Development Services Department
Environmental Coordinator
450 110th Avenue NE
Bellevue, WA 98009-9012

DETERMINATION OF NON-SIGNIFICANCE

PROPOSAL NAME:	Luo Residence
LOCATION:	13724 SE Newport Way
FILE NUMBERS:	22-116548-LO
PROPONENT:	Yue Qiang Luo

DESCRIPTION OF PROPOSAL:

Proposal to restore unpermitted vegetation clearing and retaining wall construction within a Type-F stream buffer, category III wetland buffer, and 100-year floodplain.

The Environmental Coordinator of the City of Bellevue has determined that this proposal does not have a probable significant adverse impact upon the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(C). This decision was made after the Bellevue Environmental Coordinator reviewed the completed environmental checklist and information filed with the Land Use Division of the Development Services Department. This information is available to the public on request.

This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision.

DATE ISSUED: 2/22/2024

APPEAL DATE: 3/7/2024

A written appeal must be filed in the City Clerk's Office by 5 p.m. on the appeal date noted above.

This DNS may be withdrawn at any time if the proposal is modified so as to have significant adverse environmental impacts; if there is significant new information indicating a proposal's probable significant adverse environmental impacts (unless a non-exempt license has been issued if the proposal is a private project) or if the DNS was procured by misrepresentation or lack of material disclosure.

Reilly Pittman
Issued By: ***Planning Manager*** **for** **Date:** February 22, 2024
Elizabeth Stead, Environmental Coordinator
Development Services Department

City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	Luo Residence
Proposal Address:	13724 SE Newport Way
Proposal Description:	Critical Areas Land Use Permit to restore unpermitted vegetation clearing and retaining wall construction within a Type-F stream buffer, category III wetland buffer, and 100-year floodplain.
File Number:	22-116548-LO
Applicant:	Yue Qiang Luo
Decisions Included:	Process II
Planner:	David Wong, Land Use Planner
State Environmental Policy Act Threshold Determination:	**Determination of Non-Significance** ***Reilly Pittman*** ***Planning Manager*** Elizabeth Stead, Environmental Coordinator Development Services Department
Department Decision:	**Approval with Conditions** ***Reilly Pittman*** ***Planning Manager*** Elizabeth Stead, Land Use Director Development Services Department

Application Date:	August 17, 2022
Notice of Application Publication Date:	June 15, 2023
Decision Publication Date:	February 22, 2024
Appeal Deadline:	March 7, 2024

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

CONTENTS

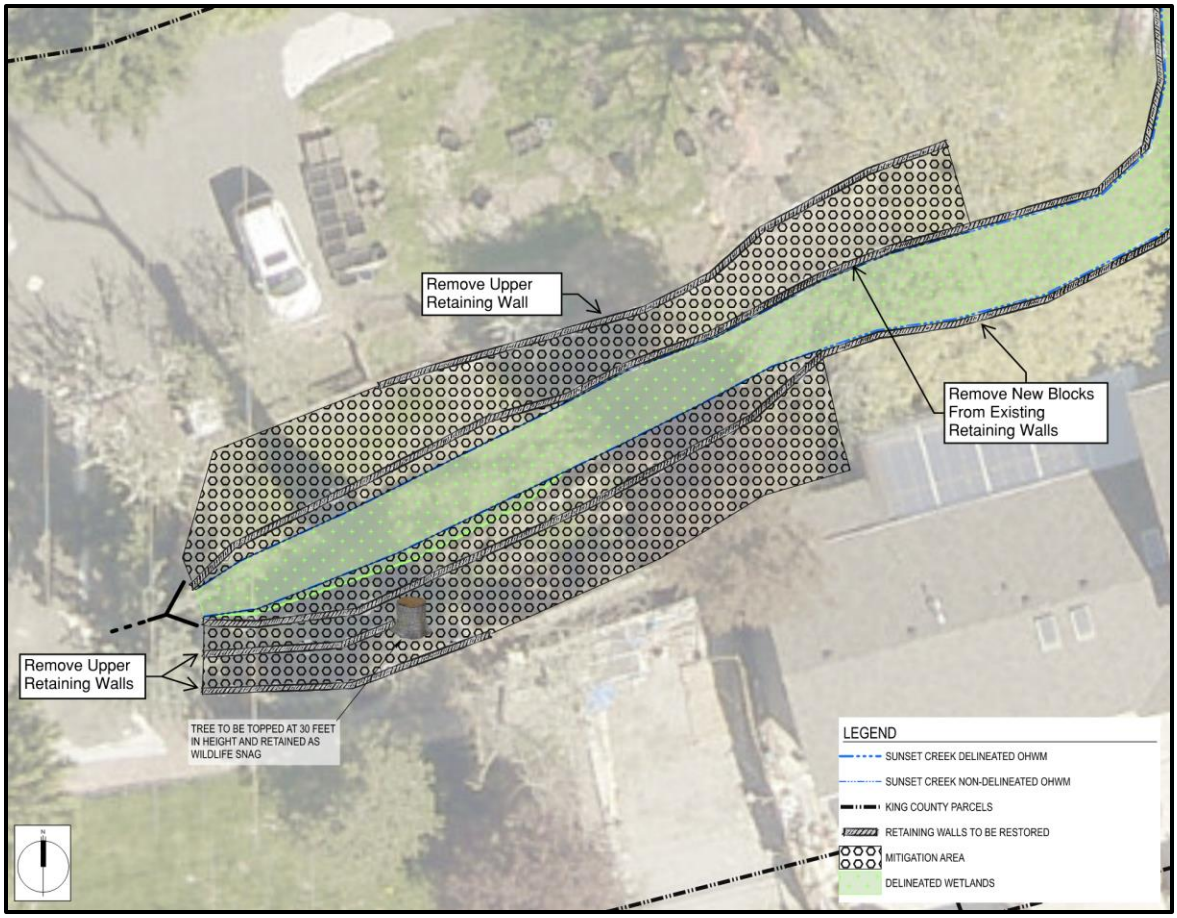
Attachments

1. Site Plan
2. Critical Areas Report – The Watershed Company (August 11, 2022)
3. Floodplain Ecological Functions Technical Memorandum – DCG Watershed (April 27, 2023)

I. Request & Review Process

The applicant has requested a Critical Areas Land Use Permit approval to restore unpermitted tree pruning, remove the existing block wall expansion, and remove the new block wall construction within the on-site Type-F stream buffer; category III wetland and wetland buffer; and within the 100-year floodplain. Restoration activities include removal of expanded portion of the block walls, removal new block walls, minor regrading, and installation of 1,849 square feet of new, riparian area planting along the stream and wetland. See Figure 1 for proposed site conditions.

Figure 1



Proposals to restore vegetation and grade changes within 100-year floodplain, Type-F stream buffer, and category III wetland buffer are required to receive approval through a Critical Areas Land Use Permit (CALUP).

II. Site Context & Description

A. Site Context

The existing site improvements include a single-family residence, two driveways, and typical residential landscaping. The site has street frontage to the north along SE Allen Road and street frontage to the south along SE Newport Way. The existing house was

constructed in 1961 but has since undergone a series of remodels. The site contains Sunset Creek (Type-F stream), a category III wetland, 100-year floodplain, and their respective buffers. The existing single-family home and improvements are located within the stream and wetland buffers. Vegetation on the site contains a mixture of cottonwood (*Populus trichocarpa*), Douglas-fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*) and other ornamental trees and shrubs. Unpermitted pruning of a large cottonwood, retaining wall expansion, and new retaining wall installation within the on-site critical areas and buffers were identified in an enforcement action (COB 19-112949-EA). Areas of the 100-year floodplain, stream buffer, and wetland buffer are degraded with existing improvements associated with the house, non-native vegetation, ornamental shrubs, and invasive species. The site soils have been identified as Alderwood gravelly sandy loam (AgC) and Arents, Alderwood material (AmC) according to the USDA NRCS (2021) Web Soil Survey. <u>See Figure 2 and Figure 3 below for the current site conditions and improvements</u>**.**

Figure 2

Figure 3

Image source: Pg. 5 Attachment 2

B. Zoning & Subarea

The property is zoned R-10 (Multifamily Residential) and is located within the Eastgate neighborhood area of the City's Comprehensive Plan.

C. Land Use Context

The site has a Comprehensive Plan designation of MF-L, or Multifamily Low Density. The site is adjacent to residential, single-family and multifamily, Comprehensive Plan designations on all sides. Tyee Middle School is located across SE Allen Road from the site.

D. Critical Areas Functions and Values

i. Streams and Riparian Areas

Most of the elements necessary for a healthy aquatic environment rely on processes sustained by dynamic interaction between the stream and the adjacent riparian area (Naiman et al., 1992). Riparian vegetation in floodplains and along stream banks provides a buffer to help mitigate the impacts of urbanization (Finkenbine et al., 2000 in Bolton and Shellberg, 2001). Riparian areas support healthy stream conditions.

Riparian vegetation, particularly forested riparian areas, affect water temperature by

providing shade to reduce solar exposure and regulate high ambient air temperatures, slowing or preventing increases in water temperature (Brazier and Brown, 1973; Corbett and Lynch, 1985).

Upland and wetland riparian areas retain sediments, nutrients, pesticides, pathogens, and other pollutants that may be present in runoff, protecting water quality in streams (Ecology, 2001; City of Portland 2001). The roots of riparian plants also hold soil and prevent erosion and sedimentation that may affect spawning success or other behaviors, such as feeding.

Both upland and wetland riparian areas reduce the effects of flood flows. Riparian areas and wetlands reduce and desynchronize peak crests and flow rates of floods (Novitzki, 1979; Verry and Boelter, 1979 in Mitsch and Gosselink, 1993). Upland and wetland areas can infiltrate floodflows, which in turn, are released to the stream as baseflow

Stream riparian areas, or buffers, can be a significant factor in determining the quality of wildlife habitat. For example, buffers comprised of native vegetation with multi- canopy structure, snags, and down logs provide habitat for the greatest range of wildlife species (McMillan, 2000). Vegetated riparian areas also provide a source of large woody debris that helps create and maintain diverse in-stream habitat, as well as create woody debris jams that store sediments and moderate flood velocities.

Sparsely vegetated or vegetated buffers with non-native species may not perform the needed functions of stream buffers. In cases where the buffer is not well vegetated, it is necessary to either increase the buffer width or require that the standard buffer width be restored or revegetated (May 2003). Until the newly planted buffer is established the near term goals for buffer functions may not be attained.

Riparian areas often have shallow groundwater tables, as well as areas where groundwater and surface waters interact. Groundwater flows out of riparian wetlands, seeps, and springs to support stream baseflows. Surface water that flows into riparian areas during floods or as direct precipitation infiltrates into groundwater in riparian areas and is stored for later discharge to the stream (Ecology, 2001; City of Portland, 2001).

ii. Wetlands

Wetlands provide important functions and values for both the human and biological environment—these functions include flood control, water quality improvement, and nutrient production. These “functions and values” to both the environment and the citizens of Bellevue depend on their size and location within a basin, as well as their diversity and quality. While Bellevue’s wetlands provides various beneficial functions, not all wetlands perform all functions, nor do they perform all functions equally well (Novitski et al., 1995). However, the combined effect of functional processes of wetlands within basins provides benefits to both natural and human environments. For example,

wetlands provide significant stormwater control, even if they are degraded and comprise only a small percentage of area within a basin.

iii. Floodplains

The value of floodplains can be described in terms of both the hydrologic and ecological functions that they provide. Flooding of occurs when either runoff exceeds the capacity of rivers and streams to convey water within their banks, or when engineered stormwater systems become overwhelmed. Studies have linked urbanization with increased peak discharge and channel degradation (Dunne and Leopold 1978; Booth and Jackson 1997; Konrad 2000). Floodplains diminish the effects of urbanization by temporarily storing water and mediating flow to downstream reaches. The capacity of a floodplain to buffer upstream fluctuations in discharge may vary according to valley confinement, gradient, local relief, and flow resistance provided by vegetation. Development within the floodplain can dramatically affect the storage capacity of a floodplain, impact the hydrologic regime of a basin and present a risk to public health and safety and to property and infrastructure.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The site is located within the R-10 zoning district. The proposal does not affect the zoning dimensional standards required by the R-10 zoning district. Confirmation of R-10 zoning district requirements will occur during the review of the required Clearing and Grading Permit. See Section X for conditions of approval related to the required Clearing and Grading Permit.

B. Consistency with Land Use Code Critical Areas Performance Standards:

i. Streams, Riparian Areas, and Wetlands – 20.25H.080 & .100

Development on sites with a type S or F stream, wetland, or associated critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

1. **Lights shall be directed away from the stream and wetland.**
   No lighting is proposed as part of this restoration project.

2. **Activity that generates noise such as parking lots, generators, and residential uses shall be located away from the stream and wetland, or any noise shall be minimized through use of design and insulation techniques.**
   No new sources or activities that generate noise are proposed as part of this restoration project.

3. **Toxic runoff from new impervious area shall be routed away from the stream and wetland.**
   No new impervious surface is proposed.

4. **Treated water may be allowed to enter the stream and wetland critical area buffer.**
   No change in stormwater discharge is proposed.

5. **The outer edge of the stream and wetland critical area buffers shall be planted with dense vegetation to limit pet or human use.**
   The proposal includes approximately 1,849 square feet of new, native vegetation to be installed adjacent to the stream and wetland to restore impacts created by unpermitted clearing, grading, and wall installation. The site contains several existing and legally established improvements (single-family home, driveway, deck, etc.) on both sides of the stream and wetland which functionally reduces the extent of the buffer areas. The remaining buffers between the house and lower driveway were where the unpermitted impacts occurred and are proposed to be densely planted. Densities, species, and locations will be further confirmed at the time of the Clearing and Grading Permit review. See Section X for conditions of approval related to the required restoration plan.

6. **Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream or wetland critical area buffers shall be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as hereafter amended.**
   No pesticide, insecticide, or fertilizer use is proposed. Any use of these substances will be required to be applied in accordance with the published "Environmental Best Management Practices" document. See Section X for conditions of approval related to pesticide, insecticide, and fertilizer use.

7. **All applicable standards of Chapter 24.06 BCC, Storm and Surface Water Utility Code, are met.**
   City of Bellevue Utilities Department staff have reviewed the proposal and determined the proposal is compliant with BCC 24.06. Additional discussion can be found in Section V of this report.

ii. Floodplains – 20.25H.180.B

Where use or development is allowed pursuant to LUC 20.25H.055, the following general performance standards apply, in addition to the applicable performance standards in subsection C of this section:

The proposal is intended to remove unpermitted block wall expansion and wall construction, and to restore impacted vegetation and natural grades along within the floodplain area. As designed and noted in the Floodplain Technical Memorandum (Attachment 3), the proposal results in "…*no net fill in the floodplain and no displacement of floodwaters…"* (Attachment 3, pg.1) based on conditions prior to unpermitted work occurring.

Vegetation and habitat impacts, including over pruning and mortality of a large cottonwood tree, are proposed to be restored with dense native planting consisting of a mix of trees, shrub, groundcover, and wetland emergent plants. The remaining portion of the cottonwood tree will be pruned and left as a habitat snag to provide future habitat opportunities. Both of these activities will *"… result in a net benefit to the floodplain functions."* (Attachment 3, pg. 2), including water quality and habitat functions and values. See Section X for conditions of approval related to habitat snag details.

C. Consistency with Critical Areas Report LUC 20.25.230.

The applicant supplied a complete critical areas report prepared by DCG/Watershed a qualified professional (Attachment 2 & 3). The reports meet the minimum requirements in LUC 20.25H.250.

IV. Public Notice and Comment

Application Date:	August 17, 2022
Public Notice (500 feet):	June 15, 2023
Minimum Comment Period:	June 29, 2023

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin on June 15, 2023. It was mailed to property owners within 500 feet of the project site. The City received no public comments prior to the drafting of this report.

V. Summary of Technical Reviews

Clearing and Grading:

The Clearing and Grading Division of the Development Services Department has reviewed the proposed development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development, however review under this permit does not constitute final Clearing & Grading approval. Clearing & Grading review is required to occur under any permit submitted to execute this scope of work. Due to the proximity of the on-site critical areas, buffers, and the proposed work area, clearing and grading work is restricted during the rainy season or October 1st through April 30th. See Section X for conditions of approval related to permit requirements and rainy season restrictions.

Utilities:

City of Bellevue Utilities staff has reviewed the proposed development for compliance with City of Bellevue Utilities codes and standards. Utilities staff found no issues with the restoration work. No work is proposed on the existing storm pipe on-site and near the work site. A separate Utilities permit will be required for any work on the pipe is needed or required.

VI. State Environmental Policy Act (SEPA)

The applicant has provided a complete SEPA checklist supported by detailed analysis for review in demonstrating no significant adverse environmental impact. Staff has reviewed the checklist, analysis, and supporting documentation and has determined that, for the proposed action, environmental review indicates no probability of significant adverse environmental impacts provided that applicable city codes and standards are implemented. Therefore, issuance of a Determination of Non-Significance pursuant to WAC 197-11-340 and Bellevue City Code (BCC) 22.02.034 is appropriate.

A. Plants

The project has been designed to restore impacts associated with unpermitted work and to improve the vegetative community contained within the stream, wetland, floodplain and their respective buffers. A final restoration plan meeting the conceptual restoration plan (Attachment 1) and recommendations contained within the Critical Areas Report (Attachment 2) is required to be submitted for review with the Clearing and Grading Permit. See Section X for conditions of approval related to mitigation, restoration, and enhancement plans.

B. Animals

Sunset Creek (Type-F stream), a category III wetland, and the associated 100-year floodplain are located on-site and are vital to a number of fish, bird, and mammal species. The site is also located along the Pacific Flyway, a major north-south flyway for migratory birds. The proposal has been designed to restore and improve on-site habitat conditions within the wetland to improve degraded conditions caused by unpermitted work.

VII. Changes to Proposal as a Result of City Review

No significant changes to the proposal were requested by the City during the review process.

VIII. Decision Criteria

A. Critical Areas Report Decision Criteria - General LUC 20.25H.255.A

Except for the proposals described in subsection B of this section, the Director may approve, or approve with modifications, the proposed modification where the applicant demonstrates:

1. **The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as application of the regulations and standards of this code;**

   Finding: Vegetation management within a wetland and floodplain is not listed as an allowed use pursuant to LUC 20.25H.055.C.3.i.vi, which allows for vegetation management plans to be implemented in geologic hazard critical areas and critical area buffers. These vegetation management plans are required to demonstrate

"...the proposed Vegetation Management Plan will not significantly diminish the functions and values of the critical area or alter the forest and habitat characteristics of the site over time."

The proposal requests to restore and enhance, through native planting, the wetland, floodplain, stream buffer, and wetland buffer to the north of the existing single-family residence to provide a lift function and values in the on-site stream, wetland, floodplain, and their buffers. Compliance with critical area specific performance standards is discussed in Section III of this report, and additional details related to the function lift analysis can be found in Section 5.5 of the CAR (Attachment 2).

2. **Adequate resources to ensure completion of any required mitigation and monitoring efforts;**

Finding: A monitoring plan has been proposed in Section 5.5 of the Critical Areas Report (Attachment 2). In addition to monitoring requirements, a financial assurance device is required to be submitted prior to Clearing and Grading Permit approval. See Section X for conditions of approval related to maintenance, monitoring, and the assurance device.

3. **The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and**

Finding: The CAR identifies and documents the degraded conditions, including those caused by unpermitted work, in the area of where the proposed restoration and enhancement planting will occur. With the installation of native vegetation, net improvement is expected on- and off-site, primarily through the improvements to the current habitat conditions, stormwater quality, and stream bank stability. See Section X for conditions of approval related to the mitigation, restoration, and enhancement plans.

4. **The resulting development is compatible with other uses and development in the same land use district.**

Finding: No change in use of the site is proposed and it will remain a single-family residential use in a residential Land Use district.

B. Critical Areas Land Use Permit Decision Criteria 20.30P

The Director may approve or approve with modifications an application for a critical areas land use permit if:

1. **The proposal obtains all other permits required by the Land Use Code;**

Finding: The applicant will be required to apply for a Clearing and Grading after the

approval of the Critical Areas Land Use Permit. See Section X for conditions of approval related to Clearing and Grading Permit requirements.

2. 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;

Finding: The proposal has been designed and located to restore impacts to and improve critical area and critical area buffer functions and values. The design includes a restoration and enhancement planting plan consisting of native species commonly found within wetlands, floodplains, stream buffer, wetland buffers, and those found in the near vicinity of the site within the Sunset Creek riparian area.

The review of this permit is reliant upon the findings of qualified professionals submitted by the applicant as part of this proposal. The property owner will be required to execute a Hold Harmless Agreement releasing the City from liability for any improvements within the critical area and buffer. See Section X for conditions of approval related to the Hold Harmless Agreement.

3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;

Finding: As discussed in Section III.B of this report, the proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable.

4. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;

Finding: The site is currently served by adequate public facilities and no additional need is anticipated with this proposal.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

Finding: The proposal includes a conceptual restoration and enhancement plan that provides native planting consistent with LUC 20.25H.210. The plan also contains a 3-year maintenance and monitoring plan to ensure successful establishment of installed planting. See Section X for conditions of approval related to maintenance and monitoring and mitigation.

6. The proposal complies with other applicable requirements of this code.

Finding: As discussed in Section III and V of this report, the proposal complies with all other applicable requirements of the Land Use Code.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the proposal to restore and enhance the wetland, floodplain, stream buffer, and wetland buffer at 13724 SE Newport Way as shown on the proposed plans (Attachment 1).

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Clearing and Grading Permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code - BCC 23.76	Tom McFarlane, 425-452-4231
Utilities Code - BCC 24	Jeremy Rosenlund, 425-452-4855
Land Use Code - BCC 20	David Wong, 425-452-4828

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1. Clearing and Grading Permit Required: Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. A Clearing and Grading Permit shall be required and approved. Plans consistent with those submitted as part of this permit application shall be included in the Clearing and Grading Permit application.

Authority: Land Use Code 20.30P.140
Reviewer: David Wong, Land Use

2. Restoration and Enhancement Plan: Final restoration and enhancement plans in accordance with the conceptual mitigation plan provided under this application shall be submitted for review and approval by the City of Bellevue prior to issuance of the Clearing and Grading Permit. The plan shall document the total area of new critical area planting and the plans shall be consistent with the guidance provided in the City's Critical Areas Handbook.

Authority: Land Use Code 20.25H.105.C.3
Reviewer: David Wong, Land Use

3. Habitat Snag: A habitat snag detail shall be provided with the restoration and enhancement plans submitted as part of the Clearing and Grading Permit application. All

snags shall be cut using techniques to mimic natural breaks and failures and to promote habitat usage.

Authority: Land Use Code 20.25H.105.C.3
Reviewer: David Wong, Land Use

4. Maintenance and Monitoring: A maintenance and monitoring plan in conformance with the plan submitted under this application shall be submitted for review and approval by the City of Bellevue prior to issuance of the Clearing and Grading Permit. The restoration and enhancement plans shall be maintained and monitored for a minimum of three (3) years, and shall meet the following performance standards:

Year 1:
100% survival of all planted vegetation
10% or greater of native vegetative cover by shrubs and ground cover within the restoration areas
10% or less of invasive species coverage within the restoration area

Year 2:
100% survival of all trees
10% or greater of native vegetative cover by shrubs and ground cover within the restoration areas
10% or less of invasive species coverage within the restoration area

Year 3:
100% survival of all trees
30% or greater of native vegetative cover by shrubs and ground cover within the restoration areas
10% or less of invasive species coverage within the restoration area

Annual reporting shall be submitted at the end of each growing season or by December 1 for each of the three years following Final inspection. Failure to submit annual reporting and/or restoration areas not meeting the above listed performance standards may result in the extension of the monitoring period beyond three (3) years. All reporting shall be submitted by email to **dwong@bellevuewa.gov**. or by mail to:

Environmental Planning Manager
Development Services Department
City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Authority: Land Use Code 20.25H.220.D, 20.25H.220.H
Reviewer: David Wong, Land Use

5. Assurance Device: A financial surety is required to be submitted to ensure the restoration and enhancement planting successfully establishes. An assurance device that is equal to 100% of the cost of plants, materials, and installation is required to be held for a period of three (3) years from the date of Final Clearing and Grading Permit inspection. A cost estimate detailing the cost of the plant materials, installation materials (mulch, soil, etc.), labor for installation, three (3) years of maintenance, and three (3) years of monitoring is required to be provided with the Clearing and Grading p\Permit. The financial surety is required to be posted prior to Clearing and Grading Permit issuance. Release of the surety after the 3-year monitoring period is contingent upon a final inspection of the planting by Land Use Staff that finds the maintenance and monitoring plan was successful and the mitigation meets performance standards listed above.

Authority: Land Use Code 20.25H.220.F
Reviewer: David Wong, Land Use

6. Hold Harmless Agreement: Prior to Clearing and Grading Permit approval, the applicant or property owner shall submit a hold harmless agreement releasing the City of Bellevue from any and all liability associated with the work located in the on-site wetland, floodplain, stream buffer, and wetland buffer. The agreement must meet city requirements and must be reviewed by the City Attorney's Office for formal approval.

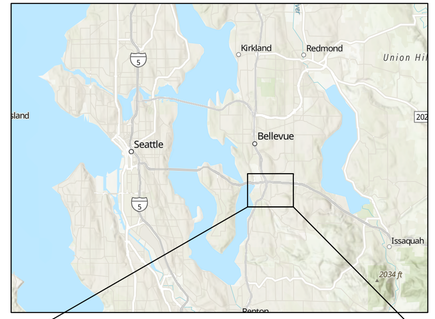
Authority: Land Use Code 20.30P.170
Reviewer: David Wong, Land Use

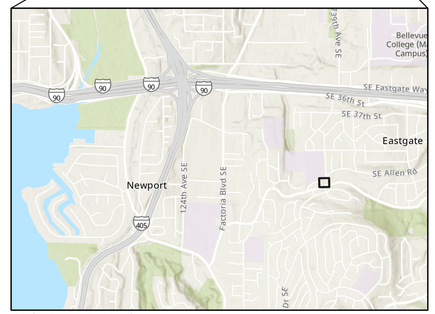
7. Pesticide, Insecticide, and Fertilizer Use: The applicant must submit as part of the required Clearing and Grading Permit information regarding the use of pesticides, insecticides, and fertilizers in accordance with the City of Bellevue's "Environmental Best Management Practices".

Authority: Land Use Code 20.25H.080.A, 20.25H.100.F
Reviewer: David Wong, Land Use

8. Rainy Season Restrictions: Due to the proximity to on-site critical areas and buffers, no clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,
Reviewer: Tom McFarlane, Clearing & Grading





VICINITY MAPS

LEGEND

- DATA POINTS
- PRUNED TREE
- SUNSET CREEK DELINEATED OHWM
- SUNSET CREEK NON-DELINEATED OHWM
- RECENTLY MODIFIED RETAINING WALLS
- TOPOGRAPHY (5-FOOT CONTOURS)
- KING COUNTY PARCELS
- DELINEATED WETLANDS

NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY ON JUNE 21, 2022.

2. DELINEATION FLAGS LOCATED WITH GPS ON GPS DATA DISPLAYED ON THIS MAP WAS COLLECTED IN THE FIELD USING A TRIMBLE GEOXH HAND HELD UNIT. THE DATA WAS DIFFERENTIALLY CORRECTED USING TRIMBLE PATHFINDER OFFICE SOFTWARE TO FURTHER INCREASE POSITION ACCURACY. GPS DATA IS BELIEVED RELIABLE FOR GENERAL PLANNING AND MOST REGULATORY PURPOSES. HOWEVER, ACCURACY IS VARIABLE AND SHOULD NOT BE CONSIDERED EQUIVALENT TO A PROFESSIONAL LAND SURVEY. NO WARRANTY IS EXPRESSED OR IMPLIED.

3. "PRUNED TREE" IS A BLACK COTTONWOOD (POPULUS TRICHOCARPA) THAT WAS PRUNED SEVERLY IN 2019 AND SINCE DECLINED AND NEAR DEAD.

4. BUFFERS/SETBACKS NOT SHOWN, AS ALL IMPACTS ARE ASSUMED TO OCCUR WITHIN STANDARD BUFFERS/SETBACKS

0 10 20 30 40 Feet

N

THE WATERSHED COMPANY
SCIENCE & DESIGN
750 6TH STREET SOUTH
KIRKLAND WA 98033
425.822.5242
WWW.WATERSHEDCO.COM

PROJECT:
LUO RESIDENCE
13724 SE NEWPORT WAY
BELLEVUE, WA 98006

PRINCIPLE: KB
PM: KB
DRAWN BY: SP
REVIEWED BY: KB
JOB NO.: 220604
DATE: 7/25/2022

REVISIONS

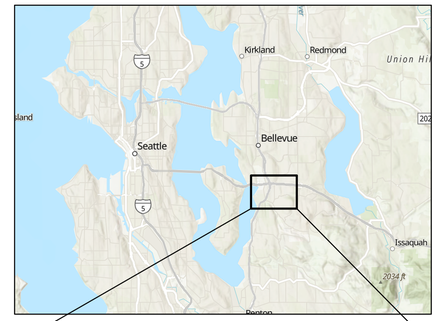
NO.	DESCRIPTION	DATE
1	PERMIT SET	7/25/2022

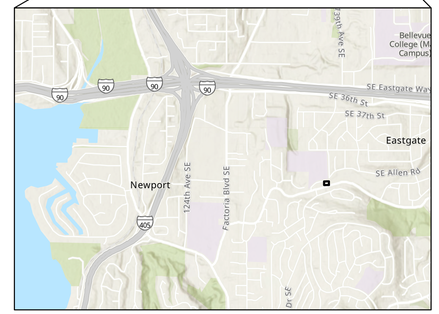
NOT FOR CONSTRUCTION

SCHEMATIC DESIGN

7/25/2022

EXISTING CONDITIONS & IMPACTS





LEGEND

- SUNSET CREEK DELINEATED OHWM
- SUNSET CREEK NON-DELINEATED OHWM
- KING COUNTY PARCELS
- RETAINING WALLS TO BE RESTORED
- MITIGATION AREA
- DELINEATED WETLANDS

NOTES

1. REMOVE ALL NEW RETAINING WALL BLOCKS AND REGRADE SLOPE TO PRE-EXISTING CONDITIONS. THE NEW RETAINING WALL BLOCKS ARE DISTINCT FROM OLDER BLOCKS BY DARKENING AND MOSS ACCUMULATION.

2. TOP THE DYING BLACK COTTONWOOD AT APPROXIMATELY 30 FEET TO RETAIN WILDLIFE HABITAT AND MAINTAIN SAFETY. IF RESPROUTING OCCURS TREE MAY BE GIRDLED OR INJECTED WITH HERBICIDE. REPLACEMENT TREES WILL REPLACE SITE FUNCTION AND BE MORE COMPTABLE WITH RESIDENTIAL AREAS.

3. PROPOSED STREAM/WETLAND BUFFER ENHANCEMENT AREA TOTALS 1,849. MITIGATION PLANTING ALONG THE STREAM WILL EVENTUALLY IMPROVE STREAM SHADING AND BUFFER FUNCTION COMPARED TO PRE-EXISTING CONDITIONS.

0 5 10 15 20 Feet

N

PLANT LIST

COMMON NAME	SCIENTIFIC NAME	QUANTITY	SPACING (O.C.)	SIZE	PLACEMENT NOTES
WESTERN REDCEDAR	THUJA PLICATA	3	>10'	1 GALLON	>20 FEET FROM STRUCTURES
SITKA SPRUCE	PICEA SITCHENSIS	3	>10'	1 GALLON	>20 FEET FROM STRUCTURES
BIGLEAF MAPLE	ACER MACROPHYLLUM	3	>10'	1 GALLON	>20 FEET FROM STRUCTURES
CASCARA	FRANGULA PUSHIANA	5	>10'	1 GALLON	SHADE / PART SHADE
BLACK HAWTHORN	CRATAEGUS DOUGLASII	6	6'	1 GALLON	DOWNSLOPE
RED-OSIER DOGWOOD	CORNUS SERICEA	10	6'	1 GALLON	DOWNSLOPE
PACIFIC NINEBARK	PHYSOCARPUS CAPITATUS	10	6'	1 GALLON	DOWNSLOPE
RED ELDERBERRY	SAMBUCUS RACEMOSA	10	6'	1 GALLON	UPSLOPE
NOOTKA ROSE	ROSA NUTKANA	10	6'	1 GALLON	UPSLOPE
SNOWBERRY	SYMPHORICARPOS ALBUS	10	6'	1 GALLON	UPSLOPE

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BELLEVUE, WA 98006

PRINCIPLE: KB
PM: KB
DRAWN BY: SP
REVIEWED BY: KB
JOB NO.: 220604
DATE: 7/25/2022

REVISIONS

NO.	DESCRIPTION	DATE
1	PERMIT SET	7/25/2022

NOT FOR CONSTRUCTION

SCHEMATIC DESIGN

7/25/2022

MITIGATION PLAN

MITIGATION PLAN

THIS MITIGATION PLAN HAS BEEN DEVELOPED TO ENHANCE THE WETLAND AND STREAM BUFFER AT THE LUO RESIDENCE AND REMOVE NEW ROCKWALL STRUCTURES, AND RESULT IN A NET IMPROVEMENT OF ECOLOGICAL FUNCTION OVER TIME. SEE ASSOCIATED CRITICAL AREAS REPORT FOR ADDITIONAL INFORMATION.

MAINTENANCE AND MONITORING PLAN

THE SITE SHALL BE MAINTAINED AND MONITORED FOR three YEARS FOLLOWING SUCCESSFUL INSTALLATION. COMPONENTS OF THE 3-YEAR MAINTENANCE AND MONITORING PLAN ARE DETAILED BELOW.

GOALS

1. PROVIDE ADEQUATE COMPENSATION FOR LOSSES AND DEGRADATION TO STREAM AND WETLAND CRITICAL AREA BUFFERS THAT OCCURRED AT THE IMPACT SITE.
2. IMPROVE THE ECOLOGICAL FUNCTIONS AND SERVICES OF WETLAND AND STREAM CRITICAL AREAS AND THEIR BUFFERS.

PERFORMANCE STANDARDS

THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE INSTALLATION OVER TIME. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 3, THE SITE WILL THEN BE DEEMED SUCCESSFUL AND THE PERFORMANCE SECURITY BOND WILL BE ELIGIBLE FOR RELEASE BY THE CITY OF BELLEVUE.

1. **SURVIVAL** (*SURVIVAL STANDARDS MAY BE ACHIEVED THROUGH ESTABLISHMENT OF PLANTED MATERIAL, RECRUITMENT OF NATIVE VOLUNTEERS, OR REPLACEMENT PLANTS AS NECESSARY*).
   A. ACHIEVE 100% SURVIVAL OF ALL INSTALLED TREES AND SHRUBS BY THE END OF YEAR ONE.
   B. ACHIEVE 80% SURVIVAL OF ALL INSTALLED SHRUBS AND 100% SURVIVAL OF ALL INSTALLED CONIFERS BY THE END OF YEAR TWO.
2. **NATIVE PLANT COVER** (*COVER STANDARDS MAY INCLUDE INSTALLED PLANTS, VOLUNTEER PLANTS, AND EXISTING UNDERSTORY VEGETATION. PRE-EXISTING TREES ARE NOT INCLUDED AS COVER FOR THE PURPOSE OF THIS PERFORMANCE STANDARD*).
   A. ACHIEVE 50% AREAL COVER OF NATIVE WOODY VEGETATION BY YEAR 3.
3. **PLANT DIVERSITY**: ESTABLISH AT LEAST TREE NATIVE TREE AND FOUR NATIVE SHRUB SPECIES BY YEAR 3 AND MAINTAIN THIS DIVERSITY THROUGH YEAR 3. VOLUNTEER AND LEGACY PLANTS MAY COUNT TOWARD THIS STANDARD.
4. **INVASIVE PLANT COVER**: AREAL COVER FOR INVASIVE PLANTS WILL NOT EXCEED 10% AT ANY YEAR DURING THE MONITORING PERIOD. INVASIVE PLANTS INCLUDE THOSE DESIGNATED BY THE KING COUNTY NOXIOUS WEED BOARD. REED CANARYGRASS IS ALLOWED AS LONG NO MONOCULTURES ARE PRESENT WHICH ARE 100 SQUARE FEET OR GREATER.

MONITORING METHODS

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH THE SITE IS MEETING THE PERFORMANCE STANDARDS OUTLINED IN THE PRECEDING SECTION.

AN AS-BUILT PLAN WILL BE PREPARED BY THE RESTORATION PROFESSIONAL PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN WILL BE A MARK-UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET. THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE PROPOSED PLAN.

MONITORING WILL TAKE PLACE ONCE ANNUALLY IN THE FALL FOR THREE YEARS. YEAR-1 MONITORING WILL COMMENCE IN THE FIRST FALL SUBSEQUENT TO INSTALLATION. THE FORMAL MONITORING VISIT SHALL RECORD AND REPORT THE FOLLOWING IN AN ANNUAL REPORT SUBMITTED TO THE CITY OF BELLEVUE:

1. VISUAL ASSESSMENT OF THE OVERALL SITE.
2. YEAR-1 AND YEAR-2 COUNTS OF LIVE AND DEAD PLANTS BY SPECIES.
3. COUNTS OF DEAD PLANTS WHERE MORTALITY IS SIGNIFICANT IN ANY MONITORING YEAR.
4. ESTIMATE OF NATIVE COVER IN THE MITIGATION AREA.
5. ESTIMATE OF NON-NATIVE, INVASIVE WEED COVER IN THE MITIGATION AREA.
6. TABULATION OF ESTABLISHED NATIVE SPECIES, INCLUDING BOTH PLANTED AND VOLUNTEER SPECIES.
7. PHOTOGRAPHIC DOCUMENTATION FROM AT LEAST THREE FIXED REFERENCE POINTS.
8. ANY INTRUSIONS INTO OR CLEARING OF THE PLANTING AREAS, VANDALISM, OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE MITIGATION AREA.
9. RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE MITIGATION AREA.

MAINTENANCE

THE SITE WILL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING INSTRUCTIONS FOR AT LEAST THREE YEARS FOLLOWING COMPLETION OF CONSTRUCTION:

1. FOLLOW THE RECOMMENDATIONS NOTED IN THE PREVIOUS MONITORING SITE VISIT.
2. GENERAL WEEDING FOR ALL PLANTED AREAS:
   A. AT LEAST TWICE YEARLY, REMOVE ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AT LEAST TWICE DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY, LOWER PLANT REPLACEMENT COSTS, AND INCREASED LIKELIHOOD THAT THE PLAN MEETS PERFORMANCE STANDARDS BY YEAR 3.
   B. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLANT INSTALLATION.
   C. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER/WEED EATER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
   D. SELECTIVE APPLICATIONS OF HERBICIDE MAY BE NEEDED TO CONTROL INVASIVE WEEDS, ESPECIALLY WHEN INTERMIXED WITH NATIVE SPECIES. HERBICIDE APPLICATION, WHEN NECESSARY, SHALL BE CONDUCTED ONLY BY A STATE-LICENSED APPLICATOR.
3. REPLACE MULCH AS NECESSARY TO MAINTAIN A 4-INCH-THICK LAYER, RETAIN SOIL MOISTURE, AND LIMIT WEEDS.
4. REPLACE EACH PLANT FOUND DEAD IN THE SUMMER MONITORING VISITS DURING THE UPCOMING DORMANT SEASON (OCTOBER 15 TO MARCH 1), FOR BEST SURVIVAL.
5. THE PROPERTY OWNER WILL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 1 INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION, THROUGH THE OPERATION OF A TEMPORARY IRRIGATION SYSTEM. LESS WATER IS NEEDED DURING MARCH, APRIL, MAY AND OCTOBER.

GENERAL WORK SEQUENCE

SITE PREPARATION

1. MANUALLY CLEAR INVASIVE AND NON-NATIVE VEGETATION FROM MITIGATION AREA DURING SPRING AND/OR SUMMER MONTHS (I.E., AVOID CREATING EXPOSED SOIL CONDITIONS DURING THE WINTER STORM SEASON).
   A. REMOVE NEW RETAINING WALL STONES AND REGRADE SLOPE TO PRE-EXISTING GRADE.
   B. REMOVE INVASIVE SPECIES (I.E., HIMALAYAN BLACKBERRY, ENGLISH IVY), IN ACCORDANCE WITH KING COUNTY NOXIOUS WEED BEST MANAGEMENT PRACTICES. FOR MORE INFORMATION: HTTPS://WWW.KINGCOUNTY.GOV/SERVICES/ENVIRONMENT/ANIMALS-AND-PLANTS/NOXIOUS-WEEDS.ASPX.
   C. RETAIN SNAG WITH TOPPING CUT AT 30 FEET ABOVE GROUND SURFACE AND ROUGHING TOP WITH A CHAINSAW TO APPEAR NATURAL.
   D. FLUSH-CUT ORNAMENTAL WOODY VEGETATION (E.G. ENGLISH HOLLY, NON-NATIVE APPLE OR PLUM) THROUGHOUT MITIGATION AREA AND IMMEDIATELY TREAT STEM (DAUBING OR PAINTING) WITH APPROPRIATE HERBICIDE. PERSON APPLYING HERBICIDE SHALL BE STATE-LICENSED. DO NOT REMOVE SUBSURFACE ROOTS.
   E. AVOID AND MINIMIZE DISTURBANCE AND/OR COMPACTION TO ROOTS OF ESTABLISHED NATIVE TREES TO BE RETAINED WHEN REMOVING VEGETATION FROM WITHIN TREE DRIPLINES.
2. BLANKET-MULCH CLEARED AREAS INCLUDING STEEP SLOPES WITH WOOD MULCH, FOUR INCHES THICK.
   A. ENSURE MULCH DOES NOT TOUCH STEMS OF EXISTING (OR INSTALLED) VEGETATION.
3. INSTALL COIR OR JUTE MESH ON CLEARED STEEP SLOPE MITIGATION AREAS.

MITIGATION PLANTING AND IRRIGATION

1. INSTALL MITIGATION PLANTS DURING THE DORMANT SEASON (OCTOBER 15 – MARCH 1).
   A. PREPARE A PLANTING PIT FOR EACH PLANT THROUGH BLANKET WOOD MULCH AND GEOTEXTILE FABRIC AND INSTALL PER THE PLANTING DETAILS.
2. INSTALL A TEMPORARY, ABOVE GROUND IRRIGATION SYSTEM TO PROVIDE FULL COVERAGE TO ALL INSTALLED PLANTS WITHIN THE RESTORATION AREA.

MATERIAL SPECIFICATIONS AND DEFINITIONS

1. IRRIGATION SYSTEM: AUTOMATED SYSTEM CAPABLE OF DELIVERING AT LEAST ONE INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
2. RESTORATION PROFESSIONAL: WATERSHED COMPANY [(425) 822-5242] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
3. WOODCHIP MULCH: “ARBORIST CHIPS” (CHIPPED WOODY MATERIAL) APPROXIMATELY ONE TO THREE INCHES IN MAXIMUM DIMENSION (NOT SAWDUST). THIS MATERIAL IS COMMONLY AVAILABLE IN LARGE QUANTITIES FROM ARBORISTS OR TREE-PRUNING COMPANIES. MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/DEMOLITION DEBRIS. A MINIMUM OF 95 PERCENT OF THE WOOD STRAND SHALL HAVE LENGTHS BETWEEN 2 AND 10 INCHES. AT LEAST 50 PERCENT OF THE LENGTH OF EACH STRAND SHALL HAVE A WIDTH AND THICKNESS BETWEEN 1/16 AND ½ INCH. NO SINGLE STRAND SHALL HAVE A WIDTH OR THICKNESS GREATER THAN ½ INCH. THE MULCH SHALL NOT CONTAIN SALT, PRESERVATIVES, GLUE, RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO PLANT LIFE. SAWDUST OR WOOD CHIPS OR SHAVINGS WILL NOT BE ACCEPTABLE. THIS PRODUCT SHALL NOT BE HARMFUL TO PLANTS, ANIMALS, OR AQUATIC LIFE.

CONTINGENCIES

IF THERE IS A SIGNIFICANT PROBLEM WITH THE RESTORATION AREAS MEETING PERFORMANCE STANDARDS, A CONTINGENCY PLAN WILL BE DEVELOPED AND IMPLEMENTED. CONTINGENCY PLANS CAN INCLUDE, BUT ARE NOT LIMITED TO: SOIL AMENDMENT, ADDITIONAL PLANT INSTALLATION, AND PLANT SUBSTITUTIONS OF TYPE, SIZE, QUANTITY, AND LOCATION.

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DRAWN BY: SP
REVIEWED BY: KB
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REVISIONS

NO.	DESCRIPTION	DATE
1	PERMIT SET	7/25/2022

NOT FOR CONSTRUCTION
SCHEMATIC DESIGN
7/25/2022

MITIGATION NOTES

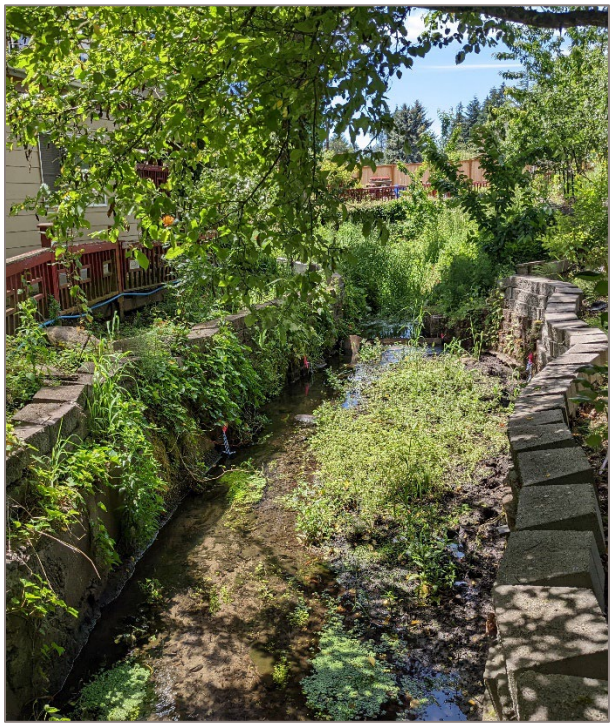
Critical Areas Report

LUO RESIDENCE
BELLEVUE

August 11, 2022

Prepared for:
City of Bellevue
Development Services
450 110th Avenue NE
Bellevue, WA 98004

Prepared on behalf of (applicant):
Yueqiang Luo
13724 SE Newport Way
Bellevue, WA 98006



The Watershed Company

Title-page image: Sunset Creek channelized on the subject property.

THE WATERSHED COMPANY

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Reference Number: 220604

Contact: Sam Payne, PWS
Ecologist

Executive Summary

This critical areas report is provided to resolve a code violation in the buffer of a stream and wetland critical area by restoration in-place and compensatory mitigation in the form of stream/wetland buffer enhancement. The code violation involves the addition to, and construction of, new retaining walls which we propose to remove, and the pruning of a large significant tree which has led to near mortality. The 1,849 square foot mitigation area is anticipated to improve ecological function of critical areas compared to pre-existing conditions, and thereby, exceeding the mitigation requirements of the Bellevue Land Use Code. The tree is proposed to be retained as a snag at approximately 30 feet in height to balance safety needs and habitat benefits. A three year monitoring plan is proposed which will be concluded once all performances standards have been achieved. This critical areas report and associated mitigation plan are believed to restore all unpermitted project activities and allow resolution of the code violation once completed.

Table of Contents

List of Figures

List of Tables

1. Introduction

1.1 Overview and Purpose

The purpose of this critical areas report is to document ecological critical areas on the property and provide an approach to resolve and mitigate impacts to critical areas and critical area buffers associated with unpermitted activities that occurred in 2019. These activities include increasing the height of existing retaining walls, construction of new retaining walls, and excess pruning of a significant tree, hereafter referred to as the "Project." As compensation for Project impacts, a mitigation plan has been prepared and can be found in Appendix A. This critical areas report, in conjunction with the mitigation plan, are designed to meet the criteria of Bellevue Land Use Code (LUC) 20.25H – Critical Areas Overlay District by documenting that the mitigation will result in no net loss of ecological function, once complete.

1.2 Project History

Information for the project history was obtained from *Findings of Fact, Conclusions of Law, and Decision and Order* from the Bellevue Hearing Examiner's Office for Code Compliance File No. 19-112949-EA (Hex File No. AAD 21-05). Extensive cutting and removal of large branches of a significant tree and construction of a modular block wall occurred in May of 2019, which resulted in a stop work order and instructions to obtain proper permitting. The landowner was directed to revise their prior single-family addition building permit (17-128118-BR) to include the Project activities. Upon review of the revised permit application Bellevue determined that a critical areas land use permit (CALUP) would be required to abate the violations on August 22, 2019. A CALUP application was submitted in September 17, 2019 but was deemed incomplete and lacked sufficient supporting documentation. Following approximately two years without resolution, a hearing was held which issued monetary penalties, issued on June 10, 2021. A motion to enforce was later issued in 2022. The Watershed Company began working on the Project in June 2022 and will be providing services to support the CALUP and clearing and grading applications.

1.3 Location

The subject parcel is located at 13724 SE Newport Way, Bellevue, WA 98006; in the PLSS location of Township 24 North, Range 05 East, Section 15 (Figure 1). It can be accessed from SE Allen Road to the North or SE Newport Way from the south.

Figure 1. Vicinity and subject parcel map.

1.4 Environmental Setting

The property is located in the Mercer Slough sub-basin of the Cedar Sammamish Water Resource Inventory Area (WRIA 8). It is situated in an area characterized as the Westside Lowland Conifer-Hardwood Forest, within the Puget Lowlands Ecoregion (Johnson and O'Neil 2001). The setting is highly urbanized with few natural areas at a landscape scale.

Vicinity land use is primarily residential with a mix of single-family and apartments and condos. The Tyee Middle School campus is located immediately northwest. SE Newport Way which abuts the property is a busy arterial road. There are a few nearby parks and greenbelts but the landscape contains few natural areas which have poor landscape connectivity for wildlife movement.

1.5 Site Description and Use

The property contains a single residential structure with attached garage and site improvements that include a paved driveway, parking, patios, fences, a footbridge, and associated utilities. The site is landscaped to include areas of lawn and garden, with groves of native and

ornamental trees. Overhead power transmission lines extend from north to south through the western area of the parcel.

2. Critical Areas

This section documents the findings of a wetland and stream delineation study conducted at the site. Field investigations for the delineation study were conducted on June 30, 2022 by The Watershed Company ecologists: Sam Payne (PWS #3323 and ISA Certified Arborist #PN-8789A) and Devin Melville. Information regarding geologic hazard areas was obtained from public databases and does not include review from a geologist or geotechnical engineer.

2.1 Methods

The study area was evaluated for wetlands using methodology from the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (U.S. Army Corps of Engineers 2010). Presence or absence of wetlands was determined on the basis of an examination of vegetation, soils and hydrology. These parameters were sampled at several locations along the wetland boundary to determine the wetland edge. Wetlands were classified using the Department of Ecology's *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby 2014).

Characterization of climatic conditions for precipitation in the Wetland Determination Data Forms were determined using the WETS table methodology (USDA, NRCS 2015). The "Seattle Tacoma Intl AP" station was used as a source for precipitation data, with normals established from 1991-2020 (http://agacis.rcc-acis.org/). The WETS table methodology uses climate data from the three months prior to the site visit month to determine if normal conditions are present in the study area region.

The study area was evaluated for streams based on the presence or absence of an ordinary high water mark (OHWM) as defined by Section 404 of the Clean Water Act, the Washington Administrative Code (WAC) 220-660-030, and the Revised Code of Washington (RCW) 90.58.030 and guidance documents including *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson 2016) and *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (Mersel 2014).

The location of all delineation flags including wetlands, streams, and retaining walls were collected in the field using a Trimble GeoXH handheld unit. The data was differentially corrected using Trimble Pathfinder Office software to further increase position accuracy. GPS data is believed reliable for general planning and most regulatory purposes. However, accuracy

is variable and should not be considered equivalent to a professional land survey. No warranty is expressed or implied.

The pruned significant tree subject to the violation in the study area was identified and assessed in the field using a Level I Visual Assessment according to International Society of Arboriculture (ISA) standards to collect species name (scientific and common), number of stems, diameter, estimated height, crown radius, age, condition, potential for merchantability, and general assessment notes.

Public-domain information on the subject property was reviewed; resources and review findings are presented below.

2.2 Public Information Review

Public databases were reviewed to obtain information regarding the presence of critical areas on the subject property. A summary of this information is provided below in Table 1.

Table 1. Summary of online mapping and inventory resources.

Resource	Summary
USDA NRCS: Web Soil Survey	*Alderwood gravelly sandy loam and Arents, Alderwood material; these classifications are non-hydric but contain minor components of hydric soil units*
USFWS: NWI Wetland Mapper	*Riverine habitat: R4SBC*
WDFW: PHS on the Web	*Sunset Creek has documented presence of coho salmon*
WDFW & NWIFC: Statewide Washington Integrated Fish Distribution	*Sunset Creek has documented presence of coho salmon*
King County iMap	*Sunset Creek flows through the subject property, erosion hazard is noted as a notice on title*
City of Bellevue maps	*Sunset Creek flows through the subject property, the banks along the western edge of Sunset Creek are mapped as a steep slope hazard area*
WETS Climatic Condition	*Wetter than normal*

2.3 Streams

One stream, Sunset Creek, is present on the subject property. Sunset Creek has documented fish presence, including Coho salmon, which qualifies it as a Type F water. No ESA-listed salmonids are documented as currently inhabiting the stream. Within the property, Sunset Creek is approximately 10 feet in width and is armored and channelized by a concrete modular block

wall. There is minimal channel complexity and stream conditions are generally consistent throughout the site. Streambed substrate is primarily unconsolidated fine sediments and high amounts of silts. Sunset Creek is believed to be permanently flowing and contains riverine wetlands within the OHWM that have accumulated organic matter in soils on low terraces that appear to flood frequently. Sunset Creek enters the site through a culvert form the east and exits the site through a culvert to the west. The western culvert spans approximately 340 feet before resurfacing and soon angles to a northerly direction where it crosses I-90 and eventually flows into the Mercer Slough and Lake Washington. The OHWM was delineated and marked on both sides of the Sunset Creek blue and white striped flags labeled WMA-1L through WMA-18L (left bank) and WMA-1R through WMA-18R (right bank).

Figure 2. Sunset Creek.

2.4 Wetlands

One wetland, Wetland A, was identified on the subject property that is located within the Sunset Creek stream channel. Summary characteristics of Wetland A is provided below in Table 2.

Table 2. Wetland A assessment summary.

WETLAND A – Assessment Summary

Location:	Within the channel of Sunset Creek
WRIA / Sub-basin:	WRIA 8 / Mercer Slough sub-basin

2014 Western WA Ecology Rating:	Category III
Buffer Width and Structure Setback:	Buffer: 110 Feet Structure setback: 15 Feet
Wetland Size:	1,866 feet
Cowardin Classification(s):	Emergent
HGM Classification(s):	Riverine
Wetland Data Sheet(s):	DP-1
Upland Data Sheet (s):	DP-2
Flag Color:	Pink and black stripe
Flag Numbers:	A1 through A4

Vegetation	Tree stratum:	n/a
	Shrub stratum:	n/a
	Herb stratum:	Water parsley, watercress, American veronica, reed canarygrass
Soils	Soil survey:	Alderwood gravelly sandy loam and Arents and Alderwood material
	Field data:	Redox dark surface
Hydrology	Source:	Sunset Creek
	Field data:	Surface water, high water table, saturation

Wetland Functions

	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	M	**L**	H	**M**	L	H	M	**L**	
Landscape Potential	**H**	M	L	**H**	M	L	H	M	**L**	
Value	H	M	**L**	**H**	M	L	**H**	M	L	**TOTAL**
Score Based on Ratings		5			8			5		18

Description and Comments

The Wetland A boundary is coincident with the Sunset Creek boundary except as designated by Flags A1, A2, A3, and A4 which connect to the nearest exteriorly located OHWM flags.

2.5 Geologic Hazard Areas

Geologic hazard areas include landslide hazard areas, steep slopes, coal mine hazard areas, and seismic hazard ares (LUC 20.25H.025). The Bellevue Map Viewer's steep slope layer depicts a narrow area of steep slopes along the banks of Sunset Creek; however, these slopes don't exceed 10 feet in height. This steep slope layer is created city-wide model that may not suitable for site-level planning.

2.6 Habitats Associated with Species of Local Importance

Bellevue has designated the habitats of 23 species of local importance as critical areas (LUC 20.25H.150). "Habitats includes areas of high relative density or species richness, breeding Habitat, winter range, and movement corridors," but does not generally include areas where species use on a transitory basis, or are part of the home range of a habitat generalist. Aquatic habitat is suitable for one species of local importance, coho salmon. Aquatic habitat is low quality for other species such western pond turtle, western toad, bull trout, and river lamprey. Other species such as pileated woodpecker and bats (Townsend's big-eared bat[1], Keen's myotis, long-legged myotis, and long-eared myotis), may use the property for foraging and other movements that are not critical to the species' life history requirements.

2.7 Frequently Flooded Areas

The FEMA designated 100-year floodplain associated with Sunset Creek encompasses most of the western area of the property.

3. Regulations

Critical areas in Bellevue are regulated according to the Critical Areas Overlay District code (LUC 20.25H).

Stream buffers are determined on the basis of stream type classification and whether a site is developed or undeveloped. The standard buffer is 50 feet for a Type F stream on a developed site, such as Sunset Creek (LUC 20.25H.075.C). Stream buffers in Bellevue are measured from the top-of-bank. Since the bank of Sunset Creek is armored with a vertical modular concrete wall the OHWM is equivalent to the top of bank[2]. Structure setback for stream buffers is 50 feet (LUC 20.25H.075.D).

[1] Synonymous to western big-eared bat
[2] OWHM data collected is based on a horizontal plane and does not include elevation data.

Wetland A is classified as Category III with a habitat score of 5 and has a standard buffer of 110 feet (LUC 20.25H.095.D). Structure setbacks for Category III wetlands are 15 feet (LUC 20.25H.095.E).

For developed sites such as the subject property which are established prior to 2006, buffers and structure setbacks are modified to exclude the footprint of the existing primary structure (LUC 20.25H.035.B). No development is allowed within critical areas or their buffers except for defined allowed uses (LUC 20.25H.050.B.2). Based on the extent of the wetland and stream, the entire site is within a buffer or setback with the exception of areas excluded due to preexisting footprints.

4. Project Description and Impact Assessment

4.1 Project Activities

The Project involved additions to existing concrete block walls, new concrete block walls, and pruning of a large black cottonwood tree (*Populus trichocarpa*). Each of these activities are described in detail below.

The concrete block walls are located are along the banks of Sunset Creek and adjacent upslope terraces. See Sheet 1 of the Mitigation Plan for a map of these locations (Appendix A). Records indicate that project activities were completed in May of 2019.

The concrete block walls which line the stream channel vertically expand existing stream channel armoring. New and old blocks can be distinguished by clearly evident discoloration and moss accumulation (Figure 3). The height of new concrete blocks added is variable throughout the property, generally ranging from one to six new blocks tall. Fine grading appears to have been completed behind walls to backfill and smooth the transition. We were unable to obtain records or photos of what the grade was prior to disturbance.

There are three retaining walls upslope from the stream, one to the north and two to the south. Together with the concrete block walls along the stream channel these create small terraces that are roughly flat between walls (Figure 3). Much of the uppermost walls on both the north and south side appear to be largely of new construction, but connect to areas with some pre-existing concrete blocks. The middle wall south of Sunset Creek was pre-existing with one new layer of blocks added.

Figure 3. Concrete block wall along stream channel with three new layers and clearly distinguished by discoloration and moss accumulation.

Figure 4. Three levels of concrete block walls including the stream channel, middle level, and upper level. The upper level appears to be of entirely new construction.

The pruned tree is a very large black cottonwood that measures 52 inches diameter at breast height (DBH) and the height is visibly estimated at 90 feet (Figure 5 & 6). The tree has experienced severe canopy dieback and is functionally dead except for one small live branch. Large pruning cuts are visible which have removed most of, but not all of, the pre-existing canopy. Black cottonwood tree wood decays rapidly and many of the upper branches are in advanced stages of decay. The single remaining scaffold branch and other stubs from cut branches have visible rot and fruiting fungal bodies. Northern flickers have excavated a nesting cavity near a pruning cut. Heavy growth of English ivy extends along the trunk to the lower extremities of canopy scaffold branches. English ivy along the trunk has been mostly cut, but not entirely removed. Although whole-tree failure does not appear to be likely or imminent, failure of large canopy branches poses a risk to human health and infrastructure. Hazard mitigation is discussed in the mitigation plan.

Figure 5. Trunk of the pruned black cottonwood. There is heavy growth of English ivy which has been cut at the base but not removed.

Figure 6. Trunk of the pruned black cottonwood. There is heavy growth of English ivy which has been cut at the base but not removed.

4.2 Impact Analysis

The pruning of a significant tree has led to near mortality and entire loss of the upper canopy. Many of the functions which trees provide to streams have been lost, such as shading, rainwater capture, and the uptake of nutrients and pollutants. We also recognize that dead trees are not entirely without function and are important as habitat for many wildlife species. Snags are used by a wide variety of birds and other small animals which occupy cavities or prey on insects. Tree mortality also increases recruitment of large woody debris to streams once fallen, which is a limiting instream habitat resource in certain areas. The tree currently has a nesting cavity which was probably created by northern flickers.

Armoring along a stream is impactful to several instream processes such as interruption of floodplain connectivity, loss of habitat, and influences on sedimentation and erosion. However, concrete block walls already armored Sunset Creek prior to the Project and the vertical additions likely have minimal effect to instream processes. The elevation of new blocks installed are generally above the OHWM and did not result in a loss of vegetation. The grade change involved in backfilling these additions likely had minimal impacts. All activities associated with

increasing the height of the other upslope retaining walls likely has minimal impacts because it does not result in a reduction of vegetated buffer area.

The environmental effects of terraces are not well understood, although recent research suggests that they are responsible for both advantages and disadvantages (Deng et al. 2021). One positive function is that terraces and associated retaining walls could reduce erosion and runoff. However, the retaining walls have a physical footprint which reduces the total vegetated area. Walls can affect animal movement; however, the site is located in a highly urbanized and fragmented setting and is similar in character to nearby areas.

4.3 Mitigation Sequencing

Since the project involves a violation which occurred prior to permit approval the avoidance and minimization components of mitigation sequencing are not applicable. Mitigation and monitoring are provided to compensate for project impacts as discussed in Section 5 – Mitigation Plan.

5. Mitigation Plan

A mitigation plan has been developed to compensate for impacts from the Project to the stream and stream/wetland buffers. The property will be restored to pre-disturbance conditions by removing the newly installed concrete blocks and enhancing an area of the stream/wetland buffer. The 1,849 square-foot mitigation area is larger than needed for compensation for a single tree but is proposed to compensate for temporal loss, and as a practical measure to stabilize soils which will be regraded. A small portion of the mitigation area is wetland enhancement. A mitigation plan set is provided in Appendix A which includes additional information on goals and performance standards, monitoring methods, maintenance, work sequence, material specifications, and contingency.

5.1 Rock wall Restoration, Clearing, and Grading

All newly installed concrete blocks are to be removed, disposed or repurposed off-site or outside of critical areas and critical area buffers. Following removal of new concrete blocks, the area will be cleared of vegetation and regraded to pre-existing conditions. Existing vegetation consists nearly entirely of non-native weedy species. Backfilled soils behind retaining walls are to be graded to create a natural slope or to pre-existing grade. No soils will be imported or exported from the site. If heavy machinery is used, then all areas will be decompacted prior to plant installation and tree protection measures will be implemented. All retaining wall restoration and grading will occur in the dry season to reduce erosion. Following final grading soils will be stabilized and revegetated with a native grass seed mix. No grading or other soil disturbing activities will occur in the wetland, or otherwise below the lowest retaining walls.

Any temporary disturbance areas will be restored to with native grass seed mix if they occur. All temporary impacts will be limited to the minimum needed to complete the work.

5.2 Soil Stabilization

Following grading, mulch will be added across the entire stream/wetland buffer enhancement area to a depth of 2-4 inches and covered with jute or coir mesh that is secured to the ground with garden staples or wood stakes.

5.3 Native Plant Installation

A total of 70 native container plants will be installed in the stream/wetland buffer enhancement area. Of these, there are nine replacement trees of species which are large in stature and comparable to the pruned black cottonwood; Sitka spruce, western redcedar, and bigleaf maple. In addition, five small cascara trees will be installed. There will be 56 installed shrubs spaced six feet on-center which include black hawthorn, red-osier dogwood, Pacific ninebark, red elderberry, Nootka rose, and snowberry. Plants are to be installed by cutting a hole through the mesh fabric and placing in a hole 2-3 times the width of the container.

5.4 Snag Retention

We propose retaining the black cottonwood as a snag at a safe height. The wood of black cottonwood rapidly decays and will be a hazard to human health and property if unmitigated. This can be accomplished by topping the tree at a height of approximately 30 feet and roughing the top edge to have a natural appearance, just above the northern flicker nest cavity. Heights were visually estimated and will need to be field verified by the contractor. Reducing the tree to this height will decrease loading and the retained snag is expected to be stable. It is also of sufficient distance to structures observed during the site visit that a fall of the snag would be unlikely to cause significant property damage.

Snag Retention Disclaimer: Although the information in this report is based on sound methodology, internal physical flaws (such as cracking or root rot) or other conditions that are not visible cannot be detected with this limited basic visual screening. Trees are inherently unpredictable. Even vigorous and healthy trees can fail due to high winds, heavy snow, ice storms, rain, age, or other causes. This report is based on the current observable conditions and may not represent future conditions of the trees. Changes in site conditions, including clearing and grading, will alter the condition of remaining trees in a way that is not predictable.

5.5 Monitoring

The mitigation site will be monitored for a period of three years until all performance standards have been achieved. The monitoring period will begin following the acceptance of a completed as-built. Monitoring methods and criteria are included in the mitigation plan (Appendix A).

5.6 Functional Lift Analysis

The mitigation plan is anticipated to result in a net improvement to ecological function. As compensation for temporal loss, a mitigation area is provided that well exceeds the footprint of the lost tree. With nine large replacement trees the total future canopy area will be larger than the existing tree even when accounting for mortality. While it will take a long time for trees to mature, shrubs are provided on either side of the stream which will contribute to significant shading within a few years. The shrub understory is also an important forest habitat component which is largely absent at the site and will provide habitat for a variety of species which use riparian areas, such as certain birds which nest in dense shrub thickets. Allochthonous inputs from a dense shrub riparian area are also important to instream food webs. Additionally, the black cottonwood snag will be retained on-site and provide habitat for primary cavitis excavators such as woodpeckers and secondary users such as other small mammals and birds.

Once new concrete blocks are removed from retaining walls and regraded the ecological function will be equivalent to pre-existing conditions. Together this mitigation within the stream/wetland buffer enhancement is anticipated to improve ecological function.

5.7 Timing of Work

Work may commence once authorized by the City of Bellevue, which is anticipated in 2023. Land disturbing work including the concrete block removal and grading will occur in the seasonal dry period, or otherwise if approved by Bellevue with appropriate TESC measures. Plants will be installed during the winter dormant period, approximately November through March which yields optimal survival.

6. Code Compliance

This critical areas report and mitigation plan was designed to meet the requirements of the LUC 20.25H Article 11 and Article 12, *General Mitigation and Restoration Requirements* and *Critical Areas Report*. All code requirements are addressed including mitigation sequencing, restoration and mitigation project details, timing of work, monitoring program, restoration of temporary impacts, and contingency plan. The critical areas report meets the purpose of LUC 20.25H.230, 20.25H.245, and 20.25H.250 by providing equivalent or better protection of critical area functions and values, incorporating best available science, and meeting the critical areas report minimum requirements.

7. Conclusions

The proposed mitigation plan will improve ecological function of streams, wetlands, and associated buffers on the property compared to pre-existing conditions and remove all unpermitted retaining walls. This is believed to remove and resolve all outstanding site modifications which has resulted in prior violations and code enforcement.

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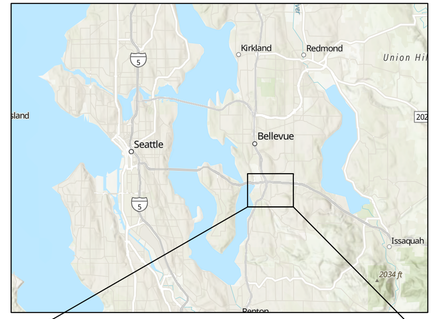
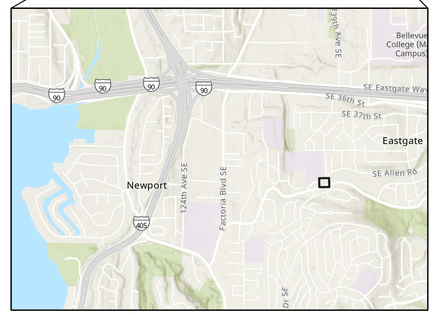
Appendix A

MITIGATION PLAN





VICINITY MAPS

LEGEND

- DATA POINTS
- PRUNED TREE
- SUNSET CREEK DELINEATED OHWM
- SUNSET CREEK NON-DELINEATED OHWM
- RECENTLY MODIFIED RETAINING WALLS
- TOPOGRAPHY (5-FOOT CONTOURS)
- KING COUNTY PARCELS
- DELINEATED WETLANDS

NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY ON JUNE 21, 2022.

2. DELINEATION FLAGS LOCATED WITH GPS ON GPS DATA DISPLAYED ON THIS MAP WAS COLLECTED IN THE FIELD USING A TRIMBLE GEOXH HAND HELD UNIT. THE DATA WAS DIFFERENTIALLY CORRECTED USING TRIMBLE PATHFINDER OFFICE SOFTWARE TO FURTHER INCREASE POSITION ACCURACY. GPS DATA IS BELIEVED RELIABLE FOR GENERAL PLANNING AND MOST REGULATORY PURPOSES. HOWEVER, ACCURACY IS VARIABLE AND SHOULD NOT BE CONSIDERED EQUIVALENT TO A PROFESSIONAL LAND SURVEY. NO WARRANTY IS EXPRESSED OR IMPLIED.

3. "PRUNED TREE" IS A BLACK COTTONWOOD (POPULUS TRICHOCARPA) THAT WAS PRUNED SEVERLY IN 2019 AND SINCE DECLINED AND NEAR DEAD.

4. BUFFERS/SETBACKS NOT SHOWN, AS ALL IMPACTS ARE ASSUMED TO OCCUR WITHIN STANDARD BUFFERS/SETBACKS

0 10 20 30 40 Feet

N

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PM: KB
DRAWN BY: SP
REVIEWED BY: KB
JOB NO.: 220604
DATE: 7/25/2022

REVISIONS

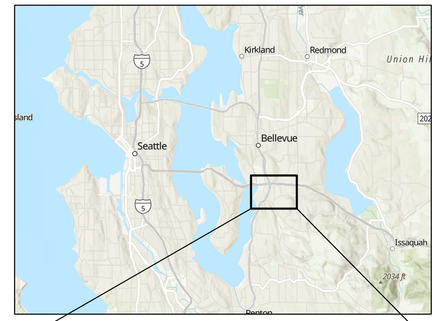
NO.	DESCRIPTION	DATE
1	PERMIT SET	7/25/2022

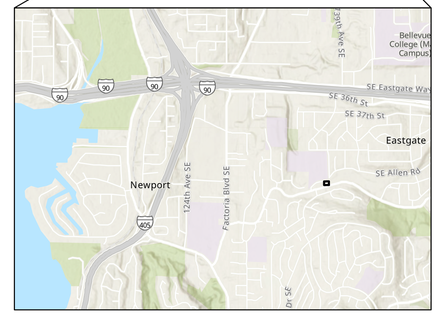
NOT FOR CONSTRUCTION

SCHEMATIC DESIGN

7/25/2022

EXISTING CONDITIONS & IMPACTS





LEGEND

- SUNSET CREEK DELINEATED OHWM
- SUNSET CREEK NON-DELINEATED OHWM
- KING COUNTY PARCELS
- RETAINING WALLS TO BE RESTORED
- MITIGATION AREA
- DELINEATED WETLANDS

NOTES

1. REMOVE ALL NEW RETAINING WALL BLOCKS AND REGRADE SLOPE TO PRE-EXISTING CONDITIONS. THE NEW RETAINING WALL BLOCKS ARE DISTINCT FROM OLDER BLOCKS BY DARKENING AND MOSS ACCUMULATION.

2. TOP THE DYING BLACK COTTONWOOD AT APPROXIMATELY 30 FEET TO RETAIN WILDLIFE HABITAT AND MAINTAIN SAFETY. IF RESPROUTING OCCURS TREE MAY BE GIRDLED OR INJECTED WITH HERBICIDE. REPLACEMENT TREES WILL REPLACE SITE FUNCTION AND BE MORE COMPTABLE WITH RESIDENTIAL AREAS.

3. PROPOSED STREAM/WETLAND BUFFER ENHANCEMENT AREA TOTALS 1,849. MITIGATION PLANTING ALONG THE STREAM WILL EVENTUALLY IMPROVE STREAM SHADING AND BUFFER FUNCTION COMPARED TO PRE-EXISTING CONDITIONS.

0 5 10 15 20 Feet

N

PLANT LIST

COMMON NAME	SCIENTIFIC NAME	QUANTITY	SPACING (O.C.)	SIZE	PLACEMENT NOTES
WESTERN REDCEDAR	THUJA PLICATA	3	>10'	1 GALLON	>20 FEET FROM STRUCTURES
SITKA SPRUCE	PICEA SITCHENSIS	3	>10'	1 GALLON	>20 FEET FROM STRUCTURES
BIGLEAF MAPLE	ACER MACROPHYLLUM	3	>10'	1 GALLON	>20 FEET FROM STRUCTURES
CASCARA	FRANGULA PUSHIANA	5	>10'	1 GALLON	SHADE / PART SHADE
BLACK HAWTHORN	CRATAEGUS DOUGLASII	6	6'	1 GALLON	DOWNSLOPE
RED-OSIER DOGWOOD	CORNUS SERICEA	10	6'	1 GALLON	DOWNSLOPE
PACIFIC NINEBARK	PHYSOCARPUS CAPITATUS	10	6'	1 GALLON	DOWNSLOPE
RED ELDERBERRY	SAMBUCUS RACEMOSA	10	6'	1 GALLON	UPSLOPE
NOOTKA ROSE	ROSA NUTKANA	10	6'	1 GALLON	UPSLOPE
SNOWBERRY	SYMPHORICARPOS ALBUS	10	6'	1 GALLON	UPSLOPE

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REVISIONS

NO.	DESCRIPTION	DATE
1	PERMIT SET	7/25/2022

NOT FOR CONSTRUCTION

SCHEMATIC DESIGN

7/25/2022

MITIGATION PLAN

MITIGATION PLAN

THIS MITIGATION PLAN HAS BEEN DEVELOPED TO ENHANCE THE WETLAND AND STREAM BUFFER AT THE LUO RESIDENCE AND REMOVE NEW ROCKWALL STRUCTURES, AND RESULT IN A NET IMPROVEMENT OF ECOLOGICAL FUNCTION OVER TIME. SEE ASSOCIATED CRITICAL AREAS REPORT FOR ADDITIONAL INFORMATION.

MAINTENANCE AND MONITORING PLAN

THE SITE SHALL BE MAINTAINED AND MONITORED FOR three YEARS FOLLOWING SUCCESSFUL INSTALLATION. COMPONENTS OF THE 3-YEAR MAINTENANCE AND MONITORING PLAN ARE DETAILED BELOW.

GOALS

1. PROVIDE ADEQUATE COMPENSATION FOR LOSSES AND DEGRADATION TO STREAM AND WETLAND CRITICAL AREA BUFFERS THAT OCCURRED AT THE IMPACT SITE.
2. IMPROVE THE ECOLOGICAL FUNCTIONS AND SERVICES OF WETLAND AND STREAM CRITICAL AREAS AND THEIR BUFFERS.

PERFORMANCE STANDARDS

THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE INSTALLATION OVER TIME. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 3, THE SITE WILL THEN BE DEEMED SUCCESSFUL AND THE PERFORMANCE SECURITY BOND WILL BE ELIGIBLE FOR RELEASE BY THE CITY OF BELLEVUE.

1. **SURVIVAL** (*SURVIVAL STANDARDS MAY BE ACHIEVED THROUGH ESTABLISHMENT OF PLANTED MATERIAL, RECRUITMENT OF NATIVE VOLUNTEERS, OR REPLACEMENT PLANTS AS NECESSARY*).
   A. ACHIEVE 100% SURVIVAL OF ALL INSTALLED TREES AND SHRUBS BY THE END OF YEAR ONE.
   B. ACHIEVE 80% SURVIVAL OF ALL INSTALLED SHRUBS AND 100% SURVIVAL OF ALL INSTALLED CONIFERS BY THE END OF YEAR TWO.
2. **NATIVE PLANT COVER** (*COVER STANDARDS MAY INCLUDE INSTALLED PLANTS, VOLUNTEER PLANTS, AND EXISTING UNDERSTORY VEGETATION. PRE-EXISTING TREES ARE NOT INCLUDED AS COVER FOR THE PURPOSE OF THIS PERFORMANCE STANDARD*).
   A. ACHIEVE 50% AREAL COVER OF NATIVE WOODY VEGETATION BY YEAR 3.
3. **PLANT DIVERSITY**: ESTABLISH AT LEAST TREE NATIVE TREE AND FOUR NATIVE SHRUB SPECIES BY YEAR 3 AND MAINTAIN THIS DIVERSITY THROUGH YEAR 3. VOLUNTEER AND LEGACY PLANTS MAY COUNT TOWARD THIS STANDARD.
4. **INVASIVE PLANT COVER**: AREAL COVER FOR INVASIVE PLANTS WILL NOT EXCEED 10% AT ANY YEAR DURING THE MONITORING PERIOD. INVASIVE PLANTS INCLUDE THOSE DESIGNATED BY THE KING COUNTY NOXIOUS WEED BOARD. REED CANARYGRASS IS ALLOWED AS LONG NO MONOCULTURES ARE PRESENT WHICH ARE 100 SQUARE FEET OR GREATER.

MONITORING METHODS

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH THE SITE IS MEETING THE PERFORMANCE STANDARDS OUTLINED IN THE PRECEDING SECTION.

AN AS-BUILT PLAN WILL BE PREPARED BY THE RESTORATION PROFESSIONAL PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN WILL BE A MARK-UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET. THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE PROPOSED PLAN.

MONITORING WILL TAKE PLACE ONCE ANNUALLY IN THE FALL FOR THREE YEARS. YEAR-1 MONITORING WILL COMMENCE IN THE FIRST FALL SUBSEQUENT TO INSTALLATION. THE FORMAL MONITORING VISIT SHALL RECORD AND REPORT THE FOLLOWING IN AN ANNUAL REPORT SUBMITTED TO THE CITY OF BELLEVUE:

1. VISUAL ASSESSMENT OF THE OVERALL SITE.
2. YEAR-1 AND YEAR-2 COUNTS OF LIVE AND DEAD PLANTS BY SPECIES.
3. COUNTS OF DEAD PLANTS WHERE MORTALITY IS SIGNIFICANT IN ANY MONITORING YEAR.
4. ESTIMATE OF NATIVE COVER IN THE MITIGATION AREA.
5. ESTIMATE OF NON-NATIVE, INVASIVE WEED COVER IN THE MITIGATION AREA.
6. TABULATION OF ESTABLISHED NATIVE SPECIES, INCLUDING BOTH PLANTED AND VOLUNTEER SPECIES.
7. PHOTOGRAPHIC DOCUMENTATION FROM AT LEAST THREE FIXED REFERENCE POINTS.
8. ANY INTRUSIONS INTO OR CLEARING OF THE PLANTING AREAS, VANDALISM, OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE MITIGATION AREA.
9. RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE MITIGATION AREA.

MAINTENANCE

THE SITE WILL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING INSTRUCTIONS FOR AT LEAST THREE YEARS FOLLOWING COMPLETION OF CONSTRUCTION:

1. FOLLOW THE RECOMMENDATIONS NOTED IN THE PREVIOUS MONITORING SITE VISIT.
2. GENERAL WEEDING FOR ALL PLANTED AREAS:
   A. AT LEAST TWICE YEARLY, REMOVE ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AT LEAST TWICE DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY, LOWER PLANT REPLACEMENT COSTS, AND INCREASED LIKELIHOOD THAT THE PLAN MEETS PERFORMANCE STANDARDS BY YEAR 3.
   B. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLANT INSTALLATION.
   C. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER/WEED EATER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
   D. SELECTIVE APPLICATIONS OF HERBICIDE MAY BE NEEDED TO CONTROL INVASIVE WEEDS, ESPECIALLY WHEN INTERMIXED WITH NATIVE SPECIES. HERBICIDE APPLICATION, WHEN NECESSARY, SHALL BE CONDUCTED ONLY BY A STATE-LICENSED APPLICATOR.
3. REPLACE MULCH AS NECESSARY TO MAINTAIN A 4-INCH-THICK LAYER, RETAIN SOIL MOISTURE, AND LIMIT WEEDS.
4. REPLACE EACH PLANT FOUND DEAD IN THE SUMMER MONITORING VISITS DURING THE UPCOMING DORMANT SEASON (OCTOBER 15 TO MARCH 1), FOR BEST SURVIVAL.
5. THE PROPERTY OWNER WILL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 1 INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION, THROUGH THE OPERATION OF A TEMPORARY IRRIGATION SYSTEM. LESS WATER IS NEEDED DURING MARCH, APRIL, MAY AND OCTOBER.

GENERAL WORK SEQUENCE

SITE PREPARATION

1. MANUALLY CLEAR INVASIVE AND NON-NATIVE VEGETATION FROM MITIGATION AREA DURING SPRING AND/OR SUMMER MONTHS (I.E., AVOID CREATING EXPOSED SOIL CONDITIONS DURING THE WINTER STORM SEASON).
   A. REMOVE NEW RETAINING WALL STONES AND REGRADE SLOPE TO PRE-EXISTING GRADE.
   B. REMOVE INVASIVE SPECIES (I.E., HIMALAYAN BLACKBERRY, ENGLISH IVY), IN ACCORDANCE WITH KING COUNTY NOXIOUS WEED BEST MANAGEMENT PRACTICES. FOR MORE INFORMATION: HTTPS://WWW.KINGCOUNTY.GOV/SERVICES/ENVIRONMENT/ANIMALS-AND-PLANTS/NOXIOUS-WEEDS.ASPX.
   C. RETAIN SNAG WITH TOPPING CUT AT 30 FEET ABOVE GROUND SURFACE AND ROUGHING TOP WITH A CHAINSAW TO APPEAR NATURAL.
   D. FLUSH-CUT ORNAMENTAL WOODY VEGETATION (E.G. ENGLISH HOLLY, NON-NATIVE APPLE OR PLUM) THROUGHOUT MITIGATION AREA AND IMMEDIATELY TREAT STEM (DAUBING OR PAINTING) WITH APPROPRIATE HERBICIDE. PERSON APPLYING HERBICIDE SHALL BE STATE-LICENSED. DO NOT REMOVE SUBSURFACE ROOTS.
   E. AVOID AND MINIMIZE DISTURBANCE AND/OR COMPACTION TO ROOTS OF ESTABLISHED NATIVE TREES TO BE RETAINED WHEN REMOVING VEGETATION FROM WITHIN TREE DRIPLINES.
2. BLANKET-MULCH CLEARED AREAS INCLUDING STEEP SLOPES WITH WOOD MULCH, FOUR INCHES THICK.
   A. ENSURE MULCH DOES NOT TOUCH STEMS OF EXISTING (OR INSTALLED) VEGETATION.
3. INSTALL COIR OR JUTE MESH ON CLEARED STEEP SLOPE MITIGATION AREAS.

MITIGATION PLANTING AND IRRIGATION

1. INSTALL MITIGATION PLANTS DURING THE DORMANT SEASON (OCTOBER 15 – MARCH 1).
   A. PREPARE A PLANTING PIT FOR EACH PLANT THROUGH BLANKET WOOD MULCH AND GEOTEXTILE FABRIC AND INSTALL PER THE PLANTING DETAILS.
2. INSTALL A TEMPORARY, ABOVE GROUND IRRIGATION SYSTEM TO PROVIDE FULL COVERAGE TO ALL INSTALLED PLANTS WITHIN THE RESTORATION AREA.

MATERIAL SPECIFICATIONS AND DEFINITIONS

1. IRRIGATION SYSTEM: AUTOMATED SYSTEM CAPABLE OF DELIVERING AT LEAST ONE INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
2. RESTORATION PROFESSIONAL: WATERSHED COMPANY [(425) 822-5242] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
3. WOODCHIP MULCH: “ARBORIST CHIPS” (CHIPPED WOODY MATERIAL) APPROXIMATELY ONE TO THREE INCHES IN MAXIMUM DIMENSION (NOT SAWDUST). THIS MATERIAL IS COMMONLY AVAILABLE IN LARGE QUANTITIES FROM ARBORISTS OR TREE-PRUNING COMPANIES. MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/DEMOLITION DEBRIS. A MINIMUM OF 95 PERCENT OF THE WOOD STRAND SHALL HAVE LENGTHS BETWEEN 2 AND 10 INCHES. AT LEAST 50 PERCENT OF THE LENGTH OF EACH STRAND SHALL HAVE A WIDTH AND THICKNESS BETWEEN 1/16 AND ½ INCH. NO SINGLE STRAND SHALL HAVE A WIDTH OR THICKNESS GREATER THAN ½ INCH. THE MULCH SHALL NOT CONTAIN SALT, PRESERVATIVES, GLUE, RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO PLANT LIFE. SAWDUST OR WOOD CHIPS OR SHAVINGS WILL NOT BE ACCEPTABLE. THIS PRODUCT SHALL NOT BE HARMFUL TO PLANTS, ANIMALS, OR AQUATIC LIFE.

CONTINGENCIES

IF THERE IS A SIGNIFICANT PROBLEM WITH THE RESTORATION AREAS MEETING PERFORMANCE STANDARDS, A CONTINGENCY PLAN WILL BE DEVELOPED AND IMPLEMENTED. CONTINGENCY PLANS CAN INCLUDE, BUT ARE NOT LIMITED TO: SOIL AMENDMENT, ADDITIONAL PLANT INSTALLATION, AND PLANT SUBSTITUTIONS OF TYPE, SIZE, QUANTITY, AND LOCATION.

THE WATERSHED COMPANY
SCIENCE & DESIGN
750 6TH STREET SOUTH
KIRKLAND WA 98033
425.822.5242
WWW.WATERSHEDCO.COM

PROJECT:
LUO RESIDENCE
13724 SE NEWPORT WAY
BELLEVUE, WA 98006

PRINCIPLE: KB
PM: KB
DRAWN BY: SP
REVIEWED BY: KB
JOB NO.: 220604
DATE: 7/25/2022

REVISIONS

NO.	DESCRIPTION	DATE
1	PERMIT SET	7/25/2022

NOT FOR CONSTRUCTION
SCHEMATIC DESIGN
7/25/2022

MITIGATION NOTES

Appendix B

WETLAND DETERMINATION DATA FORMS

THE WATERSHED COMPANY

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

DP - 1

Project/Site: Luo Residence | City/County: Bellevue / King | Sampling date: 6-21-22

Applicant/Owner: Yueqiang Luo | State: WA | Sampling Point: DP-1

Investigator(s): S. Payne | Section, Township, Range: S15, T24N, R05E

Landform (hillslope, terrace, etc): Stream channel | Local relief (concave, convex, none): Concave | Slope (%): 5%

Subregion (LRR): A | Lat: - | Long: - | Datum: -

Soil Map Unit Name: Arets, Alderwood material | NWI classification: R4SBC

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 on the site? ☒ 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 Soils Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Wetter than normal, pet WETS.**

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5-m diameter)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 1-m diameter)			
1. *Oenanthe sarmentosa*	15	Y	OBL
2. *Veronica americanum*	10	Y	OBL
3. *Nasturtium officinale*	10	Y	OBL
4. *Phalaris arundinacea*	5	N	FACW
5. *Ranunculus repens*	5	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	45	= Total Cover	
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum: 65

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 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:

SOIL

Sampling Point: DP-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Mucky silt loam	
6+	2.5Y 3/1	85	10YR 3/6	15	C	M	Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: 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]:

- ☐ 2cm 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: Compacted

Depth (inches): 6”

Hydric soil present? **Yes** ☒ **No** ☐

Remarks: Could not dig beyond six inches but layer is expected to be deep enough to meet hydric soil criteria for Redox Dark Surface.

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 (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 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

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (in):		
Water Table Present?	Yes ☒	No ☐	Depth (in):	**0”**	
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (in):	**0”**	

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

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

Remarks:

THE WATERSHED COMPANY

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

DP - 2

Project/Site: Luo Residence | City/County: Bellevue / King | Sampling date: 6-21-22

Applicant/Owner: Yueqiang Luo | State: WA | Sampling Point: DP-2

Investigator(s): S. Payne | Section, Township, Range: S15, T24N, R05E

Landform (hillslope, terrace, etc): Terrace, lawn | Local relief (concave, convex, none): None | Slope (%): 5%

Subregion (LRR): A | Lat: - | Long: - | Datum: -

Soil Map Unit Name: Arets, Alderwood material | NWI classification: None

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 on the site? ☒ 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 Soils Present?	Yes	☐	No	☒	
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: **Wetter than normal, pet WETS.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Corylus cornuta*	15	Y	FACU
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 1-m diameter)			
1. Poaceae	80	Y	FAC*
2. *Oenanthe sarmentosa*	10	N	OBL
3. *Ranunculus repens*	5	N	FAC
4. *Hypochaeris radicata*	5	N	FACU
5. *Hedera helix*	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	105	= Total Cover	
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 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: *Presumed indicator for mowed grass unidentifiable to species. Water parsley spread from wetland but is in poor health and not well representative of non-wetland conditions.

SOIL

Sampling Point: DP-2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	100					Gravelly sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: 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]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 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

Field Observations:

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

Water Table Present? Yes ☐ No ☒ Depth (in): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in): _____

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

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

Remarks:

Appendix C

WETLAND RATING FORMS AND FIGURES

Wetland name or number: Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #):Wetland A Date of site visit: 6/21/2022

Rated by: S. Payne Trained by Ecology? ☒Y ☐N Date of training: June 2017

HGM Class used for rating: Riverine Wetland has multiple HGM classes? ☐Y ☒N

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

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

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
										Circle the appropriate ratings
Site Potential	H	M	**L**	H	**M**	L	H	M	**L**	
Landscape Potential	**H**	M	L	**H**	M	L	H	M	**L**	
Value	H	M	**L**	**H**	M	L	**H**	M	L	**TOTAL**
Score Based on Ratings	5			8			5			18

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland A

Maps and figures required to answer questions correctly for Western Washington

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Ponded depressions	R 1.1	2
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	2
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	1
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	2
Map of the contributing basin	R 2.2, R 2.3, R 5.2	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	6

Wetland name or number: Wetland A

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

   ☒NO – go to 3 ☐**YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ☐The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☐At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

4. Does the entire wetland unit **meet all** of the following criteria?
   ☐The wetland is on a slope (*slope can be very gradual*),
   ☐The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☐The water leaves the wetland **without being impounded**.

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

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

5. Does the entire wetland unit **meet all** of the following criteria?
   ☒The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☒The overbank flooding occurs at least once every 2 years.

Wetland name or number: Wetland A

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

R 1.0. Does the site have the potential to improve water quality?	
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: ☐ Depressions cover > 3/4 area of wetland points = 8 ☐ Depressions cover > 1/2 area of wetland points = 4 ☒ Depressions present but cover < 1/2 area of wetland points = 2 ☐ No depressions present points = 0	2
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes) ☐ Trees or shrubs > 2/3 area of the wetland points = 8 ☐ Trees or shrubs > 1/3 area of the wetland points = 6 ☐ Herbaceous plants (> 6 in high) > 2/3 area of the wetland points = 6 ☒ Herbaceous plants (> 6 in high) > 1/3 area of the wetland points = 3 ☐ Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland points = 0	3
Total for R 1 Add the points in the boxes above	5

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

R 2.0. Does the landscape have the potential to support the water quality function of the site?	
R 2.1. Is the wetland within an incorporated city or within its UGA? ☒Yes = 2 ☐ No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? ☒Yes = 1 ☐ No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? ☐Yes = 1 ☒ No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? ☒Yes = 1 ☐ No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources: Click here to enter text. ☐Yes = 1 ☒ No = 0	0
Total for R 2 Add the points in the boxes above	4

Rating of Landscape Potential If score is: ☒**3-6 = H** ☐**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? ☐Yes = 1 ☒ No = 0	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? ☐Yes = 1 ☒ No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (A*nswer **YES** if there is a TMDL for the drainage in which the unit is found*) ☐Yes = 2 ☒ No = 0	0
Total for R 3 Add the points in the boxes above	0

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

Wetland name or number: Wetland A

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

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

R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (10.5ft)/(10ft) = 1.05.* ☐ If the ratio is more than 20 points = 9 ☐ If the ratio is 10-20 points = 6 ☐ If the ratio is 5-<10 points = 4 ☐ If the ratio is 1-<5 points = 2 ☐ If the ratio is < 1 points = 1	2
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* ☐ Forest or shrub for > 1/3 area OR emergent plants > 2/3 area points = 7 ☒ Forest or shrub for > 1/10 area OR emergent plants > 1/3 area points = 4 ☐ Plants do not meet above criteria points = 0	4
Total for R 4 Add the points in the boxes above	6

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

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

R 5.1. Is the stream or river adjacent to the wetland downcut? ☐Yes = 0 ☒ No = 1	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area? ☒Yes = 1 ☐ No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams? ☐Yes = 0 ☒ No = 1	1
Total for R 5 Add the points in the boxes above	3

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

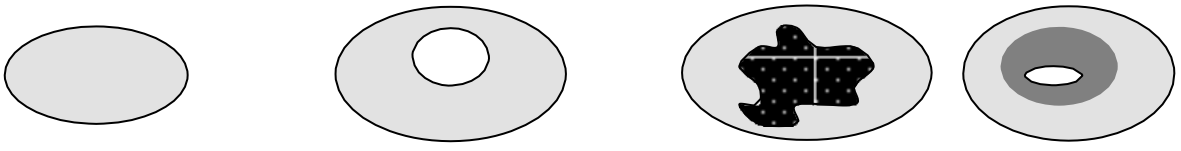
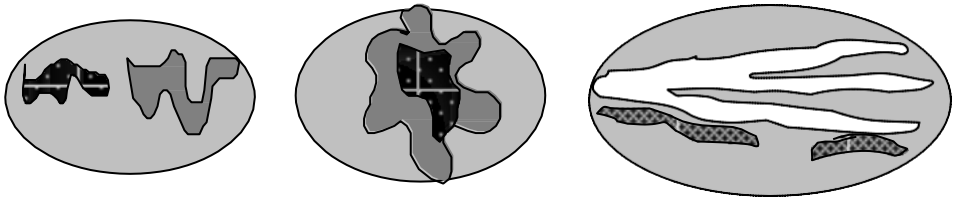
R 6.0. Are the hydrologic functions provided by the site valuable to society?

R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site*. ☒ The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 ☐ Surface flooding problems are in a sub-basin farther down-gradient points = 1 ☐ No flooding problems anywhere downstream points = 0	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? ☐Yes = 2 ☒ No = 0	0
Total for R 6 Add the points in the boxes above	2

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

NOTES: (R6.1) FEMA designated 100-year floodplain overlaps residential and commercial structures.

Wetland name or number: Wetland A

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☒ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☒ Occasionally flooded or inundated — 2 types present: points = 1 ☐ Saturated only — 1 type present: points = 0 ☒ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: ☒ > 19 species — points = 2 ☐ 5 - 19 species — points = 1 ☐ < 5 species — points = 0	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  ☐ **None** = 0 points ☒ **Low** = 1 point ☐ **Moderate** = 2 points  All three diagrams in this row are ☐ **HIGH** = 3points	1

Wetland name or number: Wetland A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ☐ Standing snags (dbh > 4 in) within the wetland. ☐ Undercut banks are present for at least 6.6 ft (2 m) **AND/OR** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m). ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed).* ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians).* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*).	0
Total for H 1 Add the points in the boxes above	4

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2] = **0% + (0%/2) = 0%** If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☐ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ☒ < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2 **= 10% + (0%/2) = 10%** ☐ Undisturbed habitat > 50% of Polygon points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches points = 2 ☒ Undisturbed habitat 10-50% and > 3 patches points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If ☒ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

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

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 ☒ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ☐ Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 ☐ Site does not meet any of the criteria above points = 0	3

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

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland name or number: Wetland A

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). ☐Yes **= Category I** ☒No **= Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐Yes – Go to **SC 5.1** ☒No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) ☐Yes = **Category I** ☐No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 ☐Yes – Go to **SC 6.1** ☒No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐Yes = **Category I** ☐No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ☐Yes = **Category II** ☐No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ☐Yes = **Category III** ☐No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

Wetland Rating Figure 1. Vegetation

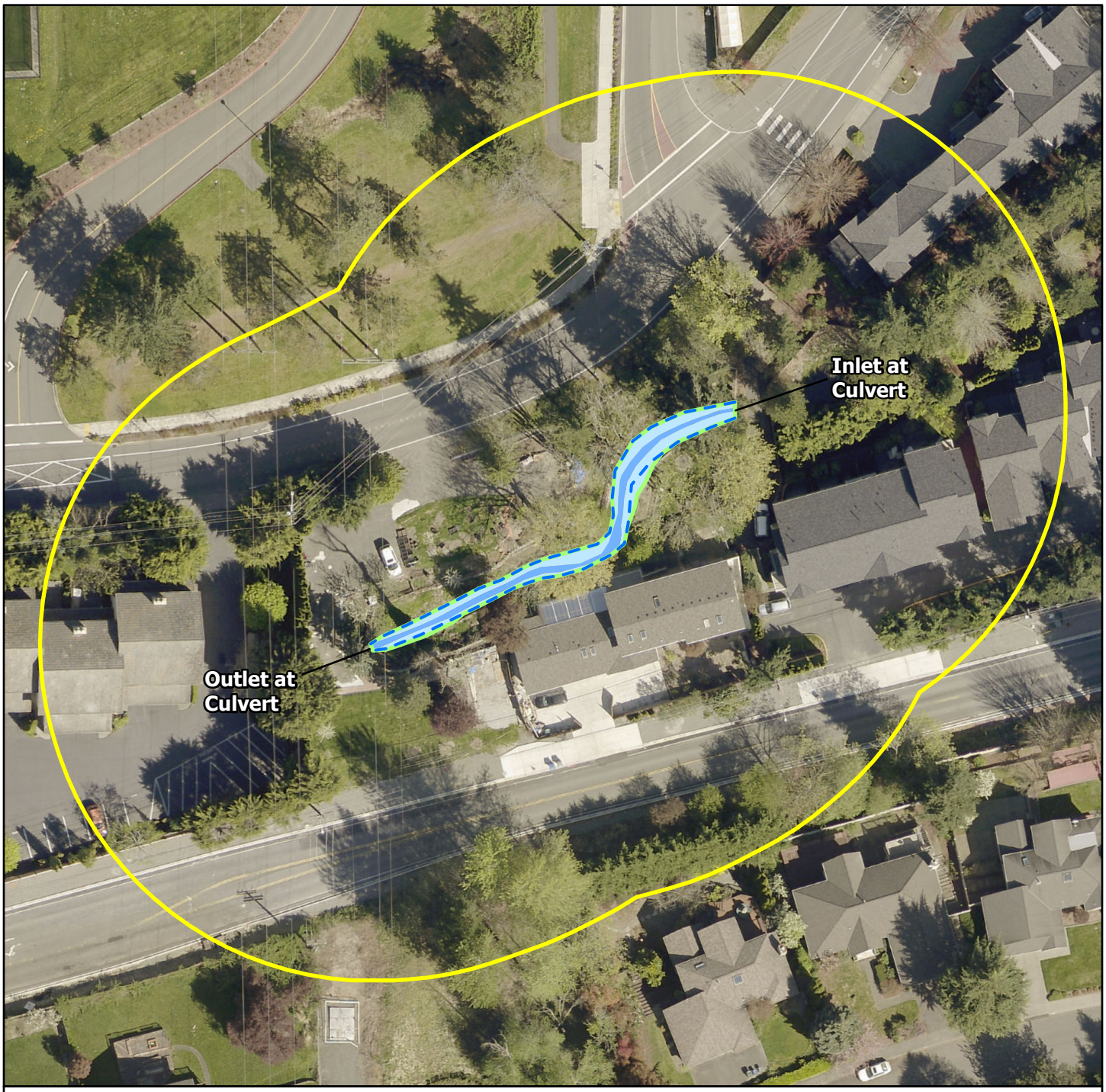
Wetland Boundary
Emergent Cowardin Class
Unvegetated Stream Channel
Dense Vegetation, >90% Cover APH

Cowardin plant classes – R1.2, R4.2, H1.1, H1.4. Rating boundaries are estimated and not to scale. APH refers to "at person height." Dense vegetation layer is is the same composition as the Cowardin

N
W E
S

0 15 30 60 Feet

Wetland Rating Figure 2. Hydroperiods



Delineated Stream OHWM

Perminantly Flowing Stream

Occasionally Flooded

Wetland Boundary

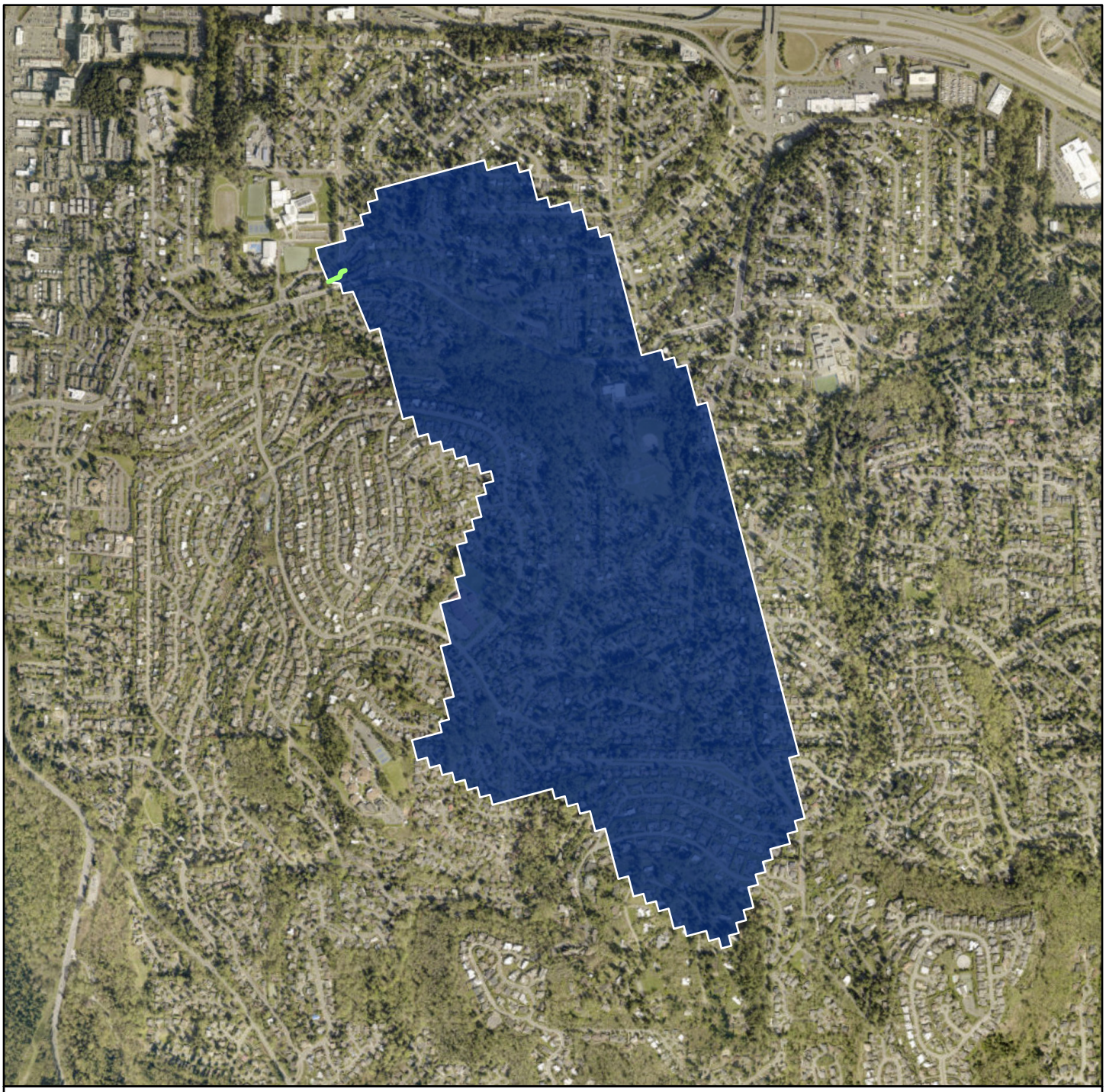
Rating Area (150 Feet)

N
W E
S

0 40 80 160 Feet

Hydroperiods and 150-ft area. Wetland to stream width ratio calculated by the formula Ratio = [(Wetland Area) / (Stream Length)] / Stream Width. Stream width estimated at 10 feet and wetland width estimated at 10.5 feet.

Wetland Rating Figure 3. Contributing Basin



Wetland

Contributing Basin

N

W E

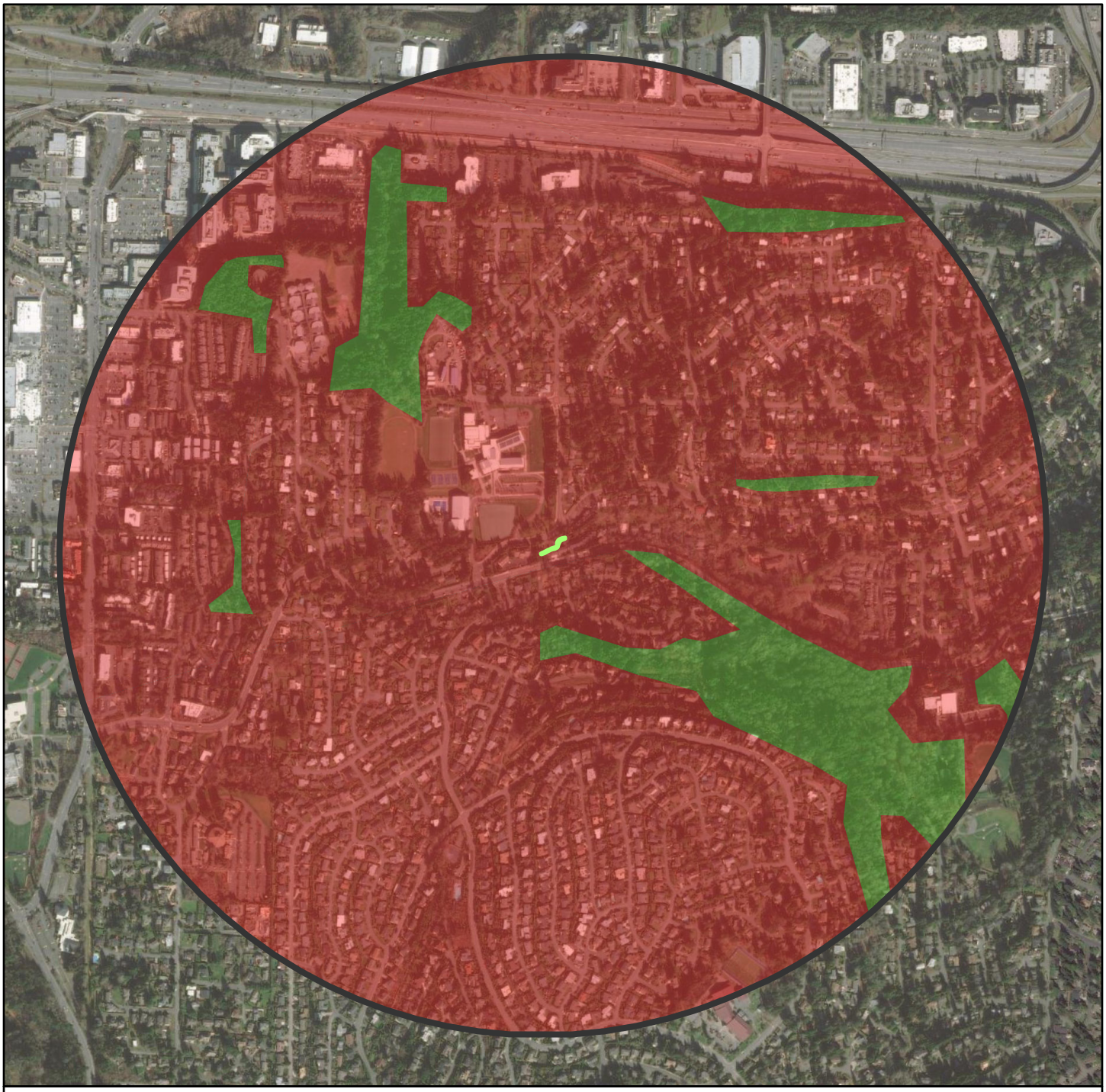
S

0 800 1,600 3,200

Feet

Map of the contributing basin – R2.2, R2.3, R5.2. Contributing basin geometry generated in StreamStats.

Wetland Rating Figure 4. Land Use Intensity

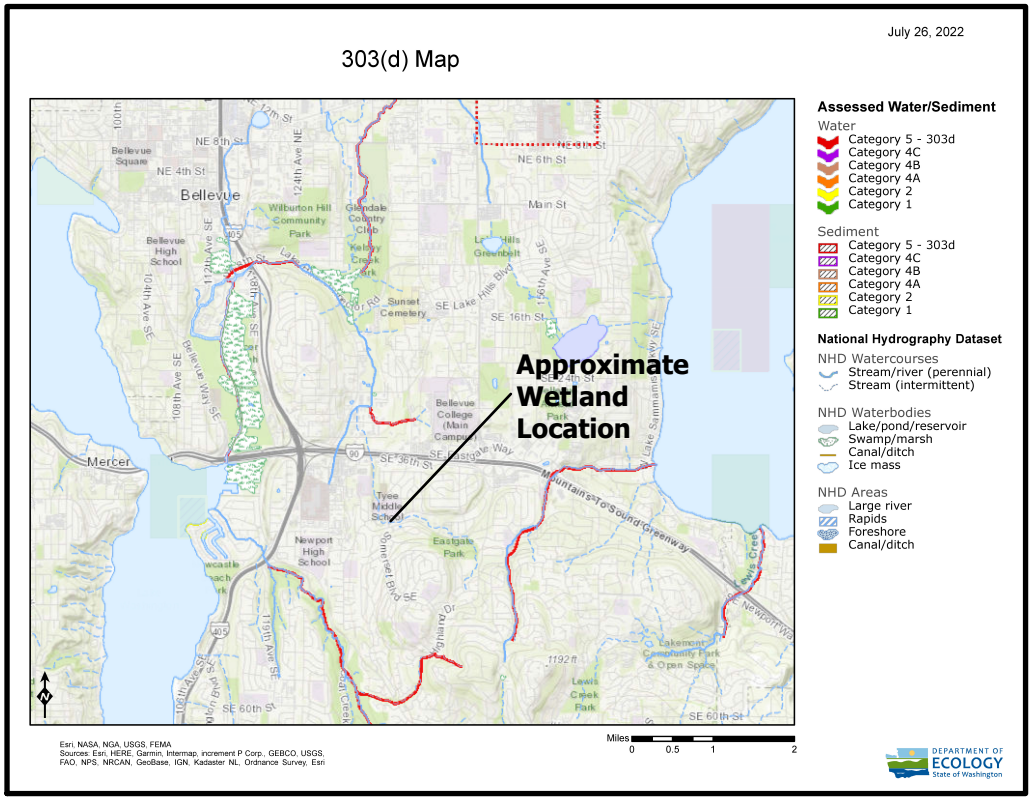


Undisturbed Habitat
Low/Moderate Intensity
High Intensity
Accessible Habitat
1-Kilometer Rating Area
Wetland

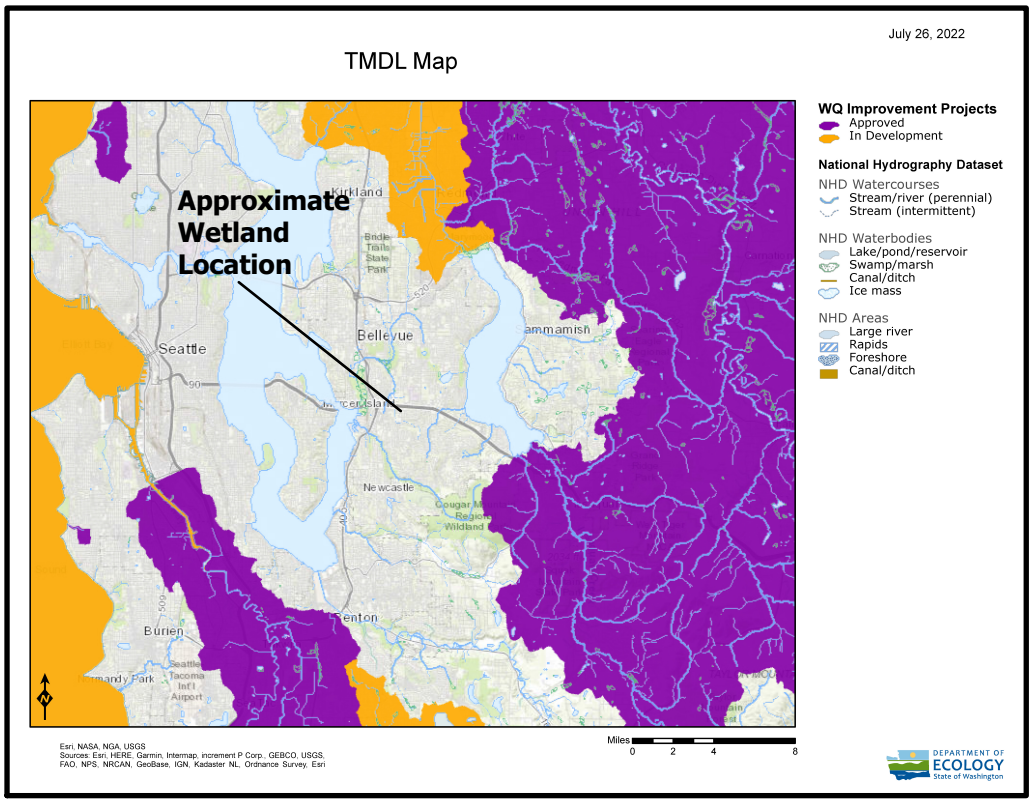
Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3. No accessible habitat present.

N
W
E
S

0 1,150 2,300 Feet



Wetland Rating Figure 5. 303(d) Map



Wetland Rating Figure 6. TMDL Map

Technical Memorandum

DCG WATERSHED

Date:	April 27, 2023
To:	Yueqiang Luo
From:	Sam Payne
Project Number:	220604
Project Name:	Luo Residence

Subject: Floodplain Ecological Functions

The purpose of this memo is to outline project compliance with Bellevue Land Use Code (LUC) Section 20.25H.180.B.8. The proposed project (22-116548 LO) includes the restoration of unauthorized impacts associated with tree removal and the construction and expansion of modular block retaining walls along Sunset Creek. The FEMA-designated 100-year floodplain overlaps with the project area.

LUC 20.25H.180.B.8 reads as follows:

> *Floodplain Ecological Functions. The use or development shall meet National Flood Insurance Program requirements for the protection of floodplain ecological functions in accordance with guidelines established by the Director. Floodplain ecological functions include, but are not limited to, stormwater quality, floodwater storage and conveyance capacity, and habitat.*

The proposed project has been designed to meet all applicable provisions for the protection of floodplain ecological functions, including:

Floodwater storage and capacity: The project will restore the site to pre-existing conditions and install new native vegetation. The project proposes no net fill in the floodplain and no displacement of floodwaters compared to conditions pre-existing site impacts.

Floodplain refugia: In a natural setting, during high flows, floodwaters are temporarily stored as they stretch across the floodplain, providing juvenile salmonids with lower velocity rearing areas and reducing downstream flow velocities, thereby limiting potential scour of salmonid rearing areas. Sunset Creek is highly channelized in this location and lacks floodplain connectivity, although infrequent large floods could inundate vegetated areas above the existing retaining wall. These areas would be restored by removing the new retaining wall blocks and adding new vegetation.

Floodplain vegetation: A large black cottonwood tree within the 100-year floodplain was over pruned to the point of mortality. Restoration of the site includes reducing this to a habitat snag and revegetating the stream buffer with native shrubs and trees. In total, 1,849 square feet of stream bank enhancement is proposed, roughly equivalent to the canopy area of the removed tree. In time, this will result in a net benefit to floodplain functions.

Water quality: Urban stormwater runoff from pollution generating impervious surfaces can have significant detrimental impacts on salmonids. However, the proposed project will not alter existing impervious surfaces within the vicinity. The project does include, however, a total of 1,849 square feet of new native plantings adjacent to the stream as compensation for the removal of a large mature black cottonwood tree. These plantings are situated between the stream and existing site impervious surfaces more directly than the impacted tree, and therefore, in a location that can better serve water quality improvement functions. As the mitigation site matures, these plantings will provide a vegetated buffer that will help to filter pollutants from on-site runoff, thereby resulting in a net increase in water quality functions.

Habitat: The proposed stream buffer enhancement plan will result in an increase in the quality and quantity of vegetated areas available to provide wildlife habitat. Native plants improve habitat function compared to ornamental and invasive species due to their influence on providing complex vegetative structure, diverse food resources, and the niche habitat that has historically coevolved with native wildlife. New plantings will provide food, cover, and nesting opportunities for wildlife. Overall, the quality of habitat will be increased by replacing invasive species with a dense and diverse native plant assemblage appropriate to the eco-region and growing conditions on-site. A short-term loss of habitat function is anticipated due to the removal of a large mature tree, although new plantings are expected to provide for a net increase in habitat function as the site matures.

Overall, the proposed project is expected to provide for the protection of existing floodplain ecological functions.