Lake-fringe**	☐
Mature Forest	☐	**Slope**	☐
Old Growth Forest	☐	**Flats**	☐
Coastal Lagoon	☐	**Freshwater Tidal**	☐
Interdunal	☐		☐
None of the above	☒	Check if unit has multiple HGM classes present	☐

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☒
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☐	☒
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☒
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number: 8th Street

Classification of Vegetated Wetlands for Western Washington

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 (i.e. except during floods)?
   ☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   ☐ **YES – Freshwater Tidal Fringe** ☐ **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is 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 meet both of the following criteria?
   ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   ☐ At least 30% of the open water area is deeper than 6.6 (2 m)?
   ☒ NO – go to 4 ☐ **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland 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**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   ☐ NO – go to 5 ☐ **YES** – The wetland class is **Slope**

5. Does the entire wetland 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 two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   ☐ NO – go to 6 ☐ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

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D	Depressional and Flat Wetlands	Points (only 1 score per box)
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	
D 1	**Does the wetland have the potential to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) ..... points = 3 ☐ • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ... points = 2 ☒ • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) .. points = 1 ☐ • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch ..... points = 1 ☐ *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure** ☐ **2**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area ..... points = 5 ☐ • Wetland has persistent, ungrazed vegetation > = 1/2 of area ..... points = 3 ☐ • Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 ☒ • Wetland has persistent, ungrazed vegetation < 1/10 of area ..... points = 0 ☐ **Map of Cowardin vegetation classes**	**Figure** ☐ **1**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 ☐ • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 ☐ • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 ☒ **Map of Hydroperiods**	**Figure** ☐ **0**
	Total for D 1 *Add the points in the boxes above*	**3**
D 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☒ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft. of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☒ Residential, urban areas, golf courses are within 150 ft. of wetland ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other _____ ☒ **YES** multiplier is 2 ☐ **NO** multiplier is 1	*(see p. 44)* Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	**6**
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) ..... points = 4 ☐ • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet .... points = 2 ☒ • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch ..... points = 1 ☐ *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 ☒ • The wetland is a "headwater" wetland ..... points = 5 ☐ • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet ..... points = 5 ☐ • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet ..... points = 3 ☐ • Wetland is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water . points = 1 ☐ • Marks of ponding less than 0.5 ft ..... points = 0 ☐	7
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit ..... points = 5 ☐ • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 ☒ • The area of the basin is more than 100 times the area of the unit ..... points = 0 ☐ • Entire unit is in the FLATS class ..... points = 5 ☐	3
	Total for D 3 *Add the points in the boxes above*	12

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D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☒ Wetland drains to a river or stream that has flooding problems ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ☐ Other _____ ☒ **YES** multiplier is 2 ☐ **NO** multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	**<u>24</u>**

Comments: <u>Wetland rated by visual observations from outside property due to lack of ROE.</u>

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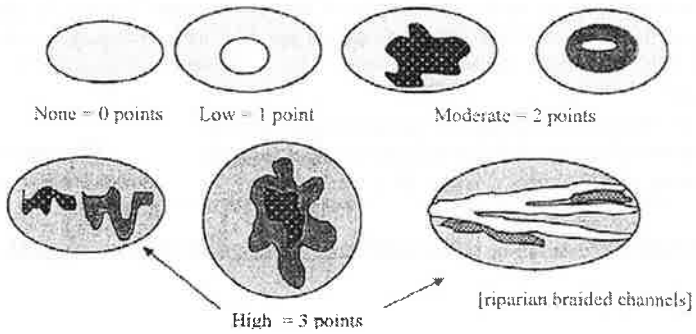
These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	Points (only 1 score per box)
H 1 Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic Bed ☒ Emergent plants ☒ Scrub/shrub (areas where shrubs have > 30% cover) ☒ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 ☐ 3 structures..... points = 2 ☒ 2 structures..... points = 1 ☐ 1 structure ..... points = 0 ☐	**Figure** ☐ **2**
H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present — points = 3 ☐ ☒ Seasonally flooded or inundated — 3 or more types present — points = 2 ☐ ☐ Occasionally flooded or inundated — 2 types present — points = 1 ☒ ☒ Saturated only — 1 type present — points = 0 ☐ ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake-fringe wetland..... = 2 points** ☐ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure** ☐ **1**
H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 ☐ 5 – 19 species..... points = 1 ☒ List species below if you want to: < 5 species ..... points = 0 ☐ ____	1
H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure** ☐ **2**
H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland ☐ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ☐ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	**6**

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H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference..... **points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ☐ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ☐ Heavy grazing in buffer..... **points = 1** ☐ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** ☒ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure** ☐ 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* ☐ **YES = 4 points** (go to H 2.3) ☒ **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☐ **YES = 2 points** (go to H 2.3) ☒ **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR ☒ **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? ☐ **NO** = 0 points	1

Comments: **<u>Wetland rated by visual observations from outside property due to lack of ROE.</u>**

Wetland name or number: 8th Street

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ☐ **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 p. 152*). ☐ **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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 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:** Woodlands 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*). ☐ **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*). ☐ **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: pp. 167-169 and glossary in Appendix A).* ☐ **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 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 ☐ • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 ☐ • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. ..... points = 3 ☒ • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 ☐ • There is at least 1 wetland within 1/2 mile ..... points = 2 ☐ • There are no wetlands within 1/2 mile..... points = 0 ☐	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	5
	TOTAL for H 1 from page 8	6
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	**11**

Comments: Wetland rated by visual observations from outside property due to lack of ROE.

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CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ **YES** = Go to SC 1.1 ☒ **NO**	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ **YES** = Category I ☐ **NO** = go to SC 1.2	**Cat. 1** ☐
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? ☐ **YES** = Category I ☐ **NO** = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ☐ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** ☐ **Cat. II** ☐ **Dual Rating I/II** ☐
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* ☐ S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ **YES** Contact WNHP/DNR (see p. 79) and go to SC 2.2 ☒ **NO** SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? ☐ **YES** = Category 1 ☒ **NO** not a Heritage Wetland	**Cat I** ☐
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? ☐ **YES** = go to question 3 ☒ **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ **YES** = go to question 3 ☒ **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? ☐ **YES** = Is a bog for purpose of rating ☒ **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? ☐ **YES** = Category I ☒ **NO** = Is not a bog for purpose of rating	**Cat. I** ☐

Wetland name or number: 8th Street

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. ☐ **YES** = Category I ☒ **NO** = not a forested wetland with special characteristics	**Cat. I** ☐
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* ☐ **YES** = Go to SC 5.1 ☒ **NO** not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than 1/10 acre (4350 square ft.) ☐ **YES** = Category I ☐ **NO** = Category II	**Cat. I** ☐ **Cat. II** ☐
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ **YES** = Go to SC 6.1 ☒ **NO** not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ **YES** = Category II ☐ **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ **YES** = Category III	**Cat. II** ☐ **Cat. III** ☐
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number: Alcove Creek

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Alcove Creek — Date of site visit: April 4, 2013

Rated by: C. Douglas & J. Pursley Trained by Ecology? Yes ☒ No ☐ — Date of training: May 2007

SEC: 5 TOWNSHP: 24N RNGE: 5E — Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: ☐ I ☒ II ☐ III ☐ IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	20
Score for Habitat Functions	19
TOTAL Score for Functions	53

Category based on SPECIAL CHARACTERISTCS of Wetland ☐ I ☐ II ☒ **Does not apply**

Final Category (choose the "highest" category from above") **II**

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☒

Wetland HGM Class used for Rating	
Depressional	☒
Riverine	☒
Lake-fringe	☐
Slope	☐
Flats	☐
Freshwater Tidal	☐
	☐
Check if unit has multiple HGM classes present	☒

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☒
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☐	☒
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☒
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number: Alcove Creek

Classification of Vegetated Wetlands for Western Washington

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 (i.e. except during floods)?
   ☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   ☐ **YES – Freshwater Tidal Fringe** ☐ **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is 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 meet both of the following criteria?
   ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   ☐ At least 30% of the open water area is deeper than 6.6 (2 m)?
   ☒ NO – go to 4 ☐ **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland 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**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   ☐ NO – go to 5 ☐ **YES** – The wetland class is **Slope**

5. Does the entire wetland 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 two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   ☐ NO – go to 6 ☒ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

Wetland name or number: Alcove Creek

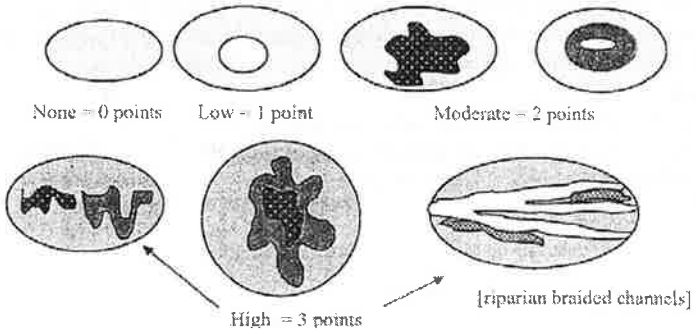
D	Depressional and Flat Wetlands	Points (only 1 score per box)
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	
D 1	**Does the wetland have the potential to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) ..... points = 3 ☐ • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ... points = 2 ☒ • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) .. points = 1 ☐ • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch ..... points = 1 ☐ *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure** ☐ 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area ..... points = 5 ☐ • Wetland has persistent, ungrazed vegetation > = 1/2 of area ..... points = 3 ☒ • Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 ☐ • Wetland has persistent, ungrazed vegetation < 1/10 of area ..... points = 0 ☐ **Map of Cowardin vegetation classes**	**Figure** ☐ 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 ☐ • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 ☒ • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 ☐ **Map of Hydroperiods**	**Figure** ☐ 2
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☒ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft. of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☒ Residential, urban areas, golf courses are within 150 ft. of wetland ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other _____ ☒ **YES** multiplier is 2 ☐ **NO** multiplier is 1	*(see p. 44)* Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) ..... points = 4 ☐ • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet .... points = 2 ☒ • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch ..... points = 1 ☐ *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 ☐ • The wetland is a "headwater" wetland ..... points = 5 ☐ • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet ..... points = 5 ☐ • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet ..... points = 3 ☒ • Wetland is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water .points = 1 ☐ • Marks of ponding less than 0.5 ft ..... points = 0 ☐	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit ..... points = 5 ☒ • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 ☐ • The area of the basin is more than 100 times the area of the unit ..... points = 0 ☐ • Entire unit is in the FLATS class ..... points = 5 ☐	5
	Total for D 3 *Add the points in the boxes above*	10

Wetland name or number: Alcove Creek

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☒ Wetland drains to a river or stream that has flooding problems ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ☐ Other _____ ☒ **YES** multiplier is 2 ☐ **NO** multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	**<u>20</u>**

Comments: _____

Wetland name or number: Alcove Creek

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	Points (only 1 score per box)
H 1 Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic Bed ☒ Emergent plants ☒ Scrub/shrub (areas where shrubs have > 30% cover) ☒ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 ☐ 3 structures..... points = 2 ☒ 2 structures..... points = 1 ☐ 1 structure ..... points = 0 ☐	**Figure** ☐ **2**
H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ☒ Permanently flooded or inundated — 4 or more types present — points = 3 ☒ ☒ Seasonally flooded or inundated — 3 or more types present — points = 2 ☐ ☐ Occasionally flooded or inundated — 2 types present — points = 1 ☐ ☒ Saturated only — 1 type present — points = 0 ☐ ☒ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake-fringe wetland..... = 2 points** ☐ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure** ☐ **3**
H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 ☐ 5 – 19 species..... points = 1 ☒ List species below if you want to: < 5 species ..... points = 0 ☐ _____	1
H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure** ☐ **3**
H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☒ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ☒ Standing snags (diameter at the bottom > 4 inches) in the wetland ☐ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ☐ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	**2**
H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	**11**

Wetland name or number: Alcove Creek

H 2	**Does the wetland have the opportunity to provide habitat for many species?**	(only 1 score per box)
	H 2.1 Buffers *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference..... **points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ☐ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ☐ Heavy grazing in buffer..... **points = 1** ☐ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** ☒ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure** ☐ **1**
	H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* ☐ **YES = 4 points** (go to H 2.3) ☒ **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☐ **YES = 2 points** (go to H 2.3) ☒ **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR ☒ **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? ☐ **NO** = 0 points	1

Comments: _____

Wetland name or number: Alcove Creek

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ☐ **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 p. 152*). ☐ **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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 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:** Woodlands 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*). ☒ **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*). ☒ **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: pp. 167-169 and glossary in Appendix A).* ☐ **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 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	3
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 ☐ • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 ☐ • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. ..... points = 3 ☒ • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 ☐ • There is at least 1 wetland within 1/2 mile ..... points = 2 ☐ • There are no wetlands within 1/2 mile..... points = 0 ☐	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	11
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	**19**

Comments: _____

Wetland name or number: Alcove Creek

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ **YES** = Go to SC 1.1 ☒ **NO**	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ **YES** = Category I ☐ **NO** = go to SC 1.2	**Cat. 1** ☐
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? ☐ **YES** = Category I ☐ **NO** = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ☐ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** ☐ **Cat. II** ☐ **Dual Rating I/II** ☐
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* ☐ S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ **YES** Contact WNHP/DNR (see p. 79) and go to SC 2.2 ☒ **NO** SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? ☐ **YES** = Category 1 ☒ **NO** not a Heritage Wetland	**Cat I** ☐
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? ☐ **YES** = go to question 3 ☒ **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ **YES** = go to question 3 ☒ **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? ☐ **YES** = Is a bog for purpose of rating ☒ **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? ☐ **YES** = Category I ☒ **NO** = Is not a bog for purpose of rating	**Cat. I** ☐

Wetland name or number: Alcove Creek

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. ☐ **YES** = Category I ☒ **NO** = not a forested wetland with special characteristics	**Cat. I** ☐
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* ☐ **YES** = Go to SC 5.1 ☒ **NO** not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than 1/10 acre (4350 square ft.) ☐ **YES** = Category I ☐ **NO** = Category II	**Cat. I** ☐ **Cat. II** ☐
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ **YES** = Go to SC 6.1 ☒ **NO** not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ **YES** = Category II ☐ **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ **YES** = Category III	**Cat. II** ☐ **Cat. III** ☐
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number: Bellefield North

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Bellefield North — Date of site visit: May 17, 2013

Rated by: C. Douglas & J. Pursley Trained by Ecology? Yes ☒ No ☐ — Date of training: May 2007

SEC: 5 TOWNSHP: 24N RNGE: 5E — Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: ☐ I ☒ II ☐ III ☐ IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	20
Score for Hydrologic Functions	16
Score for Habitat Functions	17
TOTAL Score for Functions	53

Category based on SPECIAL CHARACTERISTCS of Wetland ☐ I ☐ II ☒ **Does not apply**

Final Category (choose the "highest" category from above") **II**

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☒

Wetland HGM Class used for Rating	
Depressional	☐
Riverine	☒
Lake-fringe	☐
Slope	☒
Flats	☐
Freshwater Tidal	☐
	☐
Check if unit has multiple HGM classes present	☒

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☒	☐
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☒	☐
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☒	☐
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number: Bellefield North

Classification of Vegetated Wetlands for Western Washington

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 (i.e. except during floods)?
   ☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   ☐ **YES – Freshwater Tidal Fringe** ☐ **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is 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 meet both of the following criteria?
   ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   ☐ At least 30% of the open water area is deeper than 6.6 (2 m)?
   ☒ NO – go to 4 ☐ **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland 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**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   ☐ NO – go to 5 ☒ **YES** – The wetland class is **Slope**

5. Does the entire wetland 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 two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   ☐ NO – go to 6 ☒ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

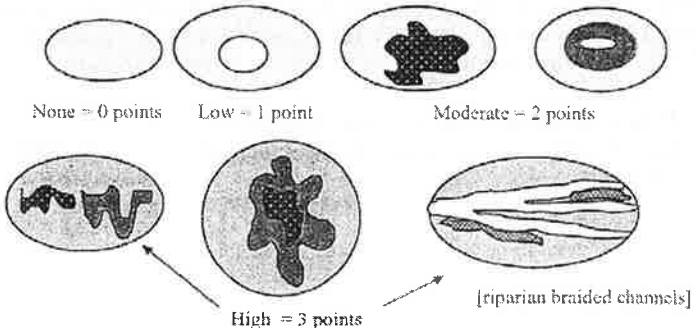
If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number: Bellefield North

R	Riverine and Freshwater Tidal Fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
R 1	**Does the wetland have the potential to improve water quality?** *(see p.52)*	
	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: • Depressions cover > 3/4 area of wetland ..... points = 8 ☐ • Depressions cover > 1/2 area of wetland ..... points = 4 ☐ **(If depressions > 1/2 of area of unit draw polygons on aerial photo or map)** • Depressions present but cover < 1/2 area of wetland. ..... points = 2 ☒ • No depressions present ..... points = 0 ☐	**Figure** ☐ **2**
	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): • Trees or shrubs > 2/3 area of the unit ..... points = 8 ☒ • Trees or shrubs > 1/3 area of the wetland ..... points = 6 ☐ • Ungrazed, herbaceous plants > 2/3 area of unit ..... points = 6 ☐ • Ungrazed herbaceous plants > 1/3 area of unit ..... points = 3 ☐ • Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit ..... points = 0 ☐ **Aerial photo or map showing polygons of different vegetation types**	**Figure** ☐ **8**
	Add the points in the boxes above	**10**
R 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☒ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft. of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☒ Residential, urban areas, golf courses are within 150 ft. of wetland ☐ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality. ☐ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 53)* Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from R1 by R2; then ***add score to table on p. 1***	**20**
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.	
R 3	**Does the wetland have the potential to reduce flooding and erosion?**	*(see p.54)*
	R 3.1 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 unit) / (average width of stream between banks).* • If the ratio is more than 20 ..... points = 9 ☐ • If the ratio is between 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 ☒ **Aerial photo or map showing average widths**	**Figure** ☐ **1**
	R 3.2 Characteristics of vegetation 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 NOT Cowardin classes):* • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area ..... points = 7 ☒ • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area ..... points = 4 ☐ • Vegetation does not meet above criteria ..... points = 0 ☐ **Aerial photo or map showing polygons of different vegetation types**	**Figure** ☐ **7**
	Add the points in the boxes above	**8**
R 4	**Does the wetland have the opportunity to reduce flooding and erosion?** Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* ☒ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ☒ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ☐ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* ☒ **YES** multiplier is 2 ☐ **NO** multiplier is 1	*(see p.57)* Multiplier 2
◆	**TOTAL – Hydrologic Functions** Multiply the score from R3 by R4; then ***add score to table on p. 1***	**16**

Comments: _____

Wetland name or number: Bellefield North

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	Points (only 1 score per box)
H 1 Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic Bed ☐ Emergent plants ☒ Scrub/shrub (areas where shrubs have > 30% cover) ☒ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 ☐ 3 structures..... points = 2 ☒ 2 structures..... points = 1 ☒ 1 structure ..... points = 0 ☐	**Figure** ☐ **1**
H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present — points = 3 ☐ ☒ Seasonally flooded or inundated — 3 or more types present — points = 2 ☒ ☐ Occasionally flooded or inundated — 2 types present — points = 1 ☐ ☒ Saturated only — 1 type present — points = 0 ☐ ☒ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake-fringe wetland..... = 2 points** ☐ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure** ☐ **2**
H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 ☐ 5 – 19 species..... points = 1 ☒ List species below if you want to: < 5 species ..... points = 0 ☐ _____	**1**
H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure** ☐ **3**
H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☒ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ☒ Standing snags (diameter at the bottom > 4 inches) in the wetland ☐ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ☐ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	**2**
H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	**9**

Wetland name or number: Bellefield North

H 2	**Does the wetland have the opportunity to provide habitat for many species?**	(only 1 score per box)
	H 2.1 Buffers *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ☐ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ☐ Heavy grazing in buffer ..... **points = 1** ☐ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ☒ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure** ☐ 1
	H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* ☐ **YES = 4 points** (go to H 2.3) ☒ **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☐ **YES = 2 points** (go to H 2.3) ☒ **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR ☒ **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? ☐ **NO** = 0 points	1

Comments: _____

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ☐ **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 p. 152*). ☐ **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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 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:** Woodlands 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*). ☒ **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*). ☒ **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: pp. 167-169 and glossary in Appendix A).* ☐ **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 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	3
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 ☐ • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 ☐ • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. ..... points = 3 ☒ • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 ☐ • There is at least 1 wetland within 1/2 mile ..... points = 2 ☐ • There are no wetlands within 1/2 mile..... points = 0 ☐	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	9
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	17

Comments: _____

Wetland name or number: Bellefield North

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ **YES** = Go to SC 1.1 ☒ **NO**	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ **YES** = Category I ☐ **NO** = go to SC 1.2	**Cat. 1** ☐
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? ☐ **YES** = Category I ☐ **NO** = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ☐ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** ☐ **Cat. II** ☐ **Dual Rating I/II** ☐
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* ☐ S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ **YES** Contact WNHP/DNR (see p. 79) and go to SC 2.2 ☒ **NO** SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? ☐ **YES** = Category 1 ☒ **NO** not a Heritage Wetland	**Cat I** ☐
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? ☐ **YES** = go to question 3 ☒ **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ **YES** = go to question 3 ☒ **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? ☐ **YES** = Is a bog for purpose of rating ☒ **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? ☐ **YES** = Category I ☒ **NO** = Is not a bog for purpose of rating	**Cat. I** ☐

Wetland name or number: Bellefield North

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. ☐ **YES** = Category I ☒ **NO** = not a forested wetland with special characteristics	**Cat. I** ☐
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* ☐ **YES** = Go to SC 5.1 ☒ **NO** not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than 1/10 acre (4350 square ft.) ☐ **YES** = Category I ☐ **NO** = Category II	**Cat. I** ☐ **Cat. II** ☐
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ **YES** = Go to SC 6.1 ☒ **NO** not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ **YES** = Category II ☐ **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ **YES** = Category III	**Cat. II** ☐ **Cat. III** ☐
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number: Bellefield South

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Bellefield South — Date of site visit: May 17, 2013

Rated by: C. Douglas & J. Pursley Trained by Ecology? Yes ☒ No ☐ — Date of training: May 2007

SEC: 5 TOWNSHP: 24N RNGE: 5E — Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: ☐ I ☒ II ☐ III ☐ IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	20
Score for Hydrologic Functions	16
Score for Habitat Functions	18
TOTAL Score for Functions	54

Category based on SPECIAL CHARACTERISTCS of Wetland ☐ I ☐ II ☒ **Does not apply**

Final Category (choose the "highest" category from above") **II**

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☒

Wetland HGM Class used for Rating	
Depressional	☐
Riverine	☒
Lake-fringe	☐
Slope	☒
Flats	☐
Freshwater Tidal	☐
	☐
Check if unit has multiple HGM classes present	☒

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☒	☐
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☒	☐
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☒	☐
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number: Bellefield South

Classification of Vegetated Wetlands for Western Washington

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 (i.e. except during floods)?
   ☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   ☐ **YES – Freshwater Tidal Fringe** ☐ **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is 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 meet both of the following criteria?
   ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   ☐ At least 30% of the open water area is deeper than 6.6 (2 m)?
   ☒ NO – go to 4 ☐ **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland 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**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   ☐ NO – go to 5 ☒ **YES** – The wetland class is **Slope**

5. Does the entire wetland 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 two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   ☐ NO – go to 6 ☒ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

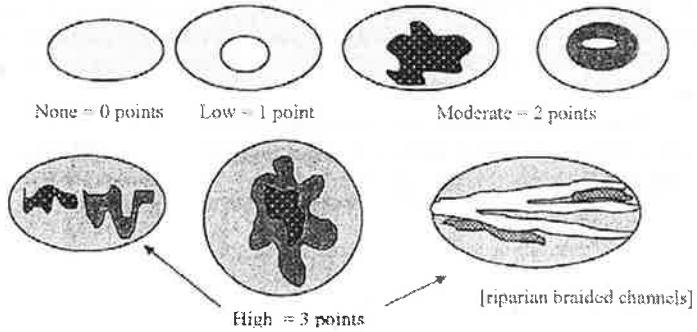
If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number: Bellefield South

R	Riverine and Freshwater Tidal Fringe Wetlands	Points (only 1 score per box)
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	
R 1	**Does the wetland have the potential to improve water quality?** *(see p.52)*	
	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: • Depressions cover > 3/4 area of wetland ..... points = 8 ☐ • Depressions cover > 1/2 area of wetland ..... points = 4 ☐ **(If depressions > 1/2 of area of unit draw polygons on aerial photo or map)** • Depressions present but cover < 1/2 area of wetland. ..... points = 2 ☒ • No depressions present ..... points = 0 ☐	**Figure** ☐ **2**
	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): • Trees or shrubs > 2/3 area of the unit ..... points = 8 ☒ • Trees or shrubs > 1/3 area of the wetland ..... points = 6 ☐ • Ungrazed, herbaceous plants > 2/3 area of unit ..... points = 6 ☐ • Ungrazed herbaceous plants > 1/3 area of unit ..... points = 3 ☐ • Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit ..... points = 0 ☐ **Aerial photo or map showing polygons of different vegetation types**	**Figure** ☐ **8**
	Add the points in the boxes above	**10**
R 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☒ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft. of wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☒ Residential, urban areas, golf courses are within 150 ft. of wetland ☐ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality. ☐ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 53)* Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from R1 by R2; then ***add score to table on p. 1***	**20**
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.	
R 3	**Does the wetland have the potential to reduce flooding and erosion?**	*(see p.54)*
	R 3.1 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 unit) / (average width of stream between banks).* • If the ratio is more than 20 ..... points = 9 ☐ • If the ratio is between 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 ☒ **Aerial photo or map showing average widths**	**Figure** ☐ **1**
	R 3.2 Characteristics of vegetation 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 NOT Cowardin classes):* • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area ..... points = 7 ☒ • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area ..... points = 4 ☐ • Vegetation does not meet above criteria ..... points = 0 ☐ **Aerial photo or map showing polygons of different vegetation types**	**Figure** ☐ **7**
	Add the points in the boxes above	**8**
R 4	**Does the wetland have the opportunity to reduce flooding and erosion?** Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* ☒ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ☒ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ☐ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* ☒ **YES** multiplier is 2 ☐ **NO** multiplier is 1	*(see p.57)* Multiplier 2
◆	**TOTAL – Hydrologic Functions** Multiply the score from R3 by R4; then ***add score to table on p. 1***	**16**

Comments: _____

Wetland name or number: Bellefield South

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	Points (only 1 score per box)
H 1 Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic Bed ☒ Emergent plants ☒ Scrub/shrub (areas where shrubs have > 30% cover) ☒ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more ..... points = 4 ☐ 3 structures ..... points = 2 ☒ 2 structures ..... points = 1 ☐ 1 structure ..... points = 0 ☐	**Figure** ☐ **2**
H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present — points = 3 ☐ ☒ Seasonally flooded or inundated — 3 or more types present — points = 2 ☒ ☐ Occasionally flooded or inundated — 2 types present — points = 1 ☐ ☒ Saturated only — 1 type present — points = 0 ☐ ☒ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake-fringe wetland ..... = 2 points** ☐ **Freshwater tidal wetland ..... = 2 points** **Map of hydroperiods**	**Figure** ☐ **2**
H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 ☐ 5 – 19 species ..... points = 1 ☒ List species below if you want to: < 5 species ..... points = 0 ☐ _____	1
H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure** ☐ **3**
H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☒ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ☒ Standing snags (diameter at the bottom > 4 inches) in the wetland ☐ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ☐ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	**10**

Wetland name or number: Bellefield South

H 2	**Does the wetland have the opportunity to provide habitat for many species?**	(only 1 score per box)
	H 2.1 Buffers *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... **points = 4** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference ..... **points = 4** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... **points = 3** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ☐ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ☐ Heavy grazing in buffer ..... **points = 1** ☐ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) ..... **points = 0** ☒ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure** ☐ 1
	H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* ☐ **YES = 4 points** (go to H 2.3) ☒ **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☐ **YES = 2 points** (go to H 2.3) ☒ **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR ☒ **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? ☐ **NO** = 0 points	1

Comments: _____

Wetland name or number: Bellefield South

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ☐ **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 p. 152*). ☐ **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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 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:** Woodlands 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*). ☒ **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*). ☒ **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: pp. 167-169 and glossary in Appendix A).* ☐ **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 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	3
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 ☐ • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 ☐ • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. ..... points = 3 ☒ • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 ☐ • There is at least 1 wetland within 1/2 mile ..... points = 2 ☐ • There are no wetlands within 1/2 mile..... points = 0 ☐	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	10
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	**18**

Comments: _____

Wetland name or number: Bellefield South

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ **YES** = Go to SC 1.1 ☒ **NO**	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ **YES** = Category I ☐ **NO** = go to SC 1.2	**Cat. 1** ☐
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? ☐ **YES** = Category I ☐ **NO** = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ☐ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** ☐ **Cat. II** ☐ **Dual Rating I/II** ☐
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* ☐ S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ **YES** Contact WNHP/DNR (see p. 79) and go to SC 2.2 ☒ **NO** SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? ☐ **YES** = Category 1 ☒ **NO** not a Heritage Wetland	**Cat I** ☐
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? ☐ **YES** = go to question 3 ☒ **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ **YES** = go to question 3 ☒ **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? ☐ **YES** = Is a bog for purpose of rating ☒ **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? ☐ **YES** = Category I ☒ **NO** = Is not a bog for purpose of rating	**Cat. I** ☐

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. ☐ **YES** = Category I ☒ **NO** = not a forested wetland with special characteristics	**Cat. I** ☐
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* ☐ **YES** = Go to SC 5.1 ☒ **NO** not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than 1/10 acre (4350 square ft.) ☐ **YES** = Category I ☐ **NO** = Category II	**Cat. I** ☐ **Cat. II** ☐
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ **YES** = Go to SC 6.1 ☒ **NO** not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ **YES** = Category II ☐ **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ **YES** = Category III	**Cat. II** ☐ **Cat. III** ☐
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number: Mercer Slough West

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Mercer Slough West — Date of site visit: February 6 & 21, 2013

Rated by: C. Douglas & J. Pursley Trained by Ecology? Yes ☒ No ☐ — Date of training: May 2007

SEC: 5 & 8 TOWNSHP: 24N RNGE: 5E — Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: ☐ I ☒ II ☐ III ☐ IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	20
Score for Hydrologic Functions	10
Score for Habitat Functions	27
TOTAL Score for Functions	57

Category based on SPECIAL CHARACTERISTCS of Wetland ☐ I ☐ II ☒ **Does not apply**

Final Category (choose the "highest" category from above") **II**

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☒

Wetland HGM Class used for Rating	
Depressional	☒
Riverine	☒
Lake-fringe	☒
Slope	☒
Flats	☐
Freshwater Tidal	☐
	☐
Check if unit has multiple HGM classes present	☒

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☒	☐
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).	☒	☐
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☒	☐
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☒	☐

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number: Mercer Slough West

Classification of Vegetated Wetlands for Western Washington

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 (i.e. except during floods)?
   ☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   ☐ **YES – Freshwater Tidal Fringe** ☐ **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is 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 meet both of the following criteria?
   ☒ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   ☒ At least 30% of the open water area is deeper than 6.6 (2 m)?
   ☐ NO – go to 4 ☒ **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland 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**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   ☐ NO – go to 5 ☒ **YES** – The wetland class is **Slope**

5. Does the entire wetland 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 two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   ☐ NO – go to 6 ☒ **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

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D	Depressional and Flat Wetlands	Points (only 1 score per box)
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	
D 1	**Does the wetland have the potential to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet) ..... points = 3 ☒ • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ... points = 2 ☐ • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) .. points = 1 ☐ • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch ..... points = 1 ☐ *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure** ☐ **3**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	4
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area ..... points = 5 ☐ • Wetland has persistent, ungrazed vegetation > = 1/2 of area ..... points = 3 ☒ • Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 ☐ • Wetland has persistent, ungrazed vegetation < 1/10 of area ..... points = 0 ☐ **Map of Cowardin vegetation classes**	**Figure** ☐ **3**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 ☐ • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 ☐ • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 ☒ **Map of Hydroperiods**	**Figure** ☐ **0**
	Total for D 1 *Add the points in the boxes above*	**10**
D 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 ft ☒ Untreated stormwater discharges to wetland ☐ Tilled fields or orchards within 150 ft. of wetland ☒ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☒ Residential, urban areas, golf courses are within 150 ft. of wetland ☐ Wetland is fed by groundwater high in phosphorus or nitrogen ☐ Other _____ ☒ **YES** multiplier is 2 ☐ **NO** multiplier is 1	*(see p. 44)* Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	**20**
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the potential to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) ..... points = 4 ☒ • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet .... points = 2 ☐ • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch ..... points = 1 ☐ *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 ☐ • The wetland is a "headwater" wetland ..... points = 5 ☐ • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet ..... points = 5 ☐ • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet ..... points = 3 ☒ • Wetland is flat (yes to Q.2 or Q.7 on key) but has small depressions on the surface that trap water . points = 1 ☐ • Marks of ponding less than 0.5 ft ..... points = 0 ☐	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit ..... points = 5 ☐ • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 ☒ • The area of the basin is more than 100 times the area of the unit ..... points = 0 ☐ • Entire unit is in the FLATS class ..... points = 5 ☐	3
	Total for D 3 *Add the points in the boxes above*	10

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D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ☐ Other _____ ☐ **YES** multiplier is 2 ☒ **NO** multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	**<u>10</u>**

Comments: _____

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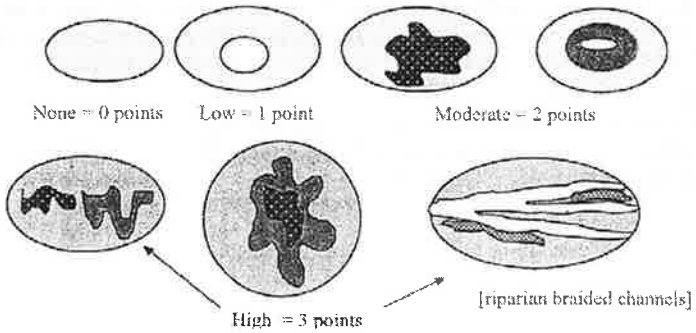
These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	Points (only 1 score per box)
H 1 Does the wetland have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☒ Aquatic Bed ☒ Emergent plants ☒ Scrub/shrub (areas where shrubs have > 30% cover) ☒ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 ☒ 3 structures..... points = 2 ☐ 2 structures..... points = 1 ☐ 1 structure ..... points = 0 ☐	**Figure** ☐ **4**
H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present points = 3 ☒ ☒ Seasonally flooded or inundated — 3 or more types present points = 2 ☐ ☐ Occasionally flooded or inundated — 2 types present points = 1 ☐ ☒ Saturated only — 1 type present points = 0 ☐ ☒ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☒ **Lake-fringe wetland..... = 2 points** ☐ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure** ☐ **3**
H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 ☒ 5 – 19 species..... points = 1 ☐ List species below if you want to: < 5 species ..... points = 0 ☐ ____	2
H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure** ☐ **3**
H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☒ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ☒ Standing snags (diameter at the bottom > 4 inches) in the wetland ☒ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ☒ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ☒ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	5
H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	**17**

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H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ☐ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ☐ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference..... **points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ☐ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ☐ Heavy grazing in buffer..... **points = 1** ☐ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** ☒ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure** ☐ **1**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* ☐ **YES = 4 points** (go to H 2.3) ☒ **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? ☒ **YES = 2 points** (go to H 2.3) ☐ **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR ☐ **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? ☐ **NO** = 0 points	2

Comments: _____

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ☒ **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 p. 152*). ☐ **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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 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:** Woodlands 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*). ☒ **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*). ☒ **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: pp. 167-169 and glossary in Appendix A).* ☐ **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 7.6 m (25 ft) high and occurring below 5000 ft. ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	4
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 ☐ • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 ☐ • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. ..... points = 3 ☐ • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 ☒ • There is at least 1 wetland within 1/2 mile ..... points = 2 ☐ • There are no wetlands within 1/2 mile..... points = 0 ☐	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	10
	TOTAL for H 1 from page 8	17
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	27

Comments: _____

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CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ **YES** = Go to SC 1.1 ☒ **NO**	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ **YES** = Category I ☐ **NO** = go to SC 1.2	**Cat. 1** ☐
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? ☐ **YES** = Category I ☐ **NO** = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ☐ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** ☐ **Cat. II** ☐ **Dual Rating I/II** ☐
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* ☐ S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ **YES** Contact WNHP/DNR (see p. 79) and go to SC 2.2 ☒ **NO** SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? ☐ **YES** = Category 1 ☒ **NO** not a Heritage Wetland	**Cat I** ☐
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? ☐ **YES** = go to question 3 ☒ **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ **YES** = go to question 3 ☒ **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? ☐ **YES** = Is a bog for purpose of rating ☒ **NO** = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)*? ☐ **YES** = Category I ☒ **NO** = Is not a bog for purpose of rating	**Cat. I** ☐

Wetland name or number: Mercer Slough West

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. ☐ **YES** = Category I ☒ **NO** = not a forested wetland with special characteristics	**Cat. I** ☐
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* ☐ **YES** = Go to SC 5.1 ☒ **NO** not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than 1/10 acre (4350 square ft.) ☐ **YES** = Category I ☐ **NO** = Category II	**Cat. I** ☐ **Cat. II** ☐
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ **YES** = Go to SC 6.1 ☒ **NO** not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? ☐ **YES** = Category II ☐ **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ **YES** = Category III	**Cat. II** ☐ **Cat. III** ☐
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	**NA**

Comments:

APPENDIX B

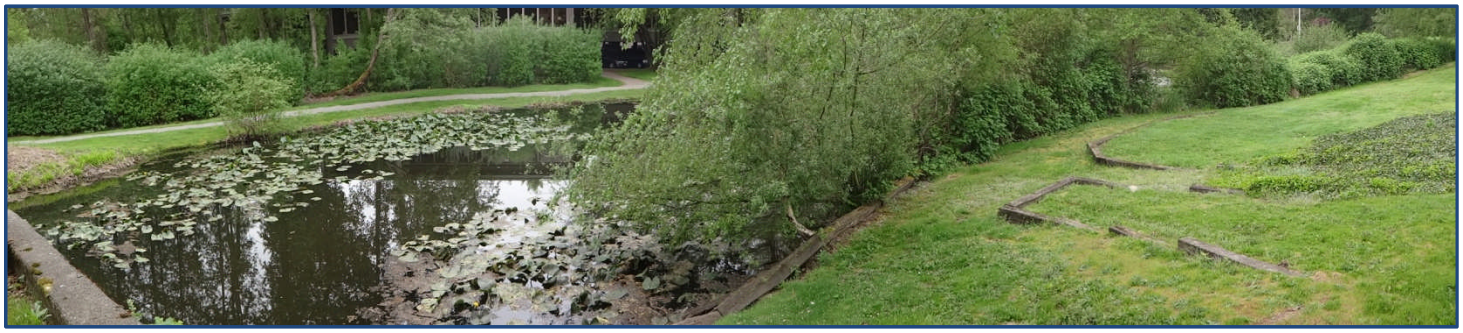
Site Photographs

Bellefield Sewer Pump Station Relocation and ECBD Sewer Trunk Line Replacement

Site Photographs

Proposed Pump Station Site

(all photos taken on May 7, 2013 by RH2 Engineering, Inc.)



Mercer Slough from bridge, facing south. East of proposed pump station relocation.

Proposed pump station site, facing west from slough.

Proposed pump station site, facing east from 112th Avenue SE.

Turnaround in SE 15th Street, facing west from bridge towards proposed pump station location.

Downstream Double Force Main Alignment

Force main will be constructed from pump station (proposed for turnaround in SE 15th Street) west to 112th Avenue SE. Facing north.

Force main will remain in 112th Avenue SE along its length to the Bellevue Way intersection. Facing south.

ECBD Alignment

(1) Facing north from existing pump station driveway.

(2) Facing south; alignment will be in lawn area and existing blackberries.

(3) Facing south from Bellefield Office parking lot; approximate location where ECBD alignment will go from pervious to roadway.

(4) Facing south, just south of 112th Ave SE and SE 8th St intersection.

ECBD Alignment (cont.)

(5) Facing south, intersection of SE 8th Street and 112th Avenue SE.

6) Facing north from SE 8th Street intersection, northern end of ECBD in 112th Avenue SE

Existing Pump Station Site

Top two photos are facing south; bottom two photos are facing north.

APPENDIX C

Project Narratives for Critical Areas Land Use, Shoreline Conditional Use, and Shoreline Substantial Development Permits

City of Bellevue Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement Project

Project Narrative for Critical Areas Land Use Permit

RH2 Engineering, Inc., (RH2) November 2013

Provide a narrative describing the project that includes the following. All are required unless not applicable and waived by an Environmental Planner (Critical Areas Land Use Permit Chart, City of Bellevue).

1. Description of the project site, including landscape features, existing development, and site history as applicable.
2. Description of how the design constitutes the minimum necessary impact to the critical area.
3. Description of why there is no feasible alternative with less impact to the critical area, buffer, or setback.
4. Description of alternatives considered and why the alternative selected is preferred.
5. Summary of how the proposal meets each of the decision criteria contained in Land Use Code Section 20.30P.
6. Summary of how the proposal meets each of the criteria and performance standards contained in LUC Section 20.25H associated with the critical area you are modifying.
7. Summary of how the proposal meets each of the criteria contained in LUC Section 20.25H.230 as required for applications proposing a modification through the use of the Critical Areas Report process.

1. Description of the project site, including landscape features, existing development, and site history as applicable.

The Bellefield Sewer Project will replace the existing Bellefield Pump Station, upstream gravity sewer main, downstream sewer force main, and some associated smaller sewer mains generally within and adjacent to a roughly 4,000-foot stretch of 112th Avenue SE, between Bellevue Way and Surrey Downs Park (just north of SE 8th Street).

The Bellefield Sewer Project involved five alternatives for the replacement pump station and three alternatives for the replacement ECBD sewer trunk line. The chosen pump station and ECBD alternatives present the lowest environmental impacts practicable among the field of alternatives evaluated. The Bellefield Sewer Project will include replacement of the sewer pump station wet and dry wells, and mechanical and electrical equipment and controls; installation of an emergency power generator and odor control facility; and construction of a proposed control building and sewer pipelines, which are as follows.

- About 1,900 lineal feet (lf) of double sewer force main (22-inch-diameter high density polyethylene (HDPE) pipe each) downstream of the pump station to a sewer manhole in the intersection of 112th Avenue SE and Bellevue Way SE, and 210 lf of 30-inch ductile iron (DI) gravity main across the intersection to a sewer manhole on the west side of the intersection.
- About 1,800 lf of sewer main constructed under the ECBD phase from the proposed pump station upstream to tie-in with an existing sewer manhole in 112th Avenue SE adjacent to Surrey Downs Park (42-inch DI pipe).
- About 200 lf of sewer main from the Bellefield Park Lane residential community to the new pump station (8-inch pipe).

- About 110 lf of sewer main from an existing manhole near the edge of Mercer Slough to the new pump station to pick up flows from the Bellefield Office Park (8-inch DI pipe).
- About 300 lf of water main across 112th Avenue SE to serve the relocated pump station (8-inch pipe).

Project Overview

The wet wells will be located within a below-grade concrete structure. The above-grade building will house the electrical equipment, controls, and odor control facility, and will be approximately 560 square feet (sf). Combined with the above-grade concrete pad, backup generator, and other components, the total pump station footprint will be approximately 1,400 sf. The footprint of the pump station and its associated impervious surfaces (e.g., emergency overflow, parking, etc.) is about 8,600 sf, which will be expanded to roughly 9,000 sf after ST realigns SE 15th Street and re-grades and paves the pump station access area. No expansion of impervious surfaces will result from the construction of the proposed pipelines. The backup power generator will be located outside the above-grade building, complete with noise-control measures to satisfy noise ordinance requirements. The existing sewer pump station and associated pipelines will be abandoned once the proposed sewer pump station and associated pipelines are accepted and wastewater flow is transferred to the new facilities.

The ECBD sewer trunk line will be located within 112th Avenue SE to the extent practicable. The ECBD sewer trunk line could not be wholly located within the roadway, due to the large amount of fill anticipated with the light rail tunnel and re-grades of 112th Avenue SE and SE 15th Street. However, the selected alternative for the ECBD sewer trunk line will be located outside of wetlands associated with Mercer Slough, which makes it the most feasible alternative with the lowest environmental impact among those evaluated.

Project Location

The overall project site is set between 112th Avenue SE and Mercer Slough, and within the 112th Avenue SE roadway, in the City of Bellevue, in King County, Washington, Section 05, Township 24 North, Range 05 East; however, the northern end of the ECBD sewer trunk line is in Section 32, Township 25 North, Range 05 East. Construction of the pump station will occur on a tract parcel that is owned by the Bellefield Office Park. The existing pump station is located just north of SE 15th Street, and just east of 112th Avenue SE. The replacement pump station will be located mostly on the paved turnaround in SE 15th Street, approximately 185 feet to the south of the existing pump station. Refer to **Figure 1.**

The double force main element of the project will replace force main that conveys wastewater from the pump station downstream to a gravity main in the intersection of Bellevue Way and 112th Avenue SE, a span of about 2,000 feet. It will primarily be located in the northbound lanes of 112th Avenue SE, except where it must cross grass from the road to the replacement pump station. The construction impact width will be about 20 feet on average for the length of the double force main. Construction, including stockpiles and staging, will remain in the City's right-of-way. Two-way traffic on 112th Avenue SE will be maintained during construction.

Construction of the Bellefield Park Lane residential community sewer line will run about 200 lf from a manhole adjacent to the community eastward across 112th Avenue SE to the replacement pump station. Construction impacts are expected to be limited to a trench about 20 feet wide, unless the contractor chooses to use a trenchless construction method. The Bellefield Office Park sewer line will run east about 110 feet from the replacement pump station to a manhole located at the edge of

Mercer Slough, about 12 feet west of the ordinary high water mark (OHWM) and outside of the 100-year floodplain (manhole rim is at 22.75 feet elevation). Construction impacts are expected to be limited to a trench about 55 feet wide, also, unless the contractor chooses to utilize trenchless construction.

The ECBD sewer trunk line will run about 1,800 lf from a manhole near the replacement pump station northward to a manhole in 112th Avenue SE adjacent to the entrance to Surrey Downs Park. The southern half of the ECBD, between SE 15th Street and the northern Bellefield Office parking lot, will be located in the buffer between 112th Avenue SE and the Mercer Slough. The second half of the ECBD will shift to the 112th Avenue SE roadway or median at the edge of the northern office parking lot, where it will remain until it ties in with the designated manhole at the northern terminus of the project. At some points the ECBD will be between 20 to 25 feet deep below existing ground level, which is considered very deep for a sewer pipeline and which will require a wider construction easement and impact area. The permanent easement has been estimated at 30 feet wide on average for the length of the ECBD; the construction easement has been estimated at 55 feet wide on average, measured from the edge of 112th Avenue SE right-of-way. Two-way traffic on 112th Avenue SE will be maintained during construction to the extent possible.

Project Vicinity

The tract parcel where the existing and replacement pump station are located is an Office-designated zone of the City. Residential housing is located generally to the west of 112th Avenue SE, including the Bellefield Park Lane residential community. The community features single-family and duplex-style homes with yards and ornamental plantings, and a paved access road (Bellefield Park Lane). The Bellefield Office Park is located to the east of 112th Avenue SE, and is accessible via SE 15th Street. At the northern terminus of the ECBD sewer trunk line replacement, Surrey Downs Park is located to the west, and commercial facilities are located to the east (The Bellevue Club). The intersections of 112th Avenue SE and SE 8th Street, and 112th Avenue SE and Bellevue Way SE are fairly large and busy intersections. In addition, 112th Avenue SE is a major north-south collector with two northbound lanes and two southbound lanes separated by a wide, treed, vegetated strip, with an occasional turn lane. There are sidewalks on both sides of the street, and additional right-of-way landscaping. The street is about 10 to 30 feet higher than Mercer Slough along the length of the Bellefield Sewer Project, with the riparian zone sloping from the eastern 112th Avenue SE sidewalk to the slough. The distance between the sidewalk and the slough varies between 50 to 200 feet along the project alignment, up to the northern Bellefield Office building, where the slough bends eastward away from 112th Avenue SE.

The proposed pump station location is about 80 feet east of 112th Avenue SE, mostly within the existing SE 15th Street roundabout. SE 15th Street is an access road for the Bellefield Office Park, featuring a landscaped island with a sign designating the office park in the center of the roundabout and a bridge over Mercer Slough. Between 112th Avenue SE and the roundabout is a set of bronze statues and a landscaped patch of trees and shrubs, with another office park sign. The pump station will require grading and removal of the roundabout.

The site is served by a King County Metro bus stop. There is a short gravel path leading from the sidewalk on the east side of the statues into the project area, a spur of which stops under two large trees. The site and adjacent sidewalk is used for passive recreation, including running, dog walking, and nature appreciation.

In the vicinity of the proposed pump station, the site is mostly comprised of mowed grass and weeds. There are wooden railroad ties buried in the ground which form terraces; these are also

stacked at the edge of the slough as a sort of retaining wall. The ground near the terraces and slough is firm and has visible gravel. A patch of English ivy and ornamental groundcover is growing over the wood terraces. There are several planted trees along the edges of the site. To the southwest of the proposed pump station, a large thicket of Himalayan blackberry covers the slope to the slough. Other riparian vegetation consists of willow, red osier dogwood, alders, and other hydrophytic plants.

Excavation for the pump station may encounter groundwater at depths as shallow as 8 feet, and soft soil overlying dense glacial till and outwash. Construction of the pump station will likely require shoring and groundwater control to maintain the integrity of the excavation during construction.

The project site is located in the Cedar River/Lake Washington Watershed Water Resource Inventory Area (WRIA) 8), adjacent to Mercer Slough. Mercer Slough is the largest wetland that remains connected to Lake Washington. Kelsey Creek and Sturtevant Creek are tributaries to the north. The topography of the wider landscape includes flat to moderately sloping uplands, moderate to steep hill slopes, and the flat valley. The Mercer Slough has a slope of less than 1 percent between the uplands. To the east of the project is the whole of Mercer Slough and the Bellefield Office Park, east of which is Interstate 405. The site is bound to the west by 112th Avenue SE and residential development. The Mercer Slough Nature Park and historic agricultural sites (including the Blueberry Farm) are to the south of the project. SE 8th Street is the northern boundary of Mercer Slough; the ECBD sewer trunk line will be installed north of SE 8th Street, in 112th Avenue SE, and will be bound by commercial development to the north and east, and Surrey Downs Park to the west. The slough has been partially dredged several times in the past 100 years and was significantly disturbed in the 1970s with the establishment of the Bellefield Office Park, which to this day consistently experiences drainage issues.

Mercer Slough has two associated slope/riverine wetlands in the vicinity of the Bellefield Sewer Project, named Bellefield North and Bellefield South by Anchor/QEA ecologists during delineations for the Light Rail Project. Both are rated as Category II wetlands, containing forested, scrub-shrub, and emergent vegetation classes. The two riverine wetlands are located in a forested riparian area in the buffer between 112th Avenue SE and the slough, near the existing pump station. Outside of this forested area, vegetation is mowed grass or blackberry thicket, with some large trees. The ECBD sewer trunk line has been designed to avoid crossing these wetlands, but will be located in Mercer Slough wetland buffer and Shoreline Overlay District. Alcove Creek, a Type O stream, crosses 112th Avenue SE in a culvert and outfalls to Mercer Slough south of the proposed pump station. The downstream double force main will cross below Alcove Creek in the road, and will have no impact on the culvert. Upstream of the culvert, west of 112th Avenue SE, Alcove Creek flows through several wetlands located at the center of the Bellefield Park Lane residential community. The nearest Alcove Creek wetland was identified as a Category II depressional and riverine wetland with forested, scrub-shrub, and emergent vegetation classes. A Category III depressional wetland was visually delineated on private property (no right-of-entry allowed onsite) and in the right-of-way adjacent to the SE 8th Street and 112th Avenue SE intersection.

2. Description of how the design constitutes the minimum necessary impact to the critical area.

Avoidance Design Measures

The three major elements of the Bellefield Sewer Project – the pump station, double force main, and ECBD sewer trunk line – were all sited to avoid impacting wetlands and to stay outside of the OHWM of Mercer Slough and the 100-year floodplain. The double force main will be installed

within the roadway of 112th Avenue SE, with use of the right-of-way for temporary construction use (except where it will cross grass to attach to the pump station). The ECBD will be located outside of the forested habitat near the pump station, and will be located partially within the roadway of 112th Avenue SE to the extent possible. Avoiding the road re-grade areas was also a priority because burying the sewer under a significant re-grade is an undesirable outcome for any future repairs or maintenance. The pump station has also been sited on as much existing impervious surface as possible, utilizing the turnaround in SE 15th Street. These efforts will minimize ground disturbance, clearing and grading in pervious surfaces of the wetland buffer, and impacts to the forest habitat near the existing pump station.

The pipeline elements of the project will have temporary construction and permanent access easements. It is not necessary to avoid planting shrubs and groundcover in the easements, but if the pipelines ever need to be accessed for repair, the areas in the easements will be cleared.

Minimization Design Measures

Design features of the Bellefield Sewer Project will minimize impacts as a whole. Subsequent design efforts will involve identification and planning to address the installation and maintenance of effective erosion, water, and spill control measures for all elements of the construction of the Bellefield Sewer Project. Ecology's *Stormwater Management Manual for Western Washington* (2012) will be used as the basis for these measures, which will be defined in a SWPPP to be developed for the Bellefield Sewer Project. A Preliminary Clearing and Grading Plan is provided in the initial permit submittal package showing the extent of project clearing. At a minimum, erosion and spill control measures shall include the following.

Prior to the start of construction activities, temporary erosion and sedimentation control (TESC) measures shall be installed per approved plans. All TESC measures shall be maintained for the duration of construction and until vegetation is established. The following minimization measures will ensure that the project will result in the smallest amount of impacts to critical areas and their buffers.

- In addition to the SWPPP, a Spill Prevention, Control, and Countermeasure Plan (SPCC) will be developed and implemented for the project to ensure that all pollutants and products are controlled and contained to reduce potential discharge to land or surface waters.
- A Clearing and Grading Plan will be developed and implemented prior to construction to control sediments and erosion from all vegetation and ground-disturbing activities.
- All permits will be attached to the construction plans and referred to in the special provisions so the contractor is aware of necessary requirements.
- A Certified Erosion and Sedimentation Control Lead (CESCL) will be appointed to implement and maintain approved erosion control measures and correct deficiencies as they occur. The appointed CESCL will follow the SWPPP and make adaptive management changes as necessary to prevent sediment-laden water and contaminants from entering natural water bodies and sensitive areas.
- High-visibility fencing will be installed to mark the limits of clearing, thereby limiting vegetation removal in critical area buffers. Although at this time the anticipated limits of clearing for the ECBD sewer trunk line are described as a 55-foot off-set from the edge of the 112th Avenue SE right-of-way, high-visibility fencing will mark the edge of clearing to avoid any clearing or work in the Bellefield North and Bellefield South wetlands.

- Silt fence and other sediment/erosion barriers (e.g., coir logs) will be installed and maintained to prevent erosion and sedimentation into adjacent critical areas.
- The contractor will protect inlets and catch basins from fresh concrete, tackifier, paving, and paint applications to prevent contaminated construction materials from entering surface waters.
- On-site availability of soil stabilization materials and spill control materials will be maintained.
- Dust control measures will be implemented as needed.
- All exposed and unworked soils will be stabilized during the first available period to prevent wind and water erosion. This condition applies to all unstable soils within the project site. Within the dry season (May 1 to September 30), soils shall not remain exposed or unworked for longer than 7 days. Within the wet season (October 1 through April 30), soils shall not remain exposed or unworked for longer than 2 days.
- No paving, chip sealing, or stripe painting will be initiated in rainy weather.
- Vegetation will be grubbed only where there will be permanent impacts, such as the expansion of impervious surfaces into a vegetated area or pipeline construction. Vegetation shall not be grubbed in temporary impact areas.
- Disturbed areas will be restored using hydroseed at a minimum, followed by eventual mitigation and landscaping planting required for construction of the Bellefield Sewer Project or the ST Light Rail Project. Compensatory wetland mitigation efforts will be completed to compensate for critical area buffer impacts.
- Temporary fills shall be removed entirely as a part of site cleanup.

3. Description of why there is no feasible alternative with less impact to the critical area, buffer, or setback.

Below is a description of the initial alternatives analysis and subsequent mitigation sequencing conducted per LUC 20.25H.215 to avoid, minimize, and mitigate for project impacts of the chosen alternatives.

Alternatives Analysis

Five alternatives were initially evaluated for the Bellefield Pump Station. A triple bottom line analysis and conceptual probable construction cost analysis were also performed during this phase. Alternatives 2 and 4 had potentially moderate impacts to the shoreline, wetlands, and environment in general; the other alternatives had potentially high impacts. The chosen pump station location is Alternative 2.

The design of Alternative 2 has minimized impacts to critical areas and buffers to the greatest extent possible. The pump station must be located in coordination with the proposed realignment of SE 15th Street and grade changes to 112th Avenue SE and SE 15th Street. The pump station and associated pipelines have been proposed for locations as far from Mercer Slough as possible, with consideration to the proposed Light Rail Project.

The alternatives analysis for the ECBD pipeline is ongoing at this time, but the area in which the ECBD may occur is very narrow; it must stay outside of the proposed toe-slope of the ST East Link project, and must stay out of the Bellefield North and Bellefield South wetlands, while staying up and away from Mercer Slough to the greatest extent practicable. At this point, the greatest derivation

in the alignment may occur in the northern half of 112th Avenue SE; this section of pipe may be placed in either the northbound lanes or the median, depending on traffic impacts.

4. Description of alternatives considered and why the alternative selected is preferred.

RH2 and the City of Bellevue (City) evaluated five locations along 112th Avenue SE for the location of the proposed sewer pump station.

1. Alternative 1 is located on the east side of 112th Avenue SE, south of the existing parking lot of an existing office space south of the intersection of SE 8th Street and 112th Avenue SE.
2. Alternative 2 is located on the east side of 112th Avenue SE, south of the intersection of SE 15th Street and 112th Avenue SE.
3. Alternative 3 is located on the east side of 112th Avenue SE, north of the intersection of SE 8th Street and 112th Avenue SE.
4. Alternative 4 is located on the west side of 112th Avenue SE, south of the driveway entrance for the Bellefield Condominium.
5. Alternative 5 is located on the east side of 112th Avenue SE, on a separate parcel south of and adjacent to Alternative 1.

Of the five alternatives analyzed during the triple bottom line analysis, Alternative 2 had the highest score (highest score representing the most positive aspects). It had the lowest estimated construction cost, will have low aesthetic impacts after the Sound Transit (ST) East Link Light Rail Project is constructed (it will be surrounded on three sides by forested wetland buffer mitigation plantings and landscaping), was the most acceptable alternative for the land owners (Bellefield Office Park), and will be constructed at existing grade instead of having to be built up like other alternatives due to the proposed re-grade of the Light Rail Project. The proposed elevated roadways and sound walls proposed by ST will obscure views of the site from residential areas to the west.

Two East Central Business District (ECBD) pipeline alternatives were considered in the critical area buffer: Alternative 1 went through the Bellefield North and Bellefield South wetlands to avoid installation of the pipeline in the deeper areas of the re-grade of SE 15th Street; Alternative 2 avoids work in any wetland habitat by crossing the proposed SE 15th Street re-grade closer to 112th Avenue SE, while staying outside of the toe slope of the re-grade to the greatest extent allowable without entering the delineated wetlands. Alternative 2 is the preferred alternative for the design of the ECBD. The northern half of the ECBD alignment, which will be installed in 112th Avenue SE, has yet to be determined where it will be located in the roadway, whether in the northbound lanes or in the median to avoid traffic impacts. That part of the ECBD construction will not impact critical areas or buffers.

5. Summary of how the proposal meets each of the decision criteria contained in Land Use Code (LUC) Section 20.30P.

A. The proposal obtains all other permits required by the Land Use Code.

Through this permit submittal package, the project is applying for a Shoreline Substantial Development Permit, Shoreline Conditional Use Permit, State Environmental Policy Act (SEPA) approval, and Critical Areas Land Use Permit. Other permits anticipated for the project include: Building Permit; Clearing and Grading, Right-of-Way, and Stormwater Permits; King County Metro Discharge Permit; and additional state permits and approvals. This submittal package is the first wave of permitting. The other City permits will be obtained following 60- percent design plans.

B. The proposal utilizes to the maximum extent possible the best available construction, design, and development techniques which result in the least impact on the critical area and critical area buffer.

The project has been located as far outside of critical areas and buffers as possible, given the alignment of the proposed Sound Transit East Link Light Rail Project and its associated elevated re-grades of 112th Avenue SE and SE 15th Street. Excavation depths for the pump station and ECBD Pipeline will be up to 30 feet, which will likely require shoring and groundwater control to maintain the integrity of the excavation during construction. Where tunneling construction methods are an option, they will be considered to improve worker safety and reduce impacts to critical area buffers. Existing impervious surfaces will be utilized to the extent possible for construction, project staging, and stockpiling. See also the Construction. Impact Avoidance and Minimization section of the *Critical Areas Assessment and Mitigation Plan*.

C. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable.

The project will involve work in the shoreline jurisdiction and buffer (50 feet) of Mercer Slough, Mercer Slough-west branch Type F stream buffer (100 feet), Mercer Slough Category II wetland buffer (110 feet), and the two Category II Bellefield North and Bellefield South wetland buffers (75 feet each). Performance standards described in LUC 20.25H for work in stream and wetland critical areas and buffers shall be incorporated in the project proposal and are as follows.

<u>Performance Standards – LUC 20.25H.080 (Streams) and LUC 20.25H.100 (Wetlands)</u>

1. Lights shall be directed away from the stream and/or wetland.
2. Activity that generates noise such as parking lots, generators, and residential uses shall be located away from the stream or any noise shall be minimized through use of design and insulation techniques.
3. Toxic runoff from new impervious area shall be routed away from the stream and/or wetland.
4. Treated water may be allowed to enter the stream and/or wetland critical area buffer.
5. The stream and wetland critical area buffer shall be planted with dense vegetation.
6. Use of pesticides, insecticides, and fertilizers within 150 feet of the edge of the stream and/or wetland critical area buffer shall be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as hereafter amended.

D. The proposal will be served by adequate public facilities including streets, fire protection, and utilities.

The project is a wastewater utility project. The pump station will be served by SE 15th Street and will comply with fire protection building codes. The other elements of the project are underground collection and conveyance pipelines. Fire protection is available to the site.

E. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210.

Yes. Refer to the Mitigation Plan section of the *Critical Areas Assessment and Mitigation Plan*.

F. The proposal complies with other applicable requirements of this code.

City of Bellevue Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement

Project Narrative for Shoreline Conditional Use Permit

RH2 Engineering, Inc., (RH2) November 2013

This project narrative follows the Shoreline Conditional Use Permit decision criteria found in Bellevue Land Use Code 20.30C.155 and has been provided to aid the City of Bellevue's (City) Planning Department during review of the initial submittal package containing Shoreline Conditional Use, Shoreline Substantial Development, Critical Areas Land Use Permits; and State Environmental Policy Act (SEPA) checklist documentation for the Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement Project. See the *Critical Areas Assessment and Mitigation Plan* for a project description and project purpose.

The Bellefield Pump Station is a utility facility located in the shoreline of Mercer Slough in an area zoned as Office; utility facilities are conditional uses in this zone, which is why the project is applying for a Shoreline Conditional Use Permit. The associated East Central Business District (ECBD) sewer trunk line (upstream) and double force main (downstream) are considered a utility system use, which is permitted in the Office zone. Decision criteria are listed and addressed as follows.

A. The proposed use will be consistent with the policies of RCW 90.58.020 and the policies of the Bellevue Shoreline Master Program.

Revised Code of Washington (RCW) 90.58.020 presents seven priorities, listed in order of preference:

(1) Recognize and protect the statewide interest over local interest;
(2) Preserve the natural character of the shoreline;
(3) Result in long term over short term benefit;
(4) Protect the resources and ecology of the shoreline;
(5) Increase public access to publicly owned areas of the shorelines;
(6) Increase recreational opportunities for the public in the shoreline;
(7) Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.

The project protects the statewide interest and local interest in keeping Lake Washington clean by collecting and treating wastewater. The project will avoid and minimize impacts to shoreline habitat, including minimizing the footprint of the pump station building, locating the building on existing impervious surfaces to avoid disturbing pervious surfaces, and keeping pipeline in existing roadways to the greatest extent practicable. Compensatory mitigation plantings will enhance shoreline and wetland habitat. The proposed wastewater system improvements fulfill the intentions of the City of Bellevue's *Comprehensive Plan* and *Comprehensive Wastewater Plan* to create long-term capacity in the wastewater collection system. Erosion and sediment control during construction and pollution prevention in the form of temporary erosion and sedimentation control (TESC) measures and stormwater collection and treatment provided by the realignment of SE 15th Street will be a part of the construction and final project. The project will comply with City drainage requirements. The project will occur in close coordination with the proposed East Link Light Rail Project and SE 15th Street realignment project, which will result in sidewalks along SE 15th Street. This will maintain safe public access to the Mercer Slough area in the vicinity of the project. No part of the project will be constructed in the 100-year floodplain.

Regarding the Bellevue Shoreline Master Program (SMP) general policies, located in the City's *Comprehensive Plan*, the project shall:

- Designate and preserve environmentally sensitive areas (SH-12). Mercer Slough, Bellefield North, and Bellefield South wetlands will not be impacted by the project;
- Preserve the open character of Mercer Slough (SH-18) by limiting the height and location of the pump station;
- Provide public access consistent with the existing character of the shoreline of Mercer Slough in this area (SH-25);
- Encourage opportunities for passive forms of recreation and open space (SH-29), i.e., walking, running, etc.; and
- Preserve views of the shoreline and water from public areas (SH-27), i.e., sidewalks along SE 15th Street.

Additionally, the project will:

- Utilize mitigation sequencing by first avoiding, then minimizing, and finally designing and installing compensatory mitigation for impacts to critical area buffers;
- Employ best management practices sufficient to ensure no net loss of ecological functions;
- Protect public health, safety, and welfare by meeting the regulations of the shoreline jurisdiction and underlying land use district (Office zone) and Bellevue Land Use Code, as well as the City's *Comprehensive Plan*;
- Avoid creating or expanding in-water structures; and
- Enhance the shoreline habitat in the project vicinity to improve habitat and aesthetics through compensatory mitigation.

Regarding the Bellevue SMP utilities use policies: there is no technically feasible alternative to locating the project within the Shoreline Overlay District and buffer due to the very narrow area of available land in the vicinity of 112th Avenue SE (the existing utility corridor). Locating the utility facility outside of future construction planned for the Light Rail Project and SE 15th Street realignment is required. Furthermore, meeting and compromising with existing land owner's expectations is expected through easements. The project shall:

- Avoid creating utility infrastructure waterward of the ordinary high water mark (OHWM) of Mercer Slough and provide compensatory mitigation for permanent and temporary impacts to the shoreline;
- Be located as far away from the OHWM of Mercer Slough and outside of all wetland boundaries as feasible, given the proposed locations and soil loading of the Light Rail Project;
- Replace the existing Bellefield Pump Station and associated pipelines while avoiding, minimizing, and mitigating environmental impacts; and
- Follow the requirements of the Storm Water Pollution Prevention Plans (SWPPP) and Spill Prevention Control and Countermeasure Plan (SPCC) during construction to minimize potential project impacts.

B. The proposed use will not interfere with the normal public use of public shorelines.

Public use of the project area and adjacent shoreline consists of passive recreation (e.g., walking, running) on sidewalks along 112th Avenue SE and SE 15th Street, and people parking their vehicles in the turnaround to enjoy the view. Although this area is owned by the Bellefield Office Park, the

public is allowed to access the Mercer Slough area for the passive recreational activities described above.

Site access will be limited around the project area during construction of the proposed pump station and sewer pipeline projects, followed by construction of the Sound Transit (ST) East Link Light Rail and SE 15th Street realignment projects. Signage alerting the public will be employed during construction. Following the completion of these projects, access to the project area and shoreline will be available via sidewalks on SE 15th Street (as part of the realignment project), but the turnaround will be removed due to the space needs of the pump station project and ST's realignment of SE 15th Street.

C. The proposed use of the site and design of the project will be compatible with other permitted uses within the area.

The Bellefield Pump Station is a utility facility replacement project that will involve expansion of sewer capacity. The project will include replacement of the sewer pump station wet and dry wells, and mechanical and electrical equipment and controls; installation of an emergency power generator and odor control facility; and construction of a proposed control building. The wet and dry wells will be located within one below-grade concrete structure. The above-grade building will house the electrical equipment and controls and odor control facility. The proposed back-up power generator will be located outside the above-grade building, and will have noise control measures to satisfy noise ordinance requirements. The pump station will occupy an area that does not have any neighboring buildings. It will be set between SE 15th Street and 112th Avenue SE and will be visible from the roads. The pump station will not obscure any views from the future re-graded roads. Mitigation and landscaping plantings will surround the pump station, partially screening it from view. The pump station may be fenced using architectural wire fence or other aesthetically-attractive fencing for security.

D. The proposed use will cause no unreasonably adverse effects to the shoreline environment designation in which it is to be located.

Impacts to the shoreline and associated critical areas have followed the mitigation sequence of avoid, minimize, and mitigate impacts. The project will be constructed as much as possible within existing impervious surfaces at the site (SE 15th Street turnaround) and as far up and away from the OHWM of Mercer Slough as is possible with the available information about ST's proposed light rail design and SE 15th Street realignment, which will occur on either side of the proposed pump station. The building will have an odor control facility and the emergency back-up generator will have noise control features. The surrounding area will have invasive, non-native vegetation removed and will be planted with compensatory mitigation to improve habitat conditions and mitigate for critical area buffer impacts. The pump station, as a utility facility, will operate within an above-ground building and below-grade structure that has been designed to be physically unobtrusive and aesthetically inoffensive.

E. The public interest suffers no substantial detrimental effect.

The pump station project is inherently in the public interest as it was proposed in the City's *Comprehensive Wastewater Plan* and will provide increased wastewater capacity for anticipated growth. Public access will be maintained at the site via sidewalks on the realigned SE 15th Street.

F. The proposed use complies with all requirements of Washington Administrative Code (WAC) 173-14-140.

This chapter of the WAC no longer exists.

G. The proposed use is harmonious and appropriate in design, character, and appearance with the existing or intended character and quality of development in the immediate vicinity of the subject property and with the physical characteristics of the subject property.

There is no development in the immediate vicinity, but to the east there is the Bellefield Office Park and to the west is a residential community. The pump station above-ground structure will be about 16 feet in height, fitting within shoreline overlay and office zone height requirements. The pump station building will be about 560 square feet (sf), with associated concrete pad and outdoor appurtenances at about 1,400 sf. The structure will be enclosed behind a security fence that will be constructed of architectural wire or similarly aesthetically-attractive materials. Installed compensatory mitigation and ST's landscape buffer along the light rail alignment will partially obstruct the view of the pump station.

H. The proposed use will be served by adequate public facilities including streets, fire protection, water, stormwater control, and sanitary sewer.

The proposed pump station will be served by SE 15th Street. Design of the structure will incorporate fire protection features as required per the City's Code. The project will be served by potable water. A restroom will be present at the pump station. The site is anticipated to include stormwater control measures that will drain runoff to stormwater collection and treatment facilities proposed by ST for the realignment of SE 15th Street. Precipitation that enters the building gutters will be directed to overland flow in surrounding pervious surfaces.

I. The proposed use will not be materially detrimental to uses or property in the immediate vicinity of the subject property.

The property within the immediate vicinity of the pump station is open space and forested wetland and buffer habitat associated with Mercer Slough. The pump station footprint will be primarily located within existing impervious surfaces to reduce additional impacts to the surrounding buffer habitat. The proposed pump station will not interfere with the existing level of public use of the property for recreation or viewing of the shoreline habitat.

J. The proposed use has merit and value for the community as a whole.

The pump station project is inherently in the public interest as it was proposed in the City's *Comprehensive Wastewater Plan* (2002) and will provide increased wastewater capacity for anticipated growth in Bellevue. It will include new safety features and provide a facility that meets current code standards. For example, the proposed pump station will have an above-ground emergency backup generator, replacing the below-ground structure that is at risk for damage and groundwater intrusion during earthquakes. New odor control measures will reduce the odor anecdotally mentioned to occur around the existing pump station.

K. The proposed use is in accord with the *Comprehensive Plan*.

The pump station replacement and expansion will promote and encourage the goals of the Utilities Element in the *Comprehensive Plan*, as follows.

- It will involve capacity expansion and maintenance of the sewer system to accommodate the City of Bellevue's projected growth, based on land use plans for the areas to be served.

- It will provide "reliable utility service in a way that balances the public's concerns about safety and health impacts of utility infrastructures" by providing the capacity and emergency back-up systems to collect and control wastewater.
- It will avoid, minimize, and mitigate impacts to the City's natural environmental.
- It will be aesthetically compatible with surrounding land uses through the thoughtful design of building materials and colors, fencing, and landscaping/compensatory mitigation plantings.
- Permits and approvals for the pump station will be obtained through the expected planning department channels in accordance with regulations.
- The pump station will provide technology updates that improve the sewer system services, reliability, and safety.

L. The proposed use complies with all other applicable criteria and standards of the Bellevue City Code.

The project will obtain all applicable City permits and meet the approval criteria for those permits set forth in the Bellevue City Code. The project has initiated the permitting process through a Pre-Application Conference with representatives of the City's various departments on October 24, 2013. These City permits include:

- Shoreline Conditional Use Permit;
- Shoreline Substantial Development Permit;
- Critical Areas Land Use Permit and associated mitigation plan;
- SEPA Checklist and approval;
- Clearing and Grading Permit;
- Right-of-Way Use Permit; and
- Commercial Building Permit.

Additionally, an National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit and associated SWPPP will be obtained and developed for the project, and a King County Metro Discharge Permit may be obtained related to construction stormwater discharge to the sanitary sewer. The project will be reviewed by the Washington State Department of Ecology for compliance with water quality and shoreline laws.

6. Summary of how the proposal meets each of the criteria and performance standards contained in LUC Section 20.25H associated with the critical area you are modifying.

The performance standards set forth for streams (20.25H.080) and wetlands (20.25H.100) are identical to those discussed above as related to meeting the decision criteria in LUC 20.30P. Lights will be directed away from Mercer Slough; no lights will be in the vicinity of the impacted Bellefield wetlands. A backup generator will be part of the pump station design; it will be insulated to reduce noise impacts. Runoff will be treated and/or infiltrated; no toxic runoff is anticipated during construction or from the final structure. The site has traditionally been used for passive recreation due to the SE 15th Street roundabout. With the removal of the turnaround, pedestrians will still be able to access the area for passive recreation using sidewalks proposed for the realignment of SE 15th Street. Vegetation will be planted in the project vicinity as part of the the Light Rail mitigation plan and landscaping requirement, as well as the Bellefield Sewer Project mitigation plan. Finally, the project will not require the use of pesticides, insecticides, or fertilizers. The East Link Light Rail and/or the Bellefield Sewer Project mitigation plans will involve the use of water-safe herbicides to remove invasive plant species, conducted by a certified applicator. If fertilizers are proposed for the mitigation and landscaping areas, the Contractor will follow the City's Environmental Best Management Practices.

7. Summary of how the proposal meets each of the criteria contained in LUC Section 20.25H.230 as required for applications proposing a modification through the use of the Critical Areas Report process.

This project does not require a critical areas report; the project will not involve the modification of requirements set forth in LUC 20.25H.230, 20.25E (included below), or 20.20.010. City of Bellevue planner David Pyle has also determined the project does not require a critical areas report (meeting November 4, 2013).

City of Bellevue Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement

Project Narrative for Shoreline Substantial Development Permit

RH2 Engineering, Inc., (RH2) November 2013

Per Bellevue Land Use Code (LUC) 20.25E.040, a Substantial Development Permit is required for all development within the Shoreline Overlay District; Mercer Slough is identified as a shoreline in the City's LUC. This project narrative follows the Shoreline Substantial Development Permit decision criteria found in LUC 20.30R.155 and has been provided to aid the City of Bellevue's Planning Department during review of the initial submittal package containing Shoreline Conditional Use, Shoreline Substantial Development, Critical Areas Land Use Permits, and State Environmental Policy Act (SEPA) checklist documentation for the Bellefield Pump Station Relocation and East Central Business District Sewer Line Replacement Project. See the *Critical Areas Assessment and Mitigation Plan* for a project description and project purpose. Decision criteria for the Shoreline Substantial Development Permit are listed and addressed as follows.

1. **The applicant has carried the burden of proof and produced evidence sufficient to support the conclusion that the application merits approval or approval with modifications.**

2. **The applicant has demonstrated that the proposal complies with the applicable decision criteria of the Bellevue City Code.**

Decision criteria for the Critical Areas Land Use Permit and Shoreline Conditional Use Permit have been addressed in the attached Project Narrative documents, and Shoreline Substantial Development Performance Standards are addressed in this project narrative.

3. **The applicant has demonstrated that the proposal is consistent with the policies and procedures of the Shoreline Management Act and the provisions of Chapter 173-14 Washington Administrative Code (WAC) and the Master Program.**

See the attached *Project Narrative for Shoreline Conditional Use Permit,* specifically answers to question A, for discussion of the project's compliance with the Shoreline Master Program and Shoreline Management Act. As mentioned in the Shoreline Conditional Use Permit (SCUP) Project Narrative (question F), Chapter 173-14 of the WAC is no longer a chapter.

The Performance Standards outlined for development regulated in the Shoreline Overlay District (LUC 20.25E.080) are addressed below.

1. **Where applicable, all federal and state water quality and effluent standards shall be met.**

The project will be reviewed by Ecology for compliance with the Shoreline Management Act and National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit. The project will be designed to meet water quality and construction stormwater standards.

2. **If a property extends into the Shoreline Overlay District, the Shoreline Master Program Policies and these use regulations shall apply only to that portion of the property lying within the Shoreline Overlay District.**

The proposed pump station will be constructed completely within the 200-foot Shoreline Overlay District associated with Mercer Slough. The East Central Business District (ECBD) sewer trunk line and other pipeline elements of the Bellefield Sewer Project will be partially located within the Shoreline Overlay District of Mercer Slough and partially located in road and rights-of-way.

3. **All development within the Shoreline Overlay District shall be accompanied by a plan indicating methods of preserving shoreline vegetation and for control of erosion during and following construction in accordance with Part 20.25H LUC, City of Bellevue Clearing and Grading regulations, Chapter 23.76 BCC, and the *Comprehensive Plan*.**

A Storm Water Pollution Prevention Plans (SWPPP) will be produced following 60-percent design plans that will address temporary erosion and sedimentation control (TESC) measures, including a map of areas to be marked for construction limits and vegetation preservation. Up to nine significant trees will be removed by the Bellefield Sewer Project. Critical Areas (Part 20.25H LUC) compliance is included in the attached *Project Narrative for Critical Areas Land Use Permit Decision Criteria* document. Clearing and grading regulations are addressed below; a Clearing and Grading Permit will be applied for by both the pump station and ECBD projects separately. Compliance with the *Comprehensive Plan* is addressed in the *Project Narrative for Shoreline Conditional Use Decision Criteria*, attached.

4. **Special care shall be exercised to preserve vegetation in wetland, shoreline and stream corridor bank areas in order to prevent soil erosion. Removal of vegetation from or disturbance of shoreline critical areas and shoreline critical area buffers, and from other critical area and critical area buffers shall be prohibited, except in conformance with Part 20.25H LUC and the specific performance standards of this section.**

The project was designed to avoid working within delineated wetlands and as far from Mercer Slough as is feasible, given the proposed location of the Light Rail Project and re-grade/relocation of SE 15th Street. Disturbance in shoreline and wetland buffers is addressed in the *Project Narrative for Critical Areas Land Use Permit Decision Criteria* and the *Critical Areas Assessment and Mitigation Plan*.

5. **Maximum height limitation for any proposed structure within the Shoreline Overlay District shall be 35 feet, except in land use districts with more restrictive height limitations.**

The land use district the project is located in is Office, which has a 30-foot height limitation. The pump station building is expected to be about 16 feet tall and will not exceed the Office Zone height limitations.

6. **The Bellevue Shoreline Master Program, in conjunction with existing Bellevue land use ordinances and *Comprehensive Plan* policies, shall guide all land use decisions in the Shoreline Overlay District.**

Project Narrative for Shoreline Conditional Use Decision Criteria, attached, addresses how the project complies with the Bellevue Shoreline Master Program, C*omprehensive Plan*, and Bellevue Land Use Code.

7. **Any development within the Shoreline Overlay District shall comply with all applicable Bellevue ordinances, including but not limited to the Bellevue Land Use Code, Sign Code, and clearing and grading regulations.**

The project narratives to satisfy approval review for the SCUP and Shoreline Substantial Development Permit (SSDP) discuss project compliance with the Bellevue LUC. The pump station project and ECBD sewer trunk line will obtain separate Clearing and Grading Permits following 60-percent design plans; clearing and grading performance standards are addressed below. The project will not involve signage.

8. **The dead storage of watercraft seaward of the ordinary high water mark of the shoreline is prohibited.**

Not applicable.

9. **Where applicable, state and federal standards for the use of herbicides, pesticides and/or fertilizers shall be met, unless superseded by City of Bellevue ordinances. Use of such substances in the shoreline critical area and shoreline critical area buffer shall comply with the City's "Environmental Best Management Practices."**

The use of herbicides will be necessary during invasive species removal in the wetlands and shoreline buffers. Pesticides will not be used. Mulch and/or compost may be utilized. Fertilizers within 150 feet of the shoreline during landscaping or compensatory mitigation planting will comply with the City's *Environmental Best Management Practices and Design Standards Manual* and the City's *Critical Areas Handbook*.

10. **Adequate storm drainage and sewer facilities must be operational prior to construction of new development within the Shoreline Overlay District. Storm drainage facilities shall be separated from sewage disposal systems.**

Construction stormwater control methods will be outlined in the SWPPP developed for the NPDES Construction Stormwater General Permit (CSGP). The final project will either be buried and have no impacts to stormwater drainage ECBD sewer trunk line and double force main, etc.) or will drain to stormwater collection and treatment facilities established in the realigned SE 15th Street. Rain water from the roof of the pump station will be captured and discharged to surrounding pervious surfaces. The project itself is a sewer facility and will include a restroom.

20.25E.080(G) Shoreline Performance Standards, Clearing and Grading Regulations

1. **All clearing, grading, excavating, and fill in the Shoreline Overlay District shall comply with the provisions of Chapter 23.76 Bellevue City Code (BCC), now or as hereafter amended.**

The project will comply with Chapter 23.76 BCC; the project will obtain Clearing and Grading Permits for both the pump station and the ECBD sewer trunk line (separately) following 60-percent design. The project will involve some vegetation removal, primarily in the form of grass and landscaping ornamentals, but will also involve the removal of up to nine significant trees. Land Use Code requirements for disturbance minimization and landscaping/compensatory mitigation will be adhered to (see the *Critical Areas Assessment and Mitigation Plan*). Some of this responsibility will be shared with Sound Transit, which will be altering some of the same areas during its light rail construction after the Bellefield pump station and ECBD projects. The design of the Pump Station will involve construction on existing impervious surfaces as much as possible, to preserve natural vegetation and pervious surfaces.

Erosion and sediment control will be conducted in accordance with the SWPPP and NPDES CSGP. Clearing will be kept to a minimum in part to provide erosion and sedimentation control. Construction and clearing limits will be marked in the field prior to clearing. Disturbed soils will be covered when they are not being actively worked. The project will obtain a King County Metro Discharge Permit to allow stormwater intercepted and treated onsite (using sump pumps and settling tanks) to be discharged to the sanitary sewer. The discharge to the sewer will be evaluated to limit flows during storm events. Work areas will be phased and kept small, focused, and clean to reduce the potential for turbid runoff. Groundwater will be managed with a dewatering plan during construction at depth, and may also be discharged to the sewer, depending on the Discharge Permit.

A geotechnical report will be submitted later in the permitting process and is not part of this initial permit submittal package.

2. **No clearing, grading, excavating, or fill shall be allowed within the shoreline critical area or shoreline critical area buffer except as permitted by this Part 20.25E, or in association with activities allowed under Part 20.25H LUC.**

The utility facility use is an allowed activity in the shoreline critical area and buffer pursuant to a SCUP for the pump station (utility facility); the utility system use is an allowed activity that does not require an SCUP. The project is seeking to obtain an SCUP as a part of this permit submittal package, to be in compliance with City codes and the Bellevue Shoreline Management Plan.

3. **Wherever the City determines that the act or intended act of clearing, grading, excavation or fill has become or will constitute a hazard to life or limb, or endangers property, or adversely affects the safety, use of, or stability of a public way, drainage channel or natural stream corridor, including siltation and sedimentation therein, the owner of the property upon which the clearing, excavation, or fill is located or other person or agent in the City shall, within the period specified therein, terminate such clearing, grading, excavation, embankment or fill, or eliminate the same from the development plan, or modify the plans, as may be required so as to eliminate the hazard and be in conformance with the requirements of this Code.**

The project will not constitute a safety hazard, endanger property, or adversely affect safety, use of, or stability of SE 15th Street or 112th Avenue SE. Mercer Slough will be protected from siltation, sedimentation, pollution, spills, etc. during construction through adherence to the SWPP, CSGP, and SPCC plan.

20.25E.080(U) Shoreline Performance Standards, Utilities Regulations.

1. **Compatible utilities shall be consolidated within a single right-of-way. After construction, all areas shall be restored to their pre-project configuration, replanted with suitable vegetation, and provided maintenance until newly planted vegetation is established.**

The ECBD sewer trunk line, double force main, and other pipeline elements of this project will be partially located in the right-of-way of 112th Avenue SE and SE 15th Street to the extent practicable. The future construction of the Sound Transit light rail project will involve upwards of 25 feet of fill over the current grade, making some areas of the road a poor option for the pipeline alignments. The utility project must be conducted before the Light Rail Project.

2. **Utilities proposed or located in the shoreline critical area and shoreline critical area buffer shall comply with the requirements of LUC 20.25H.055.**

The critical area development chart located in LUC 20.25H.055 identifies "New or Expanded Utility Facilities, Utility Systems, and Stormwater Facilities" as Allowed Use(s) or Development. It lists the following chapters in the code for compliance, addressed below.

- 20.25H.055.C.2.

"New or expanded facilities and systems are allowed within the critical area or critical area buffer only where no technically feasible alternative with less impact on the critical area or critical area buffer exists." Alternatives analyses were conducted for the pump station project and ECBD sewer trunk line, as discussed in the *Critical Areas Assessment and Mitigation Plan*.

"If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the following:"

The pump station and pipelines will be located on existing impervious surfaces to the greatest extent practicable. Soil and vegetation disturbance in the wetland, shoreline, and stream buffers associated with Mercer Slough will be kept to a minimum through phasing and adherence to the project SWPPP. Disturbance will not occur waterward of the ordinary high water mark (OHWM), and no terrestrial species of local importance are known to use the project site (following review of Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species Program (PHS) data). There will be no crossing of wetlands or open stream channels, though the double force main will cross below the Alcove Creek culvert in 112th Avenue SE (no impacts to the creek or culvert are anticipated). The facility and system will not have a significant adverse impact on the local hydroperiod, flood storage, flow peaks, duration, or volume. The new pump station will provide parking and access for maintenance vehicles. The project will provide compensatory mitigation for all areas of impacts in critical area buffers pursuant to the *Critical Areas Assessment and Mitigation Plan* (in compliance with LUC 20.25H.210).

- 20.25H.080.A

Addressed in the *Project Narrative for Critical Areas Land Use Permit Decision Criteria*, attached.

- 20.25H.080.B

Not applicable. The project will not modify the stream channel (Mercer Slough or Alcove Creek).

- 20.25H.100

Addressed in the *Project Narrative for Critical Areas Land Use Permit Decision Criteria*, attached.

- 20.25E.080.B

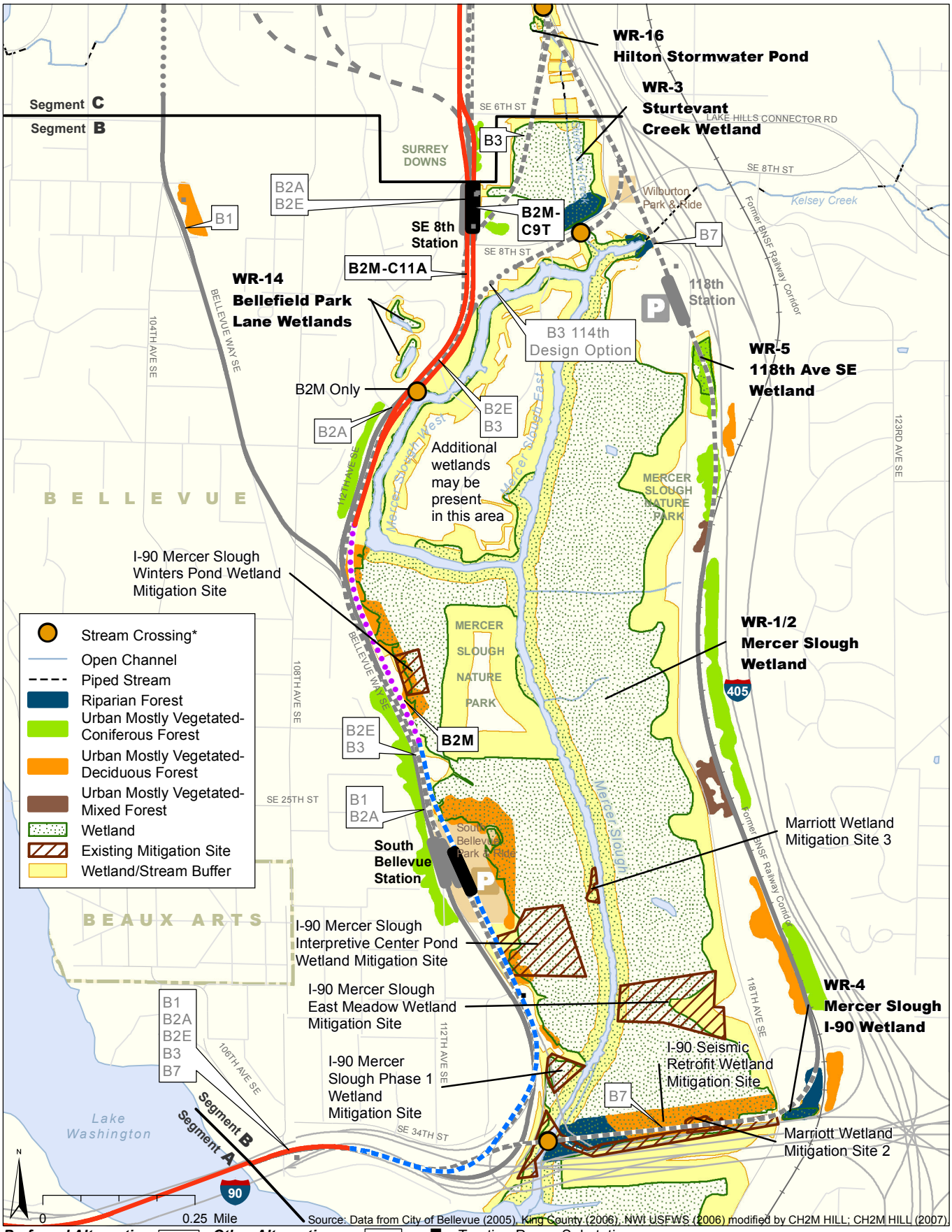
Addressed above.

- 20.25E.080.U

Addressed above.

APPENDIX D

FEIS Segment B Excerpt



Preferred Alternative

- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Retained-Fill Route
- Tunnel Route

B2M

Other Alternatives

- At-Grade Route
- Elevated Route
- Retained-Cut or Retained-Fill Route
- Tunnel Route

B2A

- Traction Power Substation
- Proposed Station
- City Limits

* See definition of stream crossing in notes to Table 4.8-5

Exhibit 4.8-1 **Vegetation/High-Value Wildlife Habitat, Aquatic Habitat, and Wetlands, Segment B**
East Link Project

TABLE 4.8-3
Federal and State Species of Concern, Including Threatened and Endangered, Found in Western Washington; Locally Important Wildlife; and Potential Occurrence in East Link Study Area

Name	Federal/State Status [a]	Bellevue Species of Local Importance	Presence, Preferred Habitat, and Probable Location in Study Area
Birds			
Bald eagle (*Haliaeetus leucocephalus*)	Federal species of concern and state monitored	Yes	**Known in the study area.** Closely associated with lakes and large rivers with mature trees. Nest near open water in late successional (i.e., mature) forest and occur in areas with low to relatively high levels of human disturbance. Wintering populations are found throughout the Puget Sound region. Bald eagles are sighted in Segments A, B, C, and E.
Marbled murrelet (*Brachyramphus marmoratus*)	Federal and state threatened	No	**Extremely rare in the study area**. Requires conifer forests with trees more than 28 inches in diameter at breast high with platforms for nesting. Spends the winter in marine waters offshore. Rare and infrequent visitors to Lake Washington during the nonbreeding season. Only observed once in the last 50 years on Lake Washington. Only potentially in Segment A. Critical Habitat: None present in the study area.
Peregrine falcon (*Falco peregrinus*)	Federal species of concern and state monitored	Yes	**Likely present in the study area.** Far-ranging flier that nests and roosts on cliffs and, in cities, on bridges and ledges of tall buildings. In winter, peregrine falcons can be found in the southwestern portion of Puget Sound and lowlands in western Washington. Sightings and potential viable habitat in Segments A, B, C, and E.
Pileated woodpecker (*Dryocopus pileatus*)	State candidate	Yes	**Known in the study area.** Typically found in forests with a component of dead and dying trees and snags for foraging and nesting. Found at Marymoor Park and throughout the study area. One bird observed near I-405 south of SE 8th Street. Likely habitat along BNSF Alternative (B7) and *Preferred Marymoor Alternative (E2)* due to larger clusters of larger trees and snags.
Purple martin (*Progne subis*)	State candidate	Yes	**Known in the study area.** Nests in structures over water bodies, including natural cavities, pilings, and manmade housing structures. Forages over open water or wet areas for insects while in flight. Nesting observed at Marymoor Park in 2003 (*Preferred Alternative E2*), but no activity since. Habitat may also be present in Segment B as well.
Western grebe (*Aechmophorus occidentalis*)	State candidate	Yes	**Known in the study area.** Nests in colonies numbering up to several hundred birds east of the Cascade Mountain range and is a winter resident on Lake Washington and Puget Sound. The highest likelihood of occurrence is in Segment A.
Merlin (*Falco columbarius*)	State candidate	Yes	**Likely present in the study area.** Seen during the nesting season at Marymoor Park. Commonly found throughout western Washington, including urban areas, in winter and during migration. May occur in Segments A, B, D, and E.
Olive-sided flycatcher (*Contopus borealis*)	Federal species of concern	No	**Likely present in the study area.** Breeds in coniferous forests in North America. Common in most forest openings throughout Washington and sometimes found in city parks or suburban areas, especially during migration. Potential habitat in Segments B and E.
Willow flycatcher (*Empidonax traillii*)	Federal species of concern	No	**Known in the study area.** Breeds in deciduous thickets, especially in willow thickets. Nest sites are often close to water. Present in Segments B and E.
Great blue heron (*Ardea herodias*)	-	Yes	**Known in the study area.** Nests in small- to medium-sized colonies ranging from 3 to 30 nests. Colonies usually in secluded deciduous forests but can adapt to some levels of disturbance gradually over time. Will use conifer forests occasionally. Colonies often less than 1 mile away from wetland or large water bodies. Listed due to its sensitivity to disturbances and dependence on wetlands, wet meadows, and water bodies.
Red-tailed hawk (*Buteo jamaicensis*)	-	Yes	**Known in the study area.** Found in areas with a mix of forests and open spaces, including agricultural land, grasslands, wetlands, and meadows. Small mammals, especially rodents, are their primary prey.
Osprey (*Pandion haliaetus*)	-	Yes	**Known in the study area.** Nests in exposed trees or platforms that provide a clear, unobstructed view of surrounding area. Nests close to large bodies of water. Territorial. Several known active nests and territories in Segments B, C, and E.
Common loon (*Gavia immer*)	-	Yes	**Known in the study area**. Population has declined due to acid rain, pollution, industrial contamination of water bodies, and lead poisoning. Artificial floating nesting platforms have reduced the negative impact of fluctuating water levels from human activities to nests.
Green heron (*Butorides virescens*)	-	Yes	**Known in the study area**. Breeds in small wetlands on a platform-built nest that is either in a tree or shrub, close to the water. Feeds on small fish, insects, and amphibians. Nests at Marymoor Park.
Vaux's Swift (*Chaetura vauxi*)	-	Yes	**Known in the study area**. Nests and forages in groups with 30 or more birds. Nest is a cup-shaped nest placed in a dark, confined cavity. Breeds in mountains and foothills, usually more than 700 meters in elevation. Forages over wooded areas and more open habitats, including towns.

TABLE 4.8-3 CONTINUED
Federal and State Species of Concern, Including Threatened and Endangered, Found in Western Washington; Locally Important Wildlife; and Potential Occurrence in East Link Study Area

Name	Federal/State Status [a]	Bellevue Species of Local Importance	Presence, Preferred Habitat, and Probable Location in Study Area
Mammals			
Townsend's big-eared bat (*Corynorhinus townsendii*)	-	Yes	**May occur in the study area.** Areas with a mosaic of woodland/grassland and/or shrub land, especially coniferous mosaics. Found in Pierce County, Fort Lewis.
Keen's myotis (*Myotis keenii*)	-	Yes	**Unlikely to occur in the study area.** Keen's myotis has one of the most limited ranges of any bat species in North America**.** Habitat use is restricted to dense forests with old growth characteristics. Range is limited to the Olympia Peninsula and low elevation conifer forests in Puget Sound region.
Long-legged myotis (*Myotis volans*)	-	Yes	**May occur in the study area.** Occurs in forested areas statewide. Prefers mountainous, coniferous forests. Often found along forest edges, can occur at high elevations in cool, wet forests.
Long-eared myotis (*Myotis evotis*)	-	Yes	**May occur in study area.** Found in wooded areas statewide; however, it is most common in eastern Washington lodgepole pine forests. Does occur in humid coastal forests with good ground cover. Will occur in any forested habitat except those with no ground cover or in mid-to-high density developments.
Amphibian and Reptile			
Western toad (*Bufo boreas*)	Federal species of concern/ state candidate	Yes	**Known in the study area.** Found in Lake Washington (Segment A) and possibly other water bodies in the study area. May also be present in Segments B, D, and E.
Oregon spotted frog (*Rana pretiosa*)	-	Yes	**Unlikely to occur in the study area.** Highly aquatic amphibian, usually found in or near permanent bodies of still water 9 acres in size or more, including lakes, marshes, and wetlands, and vegetated, slow-flowing perennial streams. Population has experienced heavy declines in the last 20 years. In 1997, only three known populations remained in Washington.
Western pond turtle (*Clemmys marmorata*)	-	Yes	**Unlikely to occur in the study area.** The western pond turtle is a highly aquatic turtle that has been extirpated from almost all of its Washington range. The Washington population consists of a few isolated and scattered populations. The range historically included streams, ponds, lakes, and permanent and ephemeral wetlands throughout the Puget Sound lowlands.
Fish			
Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*)	Federal threatened/ state candidate	Yes	**Known in the study area.** Found in Lake Washington, Sammamish River, and Bear Creek, Mercer Slough, Kelsey Creek, West Tributary to Kelsey Creek, Goff Creek, Valley Creek, and Sears Creek. Found in Segments A, B, D, and E. Critical Habitat: Present in all of the waters listed above.
Puget Sound-Strait of Georgia coho salmon (*Oncorhynchus kisutch*)	Federal species of concern	Yes	**Known in the study area.** Found in Lake Washington, Sammamish River, and Bear Creek, Mercer Slough, Kelsey Creek, West Tributary to Kelsey Creek, Goff Creek, Valley Creek, and Sears Creek. Found in Segments A, B, D, and E.
Puget Sound Steelhead trout *(Oncorhynchus mykiss*)	Federal threatened	No	**Known in the study area.** Found in Lake Washington. Presumed to be present in Mercer Slough, Kelsey Creek and its tributaries, Sammamish River, and Bear Creek. Possibly present in Sturtevant Creek. Found in Segments A, B, D, and E. Critical Habitat: Not designated at this time.
Coastal-Puget Sound bull trout (*Salvelinus confluentus*)	Federal threatened/ state candidate	Yes	**Known in the study area**. Found in Lake Washington, and possibly in Sammamish River and Bear Creek, but rare in all cases. Found in Segment A, and possibly in Segment E. Critical Habitat: Limited to only Lake Washington within the study area.
River lamprey (*Lampetra fluviatilis*)	Federal species of concern/ state candidate	Yes	**Known in the study area.** Found in Mercer Slough, Kelsey Creek, Sammamish River, and Bear Creek. Found in Segments A, B, and E.

[a] Washington species of concern include only native Washington fish and wildlife species that are listed as endangered, threatened, or sensitive, or as candidates for these designations as established in the Washington Administrative Code.

Source: (Csuti et al., 2001; Friends of Marymoor Park, 2009; Kaufman and Brock, 2003; Opler and Wright, 1999; Seattle Audubon Society, 2009; Sibley, 2000; Stebbins, 2003; UWFWS, 2009; WDFW, 2009; Wahl et al., 2005)

Segment A

Lake Washington is an important water body for aquatic and avian species. Bald eagles, osprey, peregrine falcons, and great blue heron use the lake as foraging grounds. WDFW recorded that three peregrine falcon nests are located within one-half mile of the study area. One is located under the I-90 floating bridge across Lake Washington just above the Seattle shoreline, and the second one is located under the East Channel bridge on the Mercer Island side. During a field visit in March 2007, project biologists were unable to locate either of the nests. The Washington State Department of Transportation (WSDOT) indicates there has not been a recorded successful nest under the I-90 floating bridge for the past 2 years. The nest under the East Channel bridge has been successful for the past 3 to 4 years, and is expected to remain successful as long as the adults live. A third nest is located in Downtown Bellevue (WDFW PHS database, 2010). There are no communal bald eagle roosts, winter concentration areas, or buffers for such areas within one-half mile of any of the proposed project components in Segment A. However, five active eagle territories are located within one-half mile of *Preferred Interstate 90 Alternative (A1)*. Of these, three nests were known to be active, with incubating adults roosting outside the study area in April 2007. Chinook, sockeye, and coho salmon *(Oncorhynchus kisutch)*, steelhead, cutthroat, and bull trout are known to occur in Lake Washington. Table 4.8-4 shows their residence period in the lake and in the particular streams in the study area where these species are known to spawn.

TABLE 4.8-4
Anadromous Salmonids in Lake Washington

Species	Time Period in Lake Washington	Spawning Streams
Summer and fall Chinook salmon	Adults, June to mid-December; smolts, March to July	Cedar River, North Creek, May Creek, Little Bear Creek, Swamp Creek, Kelsey Creek and tributaries, Bear Creek, Issaquah Creek. All are part of designated critical habitat.
Steelhead trout	Adults, December through April; smolts, April and May	Tributary streams and rivers including Bear Creek. Critical habitat not designated.
Bull trout	A few fish documented in the lake each year	Unknown if bull trout spawn in the Lake Washington system. Designated critical habitat limited to Lake Washington only.
Coho salmon	Adults, August to February; smolts, March through June	Too many to list. Most tributaries except the smallest. Issaquah Hatchery
Sockeye salmon	Adults, April to mid-December; fry, juveniles, and smolts, all year	Cedar River, Kelsey Creek and tributaries, North Creek, Little Bear Creek, Bear Creek, and Issaquah Creek
Sea-run cutthroat trout	Adults, April and May; smolts, March through July	Too many to list. Most tributaries except the smallest

Segment B

High-value wildlife habitats (as described in Section 4.8.2.1) are associated with Mercer Slough in Segment B. Mercer Slough serves as a migratory corridor for anadromous salmonids from Lake Washington to reach several streams (Kelsey and Sturtevant Creeks). Mercer Slough Nature Park is the largest freshwater wetland remaining along the shores of Lake Washington. Although not identified during field survey efforts, additional wetlands may be present in the Bellefield Office Park. Several existing wetland mitigation sites are located in the Mercer Slough (see Exhibit 4.8-1). The park encompasses 320 acres and is composed of herbaceous, scrub-shrub, and forested wetland; upland forest; meadows; and a blueberry farm. However, noxious and invasive weeds (such as Japanese knotweed, purple loosestrife, reed canarygrass, and Himalayan blackberry) are invading the wetlands and/or buffers. Red-tailed hawks (*Buteo jamaicensis*) are regularly seen and known to nest in the Mercer Slough Nature Park.

The City of Bellevue indicated that there was a historic heron rookery in Mercer Slough Nature Park, but the rookery is no longer active. However, great blue heron are sighted in the Mercer Slough vicinity (City of Bellevue, 2008).

North of Mercer Slough Nature Park is the Sturtevant Creek Wetland, through which Sturtevant Creek flows. Signs of recent beaver activity have been observed. Habitat is limited by the surrounding roads, office buildings, parking lots, and a new hotel. Noxious and invasive weeds (such as reed canarygrass and Himalayan blackberry) are invading this wetland and its buffers.

Segment C

There is minimal wildlife habitat available in Segment C; however, an osprey nest is located less than one-half mile west of Downtown Bellevue. Lake Bellevue is located east of the former BNSF Railway corridor just east of Overlake Hospital. This lake offers minimal habitat value because the only fish known to exist in the lake are goldfish, vegetation is sparse, the bottom is silt and organic material, and dense development surrounds the lake. Sturtevant Creek leaves Lake Bellevue as a featureless glide in the ditch

APPENDIX E

Triple Bottom Line Analysis

City of Bellevue
Bellefield Sewer Pump Station and Force main Replacements and ECBD Trunk Line Improvements
Triple Bottom Line Analysis Criteria

E	S	E
Economic	Social	Environmental

Sewer Pump Station Alternative Locations:
Alternative 1: On the east side of SE 112th Ave south of the existing parking lot of the office space (north of property line)
Alternative 2: On the east side of SE 112th Ave south of the existing sewer pump station (near the statues)
Alternative 3: On the east side of SE 112th Ave at the NE corner of the intersection of 112th Ave SE and SE 8th St
Alternative 4: On the west side of SE 112th Ave just south of the entrance to the Bellefield Condominium driveway
Alternative 5: On the east side of SE 112th Ave south of the existing parking lot of the office space (south of property line)

Items	Alternative #1				Alternative #2				Alternative #3				Alternative #4				Alternative #5			
		E	S	E		E	S	E		E	S	E		E	S	E		E	S	E
Initial Capitol Cost* *Life cycle cost equal for all alternatives.	$ 7,640,000				$ 7,450,000	+	+		$ 7,930,000				$ 8,340,000	-	-		$ 7,640,000			
Deep Structures/Pipes	This alternative minimizes the amount of deep utility work and utilizes wide right of ways for shallow utility work. The structure depth is roughly the average of all of the alternatives.				The below grade structure and incoming sewer pipes for this alternative will be the shallowest among all of the alternatives which helps minimize the overall construction price.		+	+	The below grade structure and incoming sewer pipes for this alternative will be the deepest among all of the alternatives which drives the overall construction price up.		-	-	The incoming sewer pipes for this alternative relative to the existing ground elevation requires additional, costly below grade structure height which drives the overall construction price up.		-	-	This alternative minimizes the amount of deep utility work and utilizes wide right of ways for shallow utility work. The structure depth is roughly the average of all of the alternatives.			
Site Access	Site is accessible from 112th St before and after ST construction. Temporary site access may be slightly more challenging.				Site access during ST construct will be limited to business park access roads. Post construction, the site will be accessible via 112th St and business park access roads.				Site is accessible from SE 8th St. Light rail construction should not provide any significant impacts.				Site access during ST construction will require significant coordination with ST and Residents. Post ST construction access will be available via the private road for the neighboring condominiums.	-	-		Site is accessible from 112th St before and after ST construction. Temporary site access may be slightly more challenging.			
Land Use Constraints	Moderate amount of landscaping mitigation to provide screening for adjacent business parks.				Minimal landscaping is anticipated as this alternative will not be visible from the road or adjacent residences.	+	+	+	Moderate amount of landscaping mitigation to provide screening for adjacent business parks.				Intensive landscaping mitigation to provide screen for adjacent residential neighbors.	-	-	-	Moderate amount of landscaping mitigation to provide screening for adjacent business parks.			
Light Rail Proximity Risk	No apparent risk				Potential risk. Can be mitigated.	-	-	-	No apparent risk				No apparent risk				No apparent risk			
ST Coordination Complexity	ST coordination required				ST coordination required	-	-		Minimal ST coordination required.	+	+		Significant ST coordination required	-	-		ST coordination required			
Public Visibility, Use and Perception	Highly visible to public and neighboring businesses. Noise and odor could be issues but can be mitigated.				Not visible to adjacent residences and is far enough away that noise and odor should not be an issue.	+	+	+	Highly visible to public and neighboring businesses. Noise and odor should not be issues.				Highly visible and in close proximity to several residences. Noise and odor will likely be issues that will be more difficult to mitigate.	-			Highly visible to public and neighboring businesses. Noise and odor could be issues that can be mitigated.			
Neighborhood Impacts	Minimal				None		+		None		+		Very High		-		Minimal			
Office Park Impacts	Moderate				Minimal				High		-		None		+		Moderate			
Site Security	Site is out in the open and should be easy to secure.	+	+		Site is secluded but should be easy to secure.	-	-		Site is out in the open and should be easy to secure.				Site is located within existing residential neighborhood. Vandalism and other security problems are more likely.	-	-		Site is out in the open and should be easy to secure.	+	+	
Traffic Impacts	Traffic will be impacted during the construction of the proposed gravity and force mains as well as intermittently during the construction of the pump station.				Traffic impacts will be limited to the construction of the proposed gravity and force main as well as intermittently during the construction of the pump station.				Traffic will be impacted during the construction of the proposed gravity and force mains as well as intermittently during the construction of the pump station.				Traffic will be impacted during the construction of the proposed gravity and force mains as well as intermittently during the construction of the pump station.				Traffic will be impacted during the construction of the proposed gravity and force mains as well as intermittently during the construction of the pump station.			
Shoreline/Wetland/Environmental Impacts	High. Shoreline permits required for pump station and pipeline construction. Overall disturbance in shoreline & critical area buffers is significant due to pipeline construction.			-	Moderate. Shoreline permits required for pump station & pipeline. Least overall disturbance in shoreline & critical area buffers due to reduced pipeline costruction. Uses existing impervious surfaces.				High. Shoreline permits required for pipeline. Overall disturbance in shoreline & critical area buffers is significant due to pipeline construction.			-	Moderate. Wetland critical area and shoreline permits required for pump station and pipeline construction.				High. Shoreline permits required for pump station and pipeline construction. Overall disturbance in shoreline & critical area buffers is significant due to pipeline construction.			-
		185				200				175				110				185		

SCORE IS BASED ON 0 POINTS FOR "-", 5 POINTS FOR A BLANK, AND 10 POINT FOR A "+". "+" REPRESENT ADVANTAGES OVER OTHER ALTERNATIVES, "-" REPRESENT DISADVANTAGES FROM OTHER ALTERNATIVES AND BLANKS ARE NEUTRAL. BASELINE SCORE = 165

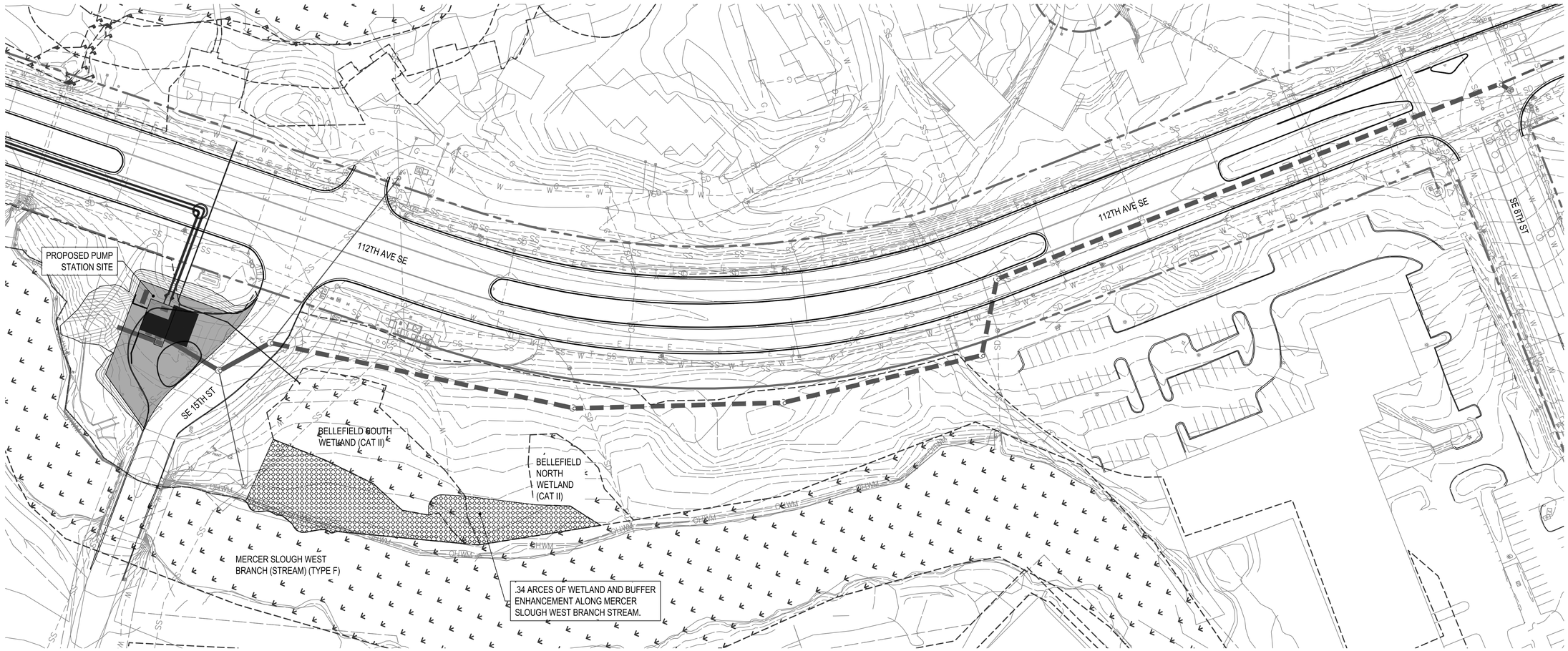
APPENDIX F

Conceptual Mitigation Plan

LEGEND:

CRITICAL AREAS

FORESTED BUFFER ENHANCEMENT



CONCEPTUAL MITIGATION AND RESTORATION PLANTING PLAN

1" = 50'

RH2 ENGINEERS PLANNERS SCIENTISTS

RH2 ENGINEERING, INC.
www.rh2.com 1.800.720.8552
22722 29th Drive SE, Suite 210

CITY OF BELLEVUE
BELLEFIELD PUMP STATION
CAPACITY IMPROVEMENTS

City of Bellevue

CONCEPTUAL MITIGATION AND RESTORATION PLANTING PLAN

ENGINEER: #### SAVE DATE: Nov 11, 2013 CLERK: #### JOB NO.: ####
REVIEWED: #### PLOT DATE: Nov 11, 2013 FILENAME: BFLS-P-MITIGATION.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

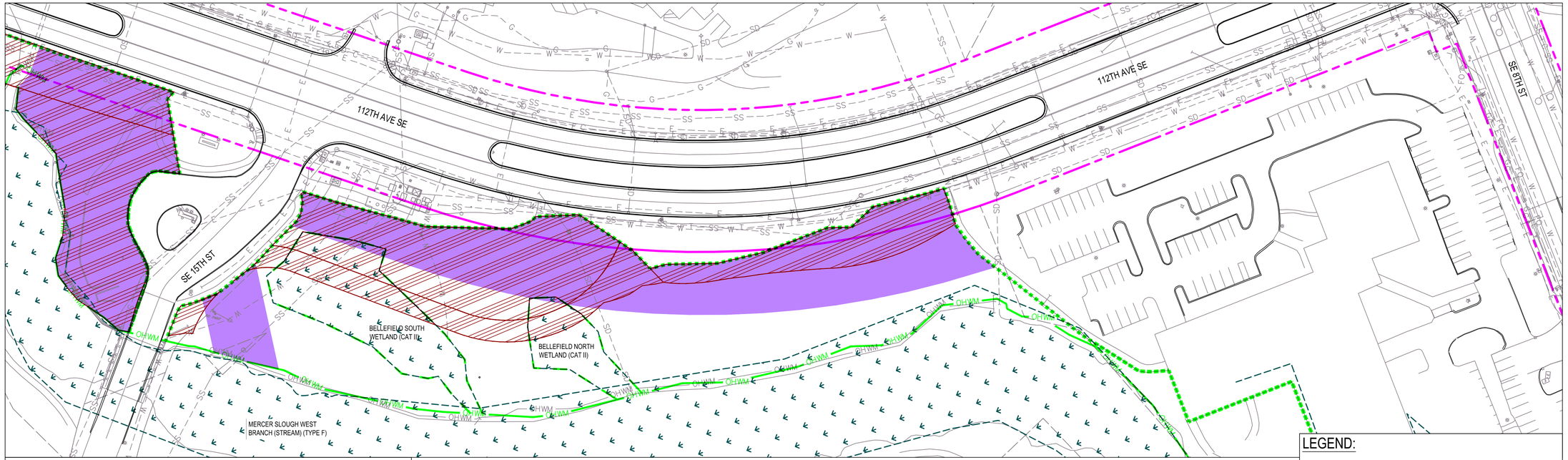
SCALE: ####

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: ####

SHEET NO.: ##### ####



SQUARE FOOTAGE OF IMPACT BY ENTITY

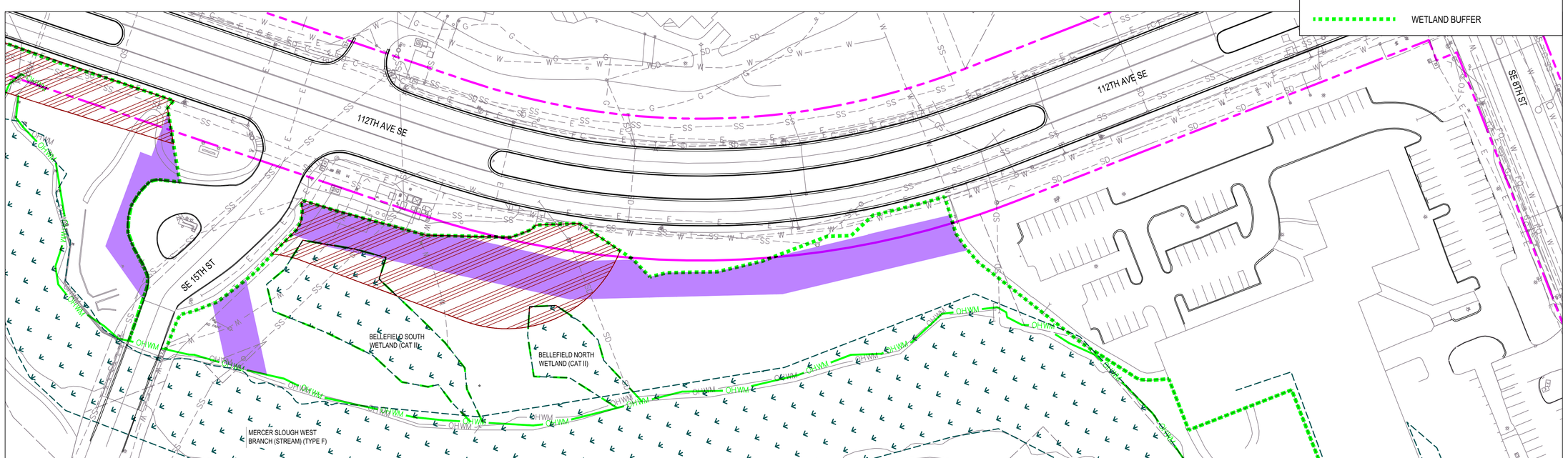
CITY OF BELLEVUE	SOUND TRANSIT	COMMON TO BOTH BOTH
62,100	55,900	46,700

TEMPORARY IMPACTS TO CRITICAL AREAS BY ENTITY

1" = 50'

LEGEND:

- AREA IMPACTED BY CITY OF BELLEVUE
- AREA IMPACTED BY SOUND TRANSIT
- ORDINARY HIGH WATER MARK
- WETLAND OUTLINE
- WETLAND BUFFER



SQUARE FOOTAGE OF IMPACT BY ENTITY

CITY OF BELLEVUE	SOUND TRANSIT	COMMON TO BOTH
25,600	26,000	9,900

PERMANENT IMPACTS TO CRITICAL AREAS BY ENTITY

1" = 50'

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22722 29th Drive SE, Suite 210

CITY OF BELLEVUE
BELLEFIELD PUMP STATION
CAPACITY IMPROVEMENTS

City of Bellevue

TEMPORARY AND PERMANENT IMPACTS TO CRITICAL AREAS BY ENTITY

ENGINEER: #### REVIEWED: ####
SAVE DATE: Nov 14, 2013 PLOT DATE: Nov 14, 2013
CLIENT: #### FILENAME: BFLS-P-CA_OVERLAP.DWG
JOB NO.: ####

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: ####

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: ####

SHEET NO.: #### / ####