

CITY OF KIRKLAND

NE 142ND STREET SURFACE WATER DRAINAGE IMPROVEMENTS PROJECT

JOB NO. 42-22-PW CIP No. SDC0890000

ADDENDUM No. 1

TO THE PLANS, SPECIFICATIONS, PROPOSAL AND CONTRACT

Issued This Date: Monday, January 23, 2023
Bid Opening: **Unchanged – January 31, 2023**
Place of Opening: City Hall, Council Chambers

Notice to All Plan holders:

This Addendum No. 1, containing the following revisions, additions, deletions, and/or clarifications is hereby made part of the Plan and Contract Documents for the above-named project. Bidders shall take this Addendum into consideration when preparing and submitting their bids and it shall be attached to the Contract Documents.

Contractors shall acknowledge receipt of this Addendum in the place provided on Proposal page P6. Failure to do so may disqualify the Bidder from consideration of its bid.

All other requirements of the contract documents remain in effect.

CONTRACT DOCUMENTS:

Item 1:

Contract Question and Answers during the project advertisement window (per invitation to bid). See below clarifications to the contractor questions.

Question 1:

Question: Are there AIS, Buy America, or Buy American requirements?

Response: There is no federal funding on this project, so there are no federal aid sourcing requirements.

Question 2:

Question: What is the start date of this project?

Response: The start date for this project is anticipated to be mid to late March. Kirkland City Council has the final decision to accept the bidder contract on their February 21st meeting, so the Notice to Proceed will be after this date.

Question 3:

Question: Do we include the minor change amount line item in the amount of \$25,000 in our total bid?

Response: Yes. The bid tabs will be checked for completeness after opening as a component of the responsible and responsive bidder assessment.

Question 4:

Question: It states the power relocation to be done by PSE, but the bid doc has a line item for relocating power. Can you advise on this?

Response: Please refer to Item 2 of this addendum, which removes this bid item.

Question 5:

Question: How many working days are allowed on this project?

Response: This project has 80 working days.

Item 2:

Location: Bid Schedule

Description: Removes Bid Item #9 (Power Relocation; Min Bid \$10,000). The corresponding specification reference within 1-07.17(5) is also removed. The Bid Schedule and Section 1-07.17(5) are revised as follows:

1-07.17(5) Utility (Power) Relocation

The following section is added in its entirety:

The contract documents identify specific existing power utility that is required to be relocated to complete the work. The utility (power) relocation shown on the drawings shall be completed by others, but shall be coordinated by the Contractor within the time frame noted on the drawings.

Measurement

"Utility (Power) Relocation" is a lump sum bid item and shall not be measured.

~~"Power Relocation" is a force account bid item and shall not be measured.~~

Payment

Payment will be made for the following bid item:

Utility (Power) Relocation	Lump Sum
Power Relocation (Minimum Bid \$10,000)	Force Account

Payment for "Utility (Power) Relocation" will be made on a prorated monthly basis for work completed in accordance with this section up to 75% of the lump sum bid. The remaining 25 percent of the lump sum price will be pro-rated over the working days of the executed Contract. Lump sum bid price shall cover all costs for labor, equipment, materials, and supervision required to perform the Work.

~~The City or the Engineer may direct the Contractor to perform "Power Relocation", as required to perform the work, if Puget Sound Energy is unable to perform the work in accordance with the contract timeline. Payment for "Power Relocation" shall cover all costs for labor, equipment, materials, and supervision required to perform the Work. A minimum bid amount has been entered in the Bid Proposal for this item. The Contractor must bid at least that amount.~~

CITY OF KIRKLAND

BID SCHEDULE (Update with project-specific Bid Schedule)

NE 142nd Street Surface Water Drainage Improvements

CIP NO. SDC 0890000, JOB NO. 42-22-PW

Note: Unit prices for all items, all extensions, and the total amount of the bid must be shown. All entries must be typed or entered in ink.

Item No.	Item Description	Spec. Ref.	Est. Qty	Unit	Unit Price	Amount
1	Minor Change	1-04	1	EST	\$25,000	
2	Construction Surveying	1-05	1	LS		
3	Record Drawings (Min Bid \$5,000)	1-05	1	LS		
4	SPCC Plan (Min Bid \$5,000)	1-07	1	LS		
5	Property Restoration	1-07	1	LS		
6	Advanced Potholing	1-07	2	EA		
7	Utility Potholing	1-07	4	EA		
8	Utility (Power) Relocation	1-07	1	LS		
9	Power Relocation (Min Bid \$10,000)	1-07	1	EA		
10	Water Service Restoration	1-07	1	EA		
11	Mobilization	1-09	1	LS		
12	Project Temporary Traffic Control	1-10	1	LS		
13	Clearing and Grubbing	2-01	1	LS		
14	Tree Removal	2-01	5	EA		
15	Removal of Structures and Obstructions	2-02	1	LS		
16	Dewatering	2-05	1	LS		
17	Shoring	2-09	1	LS		
18	HMA Cl. 1/2" PG 64-22	5-04	35	TN		
19	Temporary Stormwater Bypassing	7-05	1	LS		
20	Catch Basin Type 1L	9-05, 7-05	2	EA		
21	Catch Basin Type 2 48 In. Diam.	9-05, 7-05	1	EA		
22	Catch Basin Type 2 72 In. Diam.	9-05, 7-05	1	EA		
23	Solid Wall PVC Storm Sewer Pipe 12 In. Diam.	9-05, 7-04	5	LF		
24	Solid Wall PVC Storm Sewer Pipe 18 In. Diam.	9-05, 7-04	220	LF		
25	Solid Wall PVC Storm Sewer Pipe 24 In. Diam.	9-05, 7-04	30	LF		
26	Stormwater Pollution Prevention Plan (SWPPP) and Implementation	8-01	1	LS		
27	Outlet Protection	8-01	1	EA		
28	PSIPE Planting Cascara / Rhamnus Purshiana	8-02	1	LS		
29	PSIPE Planting Vine Maple / Acer Circinatum	8-02	1	LS		
30	PSIPE Planting Western Red Cedar / Thuja Plicata	8-02	1	LS		
31	PSIPE Planting Beaked Hazelnut / Corylus Cornuta	8-02	1	LS		

MUST BE SUBMITTED WITH PROPOSAL

32	PSIPE Planting Osoberry / Oemleria Cerasiformis	8-02	1	LS		
33	PSIPE Planting Red Elderberry / Sambucus Racemosa	8-02	1	LS		
34	PSIPE Planting Red Flowering Currant / Ribes Sanguineum	8-02	1	LS		
35	PSIPE Planting Snowberry / Symphoricarpos Albus	8-02	1	LS		
36	PSIPE Planting Deer Fern / Blechnum Spicant	8-02	1	LS		
37	PSIPE Planting Salal / Gaultheria Shallon	8-02	1	LS		
38	PSIPE Planting Sword Fern / Polystichum Munitum	8-02	1	LS		
39	Cement Conc. Traffic Curb and Gutter	8-04	230	LF		
40	Chain Link Sidewalk Safety Rail	8-12	50	LF		
41	Double 12 Ft. Chain Link Gate	8-12	1	EA		
42	Single 3.5 Ft. Chain Link Gate	8-12	1	EA		
43	Cement Conc. Sidewalk	8-14	30	SY		

TOTAL COMPUTED PRICE (SALES TAX INCLUDED IN BID ITEMS, UNDER RULE 171): \$ _____

Item 3:

Location: Special Provisions, Appendix B: Permits

Description: Add LSM permit under Appendix B3 – LSM Permit.

SPECIFIC PERMIT CONDITIONS



BUILDING ADDRESS	PERMIT NUMBER	PERMIT TYPE / WORK CLASS	DATE PRINTED
7718 NE 141ST ST	LSM22-08593	Land Surface Modification / Non Site Development	1/19/2023

DESCRIPTION OF WORK:

COK/CIP Project - NE 142nd St Surface Water Drainage Improvement: Improvements include installation of approximately 255 LF of 12", 18", and 24" PVC storm sewer and drainage structures within the street and shoulder of 77th Ave NE and NE 142nd Pl and within the Inglewood Church property (parcel 2426049077) and surrounding property restoration, which includes planting within and the removal of 80LF of wooden fence in parcel 6599500310.

Building Department Conditions:

BLDG. DEPT. CONDITIONS – Contact a Permit Technician at 425-587-3600

Conditions are part of the approved plans and shall remain attached to them at all times.

The approved plans shall not be changed, modified, or altered without authorization from the building official. The approved plans are required to be on the job site.

This LSM Permit does not authorize any cutting or digging for new footings or foundations. A SEPERATE BUILDING PERMIT MUST BE ISSUED PRIOR TO ANY FOOTING OR FOUNDATION WORK.

No excavation or fill is authorized to encroach upon a neighboring property without explicit agreement by the adjoining property owner.

Separate demolition permit(s) are required prior to removal of any existing structures.

Separate building permit(s) are required for construction of any new buildings.

A building permit is required for a cast-in-place storm water detention vault, if one is to be constructed. The building permit is issued separately, or combined with this LSM permit.

Building permit(s) are required for cast-in-place retaining wall(s) that are 4' or greater in height, measured from the BOTTOM OF FOOTING to the TOP OF WALL. The building permit(s) are issued separately, or combined with this LSM permit.

A building permit is required for any shoring that protects an adjacent property. If shoring is required for excavation or construction of any new structure, the shoring may be included as part of the building permit for that structure. The building permit is issued separately, or combined with this LSM permit.

Fire Department Conditions:

Exterior project with no impacts on fire protection system requirements.

Planning Department Conditions:

PLANNING CONDITIONS – Contact Jen Anderer, Phone Number 425-587-3239:

- PBD 1. REVISED SITE PLAN - Any proposed changes to the approved site plan, such as but not limited to, added hard surfaces, HVAC units, accessory structures, or tree removals, must be submitted as a revision to the building permit for review and approval prior to implementation.
- PBD 2. PRIOR TO PLACING STREAM IN NEW CHANNEL - Prior to placing the stream in the new channel, the applicant shall submit a report prepared by a qualified critical area professional assessing the channel's compliance with KZC 90.75.3 for review by the City's consulting biologist at the applicant's expense.
- PBD 3. ADDITION/ALTERATION TREE RETENTION - No tree removal is allowed unless approved on your site plan. No damage to tree root systems is allowed. No heavy equipment and stockpiling of materials within tree drip lines. Any additional tree removal must be authorized by the Planning & Building Department prior to removal. Call the planner noted above for more information.
- PBD 4. GEOTECHNICAL REPORT - All development activity shall follow the recommendations of the geotechnical report prepared by dated and submit additional geotechnical information as specified in the report.
- PBD 5. ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 AM to 8:00 PM Monday through Friday, and 9:00 AM to 6:00 PM Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking into or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.
- PBD 6. MAXIMUM NOISE LEVELS - All mechanical units shall comply with the maximum environmental noise levels established pursuant to the Noise Control Act of 1974, Revised Code of Washington (RCW) 70.107. See Chapter 173-60 Washington Administrative Code (WAC). A link to the WAC and RCW is available at http://www.kirklandwa.gov/Government/Codes_and_Laws.htm.
- PBD 7. ALL - PROHIBITED VEGETATION - Plants listed as prohibited in the Kirkland Plant List (available from the Planning & Building Department) shall not be planted in the City. These plants include Himalayan and Evergreen Blackberry, English Holly, Fragrant water lily; Bindweed or Morning Glory, Bird Cherry, English and Atlantic Ivy; Herb Robert; Bohemian, Giant, Himalayan, and Japanese Knotweed; Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, Black Locust, European Mountain Ash, Tree-of-Heaven, Common Hawthorn, and English laurel.
- PBD 8. TREE PROTECTION - The applicant shall install temporary but immovable construction fencing around the drip line of all significant trees to be retained after the pre-construction meeting but prior to any grading or site construction. The Public Works Department MUST inspect and approve all tree fencing prior to the start of any other site work. DO NOT MOVE OR REMOVE THE FENCING UNLESS AUTHORIZED BY THE PLANNING AND BUILDING DEPARTMENT. Please call 425-587-3805 to request inspection. ADVANCE NOTICE OF ONE WORKING DAY REQUIRED FOR INSPECTION.
- PBD 9. PRIOR TO FINAL INSPECTION - AS-BUILT PLAN - Prior to final inspection by the Planning & Building Department, submit an as-built plan and report prepared by the applicant's consultant for inspection by the City's consulting qualified critical area professional at the applicant's expense.
- PBD 10. PRIOR TO FINAL INSPECTION – BUFFER WAIVER - Prior to final inspection by the Planning & Building Department, submit a buffer waiver notice and survey for distribution via mail to the property owners of properties affected by the increased buffer standard. The survey needs to be a signed and sealed boundary survey showing property lines, existing critical areas, buffers, and structure setbacks and the final critical areas, buffers, and structure setbacks.
- PBD 11. PRIOR TO FINAL INSPECTION – BUFFER WAIVER NOTICE - Prior to final inspection by the Planning & Building Department, receive approval of the buffer waiver notice and survey from the Planning Department. Mail the approved notice and survey to all properties impacted by the change in buffer standards.
- PBD 12. PRIOR TO FINAL INSPECTION – BUFFER WAIVER RECORDING - Prior to final inspection by the Planning & Building Department, record the buffer waiver and survey on the title of all affected properties who opt in to the buffer waiver.
- PBD 13. MONITORING AND MAINTENANCE – This project is subject to a five-year monitoring and maintenance. See KZC 90.160 for requirements.
-

Item 4:

Location: Special Provisions, Appendix B: Permits

Description: Add SAR permit under Appendix B4 – SAR – Critical Area Review



CITY OF KIRKLAND
Planning and Building Department
123 5th Avenue, Kirkland, WA 98033
425.587.3600 - www.kirklandwa.gov

ADVISORY REPORT
FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

To: Adam Weinstein, AICP, Planning & Building Director
From: Jennifer Anderer, Project Planner
Date: January 12, 2023
File: **NE 142nd STREET STORMWATER PUBLIC AGENCY EXCEPTION, SAR20-00588**

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I. INTRODUCTION

A. APPLICATION

1. Applicant: Aimee Allcock, Public Works CIP Project Coordinator, City of Kirkland
2. Request: The City of Kirkland CIP Division is requesting a Public Agency Exception for the following proposed work (see Attachment 1):
 - a. Removal and abandonment of storm system infrastructure on four private properties;
 - b. Installation of new stormwater conveyance pipes within the NE 142nd Place and 77th Avenue NE rights-of-way;
 - c. Daylighting a portion of a stream channel on private property;
 - d. Relocating an existing outfall to an adjacent stream; and
 - e. Installation of a mulch trail for nonmotorized maintenance access.Daylighting of the stream and replacement of the outfall are both located within a stream buffer on private property, requiring a Public Agency Exception (see Section II.E.1).
3. Site Location: The proposed stormwater system upgrades are located within the NE 142nd Place and 77th Avenue NE rights-of-way and on four private properties:
 - a. 7718 NE 141st Street (Inglewood Presbyterian Church), and
 - b. Parcel #6599500310 (an unaddressed, vacant, City-owned parcel).See Attachment 2 for a vicinity map of the project location.
4. Review Process: Process I, Planning Director decision.
5. Summary of Key Issues and Conclusions:
 - a. Compliance with Public Agency Exception standards for critical area buffer impacts (see Section II.E.1).
 - b. Buffer reduction for meandering or daylighting a stream (see Section II.E.2).
 - c. Mitigation planting requirements (see Section II.E.3).

B. RECOMMENDATIONS

Based on Statements of Fact and Conclusions (Section II), and Attachments in this report, I recommend approval of this application subject to the following conditions:

1. This application is subject to the applicable requirements contained in the Kirkland Municipal Code, Zoning Code, and Building and Fire Code. It is the responsibility of the applicant to ensure compliance with the various provisions contained in these ordinances. Attachment 3, Development Standards, is provided in this report to familiarize the applicant with some of the additional development regulations. This attachment does not include all the additional regulations. When a condition of approval conflicts with a development regulation in Attachment 3, the condition of approval shall be followed.
2. As part of the land surface modification permit, the applicant shall submit plans that are consistent with the proposed plans found in Attachment 1, the proposed mitigation plans found in Attachments 8 and 10, and the recommendations from the City's consulting biologist found in Attachment 9 (see Conclusions II.E.1.b.4

- and II.E.2.b.1).
3. Prior to the final inspection of the land surface modification permit, the applicant shall:
 - a. Complete the required restoration work proposed in Attachments 1, 8, and 10, incorporate the recommendations found in Attachment 9, and submit a report prepared by the applicant's consultant. The work will be subject to inspection and final approval by the Planning and Building Department's sensitive areas consultant at the applicant's expense (see Conclusion II.E.1.b.5).
 - b. Prepare a buffer waiver notice and survey prepared by a Washington State licensed land surveyor showing the existing and proposed buffers for distribution via mail to the property owners of properties affected by the increased buffer standard (see Conclusion II.E.2.b.3).
 - c. Record (at the applicant's expense) the buffer waiver notice and survey on the title of properties whose owners opt to pursue the buffer waiver (see Conclusion II.E.2.b.4).
 - d. Complete the required wetland and wetland buffer enhancement improvements proposed in Attachments 1, 8, and 10 and incorporate the recommendations found in Attachments 9 (see Conclusions II.E.3.b.1).
 - e. Submit an as-built plan and report prepared by the applicant's consultant for inspection by the City's consulting qualified critical area professional at the applicant's expense (see Conclusion II.E.1.b.5).
 4. Prior to placing the stream in the new channel, the applicant shall submit a report prepared by a qualified critical area professional assessing the channel's compliance with KZC 90.75.3 for review by the City's consulting biologist at the applicant's expense (see Conclusion II.E.2.b.2).
 5. The applicant shall submit monitoring reports at required intervals, as outlined in Attachment 9, to the Planning and Building Department for review by the City's consulting qualified critical area professional at the applicant's expense (see Conclusions II.E.3.b.2).

II. FINDINGS OF FACT AND CONCLUSIONS

A. SITE DESCRIPTION

1. Site Development and Zoning:
 - a. Fact: The project site spans two open public rights-of way and four private properties. The following chart is a summary of the impacted area, land use, zoning, terrain, and vegetation for each area of the project site:

Area	Impacted Area	Land Use	Zoning	Terrain and Vegetation
NE 142 nd Place right-of-way	The project will focus on approximately 100 linear feet of the entire roadway.	Open right-of-way	RSA 6 Low Density Residential	Essentially flat with zero grade change. The applicant's arborist and the City's Urban Forester identified 1 street tree potentially impacted by construction of the proposed utility work (see Attachment 4).
77th Avenue NE	The project will	Open right-	RSA 6 Low	Essentially flat with zero grade

right-of-way	focus on approximately 190 linear feet of the entire roadway.	of-way	Density Residential	change. The applicant's arborist and the City's Urban Forester identified 4 street trees potentially impacted by construction of the proposed utility work (see Attachment 4).
7718 NE 141 st St	1,299 square feet in the northwest corner of the 217,793 square foot parcel.	Inglewood Presbyterian Church	RSA 4 Low Density Residential	Essentially flat with no notable grade change in the project area. The applicant's arborist and the City's Urban Forester identified 9 significant trees on the site that are located within a stream and wetland buffer potentially impacted by construction of the proposed utility work (see Attachment 4).
7703 NE 142 nd Place	Abandonment of approximately 75 linear feet of stormwater pipe along the south property line of the parcel.	Single family home	RSA 6 Low Density Residential	Essentially flat with no notable grade change in the project area. The applicant's arborist and the City's Urban Forester identified 2 significant trees on the site that are located within a stream and wetland buffer potentially impacted by construction of the proposed utility work (see Attachment 4).
7711 NE 142 nd Place	Abandonment of one catch basin and approximately 115 linear feet of stormwater pipe along the west property line of the parcel.	Single family home	RSA 6 Low Density Residential	Essentially flat with no notable grade change in the project area. The applicant's arborist and the City's Urban Forester did not identify any significant trees on the site that are impacted by construction of the proposed utility work (see Attachment 4).
Vacant Lot (Parcel # 6599500310)	1,575 square feet	Undeveloped vacant land	RSA 6 Low Density Residential	Slopes downward from west to east with a grade change of approximately 4%. The applicant's arborist and the City's Urban Forester identified 1 significant tree on this parcel that is located within a wetland buffer potentially impacted by construction of the proposed utility work (see Attachment 4).

b. Conclusions:

- (1) The size and location of the properties are not constraining factors in the review of the Public Agency Exemption application.
- (2) The presence of the adjoining stream and wetland are constraining factors on the application and are the basis for the Public Agency Exemption proposal.

2. Neighboring Development and Zoning:
 - a. Facts: The neighboring properties are zoned as follows and contain the following uses:
 - (1) North: RSA 6, Low Density Residential
 - (2) South: RSA 6, Low Density Residential; and RSA 4, Church
 - (3) East: RSA 4, Low Density Residential and Church
 - (4) West: RSA 6, Low Density Residential
 - b. Conclusion: The neighboring developments and zoning are not constraining factors in the review of the application.

B. HISTORY

1. Facts: The existing stormwater infrastructure was annexed into the City of Kirkland on June 1, 2011. There are no available records pertaining to the system prior to 2011, so the original installation date remains unknown. The City of Kirkland has not completed any work on this portion of the stormwater system since the 2011 annexation. Backwater flooding events were first logged in 2013.
2. Conclusion: The history of the existing stormwater infrastructure is not a constraining factor in the review of this application.

C. PUBLIC COMMENT

The formal public comment period for the project ran from January 7, 2021 to January 18, 2021. Staff received no comments during the comment period.

D. STATE ENVIRONMENTAL POLICY ACT (SEPA)

1. Facts: A Determination of Nonsignificance (DNS) was issued on May 10, 2022. The Environmental Checklist and Determination are included as Attachment 5.
2. Conclusion: The City has satisfied all the procedural requirements for SEPA.

E. APPROVAL CRITERIA

1. PUBLIC AGENCY AND PUBLIC UTILITY EXEMPTIONS (KZC 90.45)

- a. Facts:
 - (1) Kirkland Zoning Code (KZC) 90.105 requires that the applicant submit a critical area report pursuant to KZC 90.110 to determine the presence of critical areas and establish critical area buffers on the subject property. The applicant submitted a critical area report prepared by O'Neill Service Group, dated September 24, 2020 (see Attachment 6) which was peer reviewed by the City's consulting biologist, The Watershed Company on January 6, 2022 (see Attachment 7).
 - (2) Based on the applicant's reports and the City's consulting peer review, a Category III wetland with a habitat score of 4 points and a Type F stream have been identified on the subject property. Per KZC Chapter 90, the Category III wetland (with a habitat score of 4 points) has a buffer of 60' and the Type F stream has a 100' buffer.
 - (3) Part of the applicant's proposed utility work includes the replacement of a stormwater outfall within the delineated stream buffer and wetland buffer on private property (see page 13 of Attachment 1).

- (4) KZC Chapter 90.35 states that replacement of utility structures and conveyance systems are only exempt from KZC 90 standards if located within an existing improved right-of-way, existing legally improved private roadway, utility corridor, or the Cross Kirkland Corridor and Eastside Rail Corridor.
- (5) KZC Chapter 90.40 states that only new public stormwater lines and piped outfalls are a regulated permitted activity.
- (6) KZC Chapter 90.45 states that if the strict application of Chapter 90 would prohibit a development proposed by a public agency, such as the City of Kirkland, the agency may apply for a public agency exception pursuant to KZC 90.45.
- (7) KZC 90.55.1 establishes that activities, improvements, and uses, which are prohibited within wetlands and associated buffers, may be allowed pursuant to Public Agency Exception provisions and development standards of KZC 90.40.
- (8) In order to construct the replacement outfall, daylight a portion of the stream, and install a mulch pathway for maintenance access within a private property, the applicant is requesting a Public Agency Exception to exempt the project from certain requirements of KZC Chapter 90. Specifically, the Public Agency Exception will be used for the following section of KZC 90:
 - (a) KZC 90.55 – Wetlands and Associated Buffer Standards
 - (b) KZC 90.65 – Streams and Associated Buffer Standards
- (9) KZC 90.45 requires that the applicant submit a critical area report pursuant to KZC 90.110 and a mitigation plan pursuant to KZC 90.145 demonstrating compliance with the public agency exemption criteria established under KZC 90.45. The applicant submitted a revised critical area report and mitigation plan prepared by O'Neill Service Group dated April 6, 2022, (see Attachment 8) which was peer reviewed by The Watershed Company on June 22, 2022 (see Attachment 9).
- (10) The critical area report peer review prepared by The Watershed Company dated June 22, 2022 identified revision recommendations which were addressed in an addendum packet prepared by the City of Kirkland CIP division and O'Neill Service Group dated October 3, 2022 (see Attachment 10).
- (11) The applicant has submitted a report (see Attachment 8) outlining the exceptions being requested and a plan set (see Attachment 1) identifying the intended impacts of the project. The applicant is proposing to install a replacement outfall on private property, wherein both permanent and temporary impacts will extend into the stream and wetland critical area buffers. The following is a summary of the requested exceptions:
 - (a) Temporary Stream and Wetland Buffer Impacts: The project proposes a total of 1,350 square feet of temporary wetland and stream buffer impacts within the two private properties for construction access and pipe alignment (see page 13 of Attachment 1). These impacts are proposed to be restored through replanting.
 - (b) Permanent Stream and Wetland Buffer Impacts: A total of 660 square feet of permanent impacts are proposed for construction and installation of the new outfall, outfall

protection, and stream channel (see page 13 of Attachment 1). The impacts are proposed to be restored through replanting and completing wetland compensatory mitigation (see Section II.E.3).

Except for those impacts considered exempt under KZC 90.35 or permitted under KZC 90.45, KZC 90 does not permit critical area or buffer impacts as proposed. The project's permanent and temporary impacts to the critical area buffers located on private property are being processed as a Public Agency Exception.

- (12) Public Agency Exceptions must comply with the four criteria in KZC 90.45.3.a-d. The criteria are described below followed by staff's analysis:

- (a) KZC 90.45.3.a: There is no practical alternative to the proposed project that results in less impact to the critical areas or critical area buffers.

Staff Analysis: The applicant is proposing to replace existing stormwater utility infrastructure thus limiting the ability to propose work in a different or less impactful location. In order to minimize impacts resulting from the proposed work, the applicant has proposed a narrowed meandering construction boundary, which will preserve significant trees, and daylighting of 70 linear feet of the stream (see Section II.E.2).

- (b) KZC 90.45.3.b: Strict application of KZC Chapter 90 would prohibit the ability to provide public utilities to the public.

Staff Analysis: Strict application of KZC Chapter 90 does not permit replacement of an existing utility within a critical area or critical area buffer if it is located on private property. This would prevent the required upgrades to the City's stormwater infrastructure in this location, which are required to maintain functionality and prevent continued flooding of the system.

- (c) KZC 90.45.3.c: The proposal minimizes impacts to the critical area or critical area buffer through mitigation sequencing pursuant to KZC 90.145 and KZC 90.150.

Staff Analysis: The proposal has met the mitigation sequencing requirements detailed in KZC 90.145 (see Section II.E.3).

- (d) KZC 90.45.3.d: The proposal protects and/or enhances the critical area and critical area buffer's function according to best available science and strives for no net loss of critical area function.

Staff Analysis: The proposal enhances the critical area buffer by daylighting 70 linear feet of the stream, vegetating the buffer at a ratio compliant with KZC 90.130, and complying with the wetland compensatory mitigation standards by enhancing areas of wetland buffer at a ratio of 3.62:1 (see Section II.E.3).

b. Conclusions:

- (1) A Public Agency Exception is required to allow the permanent and temporary buffer impacts resulting from the replacement of the stormwater outfall and daylighting of the stream on private property.
- (2) The Watershed Company's review with the recommendations in the applicant's report concluded that the proposed replacement of the stormwater infrastructure requires unavoidable critical area impacts and complies with the applicable decisional criteria for a Public Agency Exception under KZC 90.45.3.
- (3) Based on Staff's analysis, and with the recommended conditions of approval, the application complies with the established criteria in KZC 90.45.3 for approving a Public Agency Exception.
- (4) As part of the land surface modification permit submittal, the applicant should submit plans that are consistent with the proposed plans found in Attachment 1, the proposed mitigation plans found in Attachments 8 and 10, and the recommendations from the City's consulting biologist found in Attachment 9.
- (5) Prior to the final inspection of the land surface modification permit, the applicant should complete the required restoration work and submit a report prepared by the applicant's consultant. The work will be subject to inspection and final approval by the Planning and Building Department's sensitive areas consultant at the applicant's expense.

2. DAYLIGHTING OF STREAMS (KZC 90.75)

a. Facts:

- (1) Part of the applicant's proposed utility work includes daylighting approximately 70 linear feet of the stream to reduce flooding and maintain waterflow (see Attachment 8).
- (2) KZC 90.65 and KZC 90.75 encourage daylighting of streams to a more natural condition to improve the function of the stream, reduce flooding, and provide wildlife habitat.
- (3) KZC 90.75 requires the applicant to submit plans demonstrating compliance with the daylighting of streams criteria established under KZC 90.75.3.b.1-4. The applicant submitted a plan set (see Attachment 1) and environmental report (see Attachment 8) compliant with KZC 90.75.3. The criteria are described below followed by staff's analysis:

- (a) KZC 95.75.3.b.1: The design creates natural meandering patterns.

Staff Analysis: The design incorporates a natural meandering streambed connecting the new outfall infrastructure to the existing open stream channel (see page 13 of Attachment 1).

- (b) KZC 95.75.3.b.2: The design creates subtle and stable side slopes no steeper than 2 feet horizontal to 1 foot vertical with erosion control features such as native vegetation.

Staff Analysis: The proposed side slopes are relatively flat with a 10 foot horizontal to a 1 foot vertical grade change (see page 8 of Attachment 1) and stabilized with native plantings compliant with the vegetative buffer standards detailed in KZC 90.130 (see page 13 of Attachment 1).

- (c) KZC 95.75.3.b.3: Native vegetation normally associated with streams, emphasizing native plants with high food and cover value for fish and wildlife and approved by the City.

Staff Analysis: The applicant prepared a planting plan comprised of native plants that has been reviewed and approved by the City's consulting biologist The Watershed Company and City Staff (see page 13 of Attachment 1 and Attachment 8).

- (d) KZC 95.75.3.b.4: Restoration of water flow characteristics compatible with fish habitat areas.

Staff Analysis: Lack of vegetation and compacted soils are preventing proper surface water infiltration which has led to regular flooding events on adjacent properties. The proposed daylighting design will incorporate a mix of dense native plants, compost-amended soils, and a layer of woodchip mulch to improve infiltration and direct stormwater into the opened stream channel, improving water flow and creating a more natural transition from the proposed outfall to the existing open streambed for fish habitats (see Attachment 8).

- (4) Prior to placing the stream in the new stream channel, KZC 90.75.3.c requires the applicant to fund an inspection and report prepared by a qualified critical area professional to assess that the new stream channel complies with the requirements detailed in KZC 90.75.3 and fund a peer review of the report if deemed necessary by the Planning Official.
- (5) The proposed stream daylighting will increase the standard buffer on adjacent properties north of the project site. KZC 90.80.2.a states that the standard buffer requirements for adjacent properties shall not increase due to a stream's deliberate meandering course or daylighting.
- (6) KZC 90.80.2.b requires the applicant to prepare a buffer waiver notice and applicable survey to record on the title of the properties affected by the increased buffer standards due to the meandering and daylighting of a stream.
- (7) Pursuant to KZC 90.80.2.b the applicant must contact any affected property owners in writing notifying them of the buffer waiver notice and applicable survey to determine if any of the owners choose to opt out of having the notice and survey recorded on the title to their property.
- (8) KZC 90.80.2.c requires the applicant to pay for any fees to record the buffer waiver notice and survey on affected adjacent properties who wish to pursue the buffer waiver.

b. Conclusions:

- (1) As part of the land surface modification permit, the applicant should submit plans that are consistent with the proposed plans found in Attachment 1.
- (2) Prior to placing the stream in the new stream channel, the applicant should submit a report prepared by a qualified critical area professional assessing the new stream channel for compliance with KZC 90.75.3. The work and report may be subject to inspection and final approval by the Planning and

- Building Department's sensitive areas consultant at the applicant's expense.
- (3) Prior to final inspection of the land surface modification permit, the applicant should prepare a buffer waiver notice and survey prepared by a Washington State licensed land surveyor showing the existing and proposed buffers to record on the title of the properties affected by the increased buffer standards. The City will notify any affected property owners of the buffer waiver notice and survey and will determine if any property owner chooses to opt out of the recording.
 - (4) Prior to the final inspection of the land surface modification permit, the buffer waiver and survey should be recorded on the title of the properties wishing to pursue the buffer waiver at the applicant's expense.

3. MITIGATION SEQUENCING (KZC 90.145)

- a. Facts: Modifications to a critical area and/or buffer must be evaluated using mitigation sequencing as required in KZC 90.145. Additionally, modifications to wetland buffers must be evaluated using the standards established in KZC 90.150.

- (1) Order of Preference

- (a) KZC 90.145 states that the intent of mitigation sequencing is to evaluate and implement opportunities to avoid, minimize, eliminate, or compensate for impacts to critical areas while still meeting the objectives of the project. When a modification to a critical area and buffer is proposed, the modification shall be avoided, minimized, or compensated for, as outlined by WAC 197-11-768.

- (b) The applicant submitted a critical area report including mitigation sequencing analysis prepared by O'Neill Service Group, dated April 6, 2022 (see Attachment 8) which was reviewed by the City's consulting biologist, The Watershed Company on June 22, 2022 (see Attachment 9).

- (c) The mitigation criteria detailed in KZC 90.145.2.a-f are described below followed by staff's analysis:

- KZC 95.145.2.a: Avoiding the impact altogether by not taking a certain action or parts of actions.

- Staff Analysis: The proposed work will replace existing stormwater utility infrastructure, meaning complete avoidance of the critical area is not feasible. Much of the work will occur within open public rights-of-way outside of any critical area or critical area buffer. The project has been designed in a manner to impact the least number of trees possible and avoid the removal of multiple significant trees.*

- KZC 95.145.2.b: Minimizing the impacts by limiting the degree or magnitude of the action and its implementation.

- Staff Analysis: The project limits have been designed to be as narrow as possible in order to implement the work. Construction is proposed in phases so that excavation work and the utility installation are completed before the*

new system is physically connected, which will maintain water quality standards. Best management practices will be used during construction to minimize sedimentation and pollutants in stormwater runoff.

- KZC 95.145.2.c: Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

Staff Analysis: Buffer impacts caused by construction will be restored with through a buffer enhancement plan comprised of native plantings installed post-construction (see page 13 of Attachment 1).

- KZC 95.145.2.d: Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

Staff Analysis: The project will complete a five-year monitoring and maintenance program compliant with KZC 90.160 to encourage healthy growth of the enhanced buffer plantings resulting in a superior buffer offsetting project impacts.

- KZC 95.145.2.e: Compensating for the impact by replacing or providing substitute resources or environments; and/or monitoring the impacts and compensation projects and taking appropriate corrective measures.

Staff Analysis: The project is directly upgrading the stormwater system by daylighting a portion of the stream and removing existing stormwater pipes which cannot be completed without impacting the critical areas and buffers. The project proposes mitigation for these unavoidable impacts and any temporary impacts due to construction will be restored once construction is completed.

- KZC 95.145.2.f: Monitoring the impacts and compensation projects and taking appropriate corrective measures.

Staff Analysis: The project will require a 5-year Monitoring and Maintenance Plan of the proposed mitigation plan consistent with KZC 90.160.

- (d) Staff and The Watershed Company reviewed the applicant's mitigation sequencing evaluation and concluded that the proposal, prepared by the City's CIP Division and O'Neill Service Group, dated October 3, 2022, complies with mitigation requirements of KZC 90.145 (see Attachment 10).

(2) Mitigation Requirements

Requirements for mitigation are found in KZC 90.145.3-5, KZC 90.145.6.b, and KZC 90.150. The following is a review, in a checklist format, of compliance with these requirements.

Complies as proposed	Not Applicable	Complies as conditioned	CODE SECTION
Location of Mitigation			
☒	☐	☐	KZC 90.145.3.a – Preference shall be given to the location of the mitigation in the following order unless it can be demonstrated that off-site in-kind mitigation is ecologically preferable: 1) On-site in-kind; 2) Off-site in City in-kind; 3) Off -site in-kind within the Lake Washington/Cedar/Sammamish Watershed <i>Staff Comment/Analysis: The applicant is proposing to mitigate the replacement outfall and work within the stream and wetland buffers through on-site in-kind restoration and enhancement (see Attachments 8 and 10).</i>
On-Site versus Off-Site Mitigation			
☒	☐	☐	KZC 90.145.3.b(1) – Mitigation shall occur on-site except when the City determines that the following criteria have been met as part of a proposal under this chapter: a) There is no opportunity for on-site mitigation or on-site opportunities do not have a high likelihood of success due to the size of the property, site constraints, or size and quality of the wetland or location and quality of the stream; b) Off-site mitigation has a greater likelihood of providing equal or improved critical area functions than the impacted critical area; c) Off-site locations shall be in the same Water Resource Inventory Area (WRIA) 9 Lake Washington/Cedar/Sammamish Watershed as impacted critical area; and d) The off-site critical area mitigation will best meet formally established watershed goals for water quality, flood or conveyance, habitat, or other wetland functions that have been established and strongly justify location of mitigation at another site. <i>Staff Comment/Analysis: The applicant is proposing to complete all mitigation on-site.</i>
☐	☒	☐	KZC 90.145.3.b(2) – When considering mitigation outside of the City, preference should be given to using mitigation banking or an in-lieu fee program pursuant to subsection (4) of this section. <i>Staff Comment/Analysis: The applicant is not proposing mitigation outside of the City.</i>

Complies as proposed	Not Applicable	Complies as conditioned	CODE SECTION
Responsible Party for Mitigation Site Mitigation for loss of diminished critical area functions and values for either wetlands or streams shall use the following options in subsections a and/or b below:			
☒	☐	☐	KZC 90.145.4.a – Applicant-Responsible Mitigation The applicant is responsible for the implementation, monitoring, and success of the mitigation pursuant to this chapter. <i>Staff Comment/Analysis: The applicant is proposing to be responsible for the implementation, monitoring, and success of the mitigation plan on site.</i>
☐	☒	☐	KZC 90.145.4.b – Non-applicant Responsible Mitigation – Mitigation Bank and In-Lieu Fee Mitigation 1) Funds are collected from the applicant by the sponsoring agency, nonprofit, private party, or jurisdiction. The sponsor is responsible from that point forward for the completion and success of the mitigation. The applicant's fee is based on the project impact and includes all costs for the mitigation including design, land acquisition, materials, construction, administration, monitoring, and stewardship. 2) Credits purchased by an applicant from a mitigation bank or in-lieu program that is certified under federal and state rules may be used as a method of mitigation if approved by the City to compensate for impacts when all the following apply: a. The City determines as part of the critical area approval that it would provide appropriate compensation for the proposed impacts; b. Projects shall have debits associated with the proposed impacts calculated by the applicant's qualified critical area professional using the credit assessment for the impact as specified in the approved instrument for the program. The assessment shall be reviewed and approved by the City; c. The proposed use of credits is consistent with the terms and conditions of the certified mitigation bank or in-lieu fee program instrument; d. The record of payment for credits shall be provided to the City in advance of the authorized impacts but no later than issuance of the building or land surface modification permit.

			<i>Staff Comment/Analysis: The applicant is not proposing non-applicant responsible mitigation.</i>
			City-Responsible Mitigation – Advanced Mitigation
☐	☒	☐	KZC 90.145.4.c – The City does mitigation on City-owned property as mitigation credit either for City critical area projects or at the discretion of the City for other public agencies with critical area projects. The mitigation program shall be implemented pursuant to federal and state rules, and state water quality regulations. <i>Staff Comment/Analysis: The applicant is not proposing the use of advanced mitigation.</i>
			Timing of Mitigation
☒	☐	☐	KZC 90.145.5.a – On-Site Mitigation 1) On-site mitigation shall be completed immediately before or following disturbance and prior to use or final inspection of the activity or development. Construction of mitigation projects shall be timed to reduce impacts to existing fisheries, wildlife, and flora; and 2) The Planning Official may allow flexibility with respect to seasonal timing of excavation or planting for mitigation. If on-site mitigation must be completed after final inspection of a building or land surface modification permit or commencement of an activity, a performance financial security shall be required pursuant to KZC 90.165 along with a timeline commitment for completion. <i>Staff Comment/Analysis: The applicant is proposing to commence work in 2023 and all mitigation installation will begin following construction.</i>
☐	☒	☐	KZC 90.145.5.b(1) – Off-Site Mitigation 1) For in-lieu fee, mitigation bank, or advance mitigation programs: a. Mitigation shall be completed based on the program's established timeline, except advance mitigation shall be completed prior to issuance of the development permit; b. The applicant shall provide documentation of proof of purchase of credits for in-lieu fee and mitigation banking in advance of the authorized impacts but no later than issuance of the building or land surface modification permit. However, if the program sponsor requires proof of development permit prior to credit purchase, the documentation may be provided to the City prior to final inspection; and c. For advanced mitigation, the applicant shall submit documentation of completion of the advance mitigation prior to issuance of a land surface modification of building permit.

			<i><u>Staff Comment/Analysis:</u> The applicant is not proposing off-site mitigation.</i>
☐	☒	☐	KZC 90.145.5.b(2) – For all other off-site mitigation: a) Mitigation shall be completed immediately before or following disturbance and prior to use or final inspection of the activity or development. Construction of mitigation projects shall be timed to reduce impacts to existing fisheries, wildlife, and flora. The Planning Official may allow flexibility with respect to seasonal timing of excavation or planting for mitigation; and b) Documentation of the proof of purchase of off-site property shall be provided in advance of the authorized impacts but no later than issuance of the building or land surface modification permit. <i><u>Staff Comment/Analysis:</u> The applicant is not proposing off-site mitigation.</i>
Mitigation Plan Standards			
☒	☐	☐	KZC 90.145.6.b(1) – Plans shall show that the vegetative buffer standards and requirements in KZC 90.130 are met. If the buffer does not currently meet the vegetative buffer standards, a detailed final revegetated plan shall be submitted including specification on size and type of each native species of plants, and number and spacing of the plants meeting the City of Kirkland’s Critical Area Plant List and standards. <i><u>Staff Comment/Analysis:</u> The applicant has submitted a revegetation plan and narrative (see Attachment 8) that has been reviewed by staff and the City’s qualified critical area professional for compliance.</i>
☒	☐	☐	KZC 90.145.6.b(2) - Seed source must be as local as possible, and plants must be nursery propagated unless transplanted from on-site areas approved for disturbance. These requirements must be included in the mitigation plan specifications. <i><u>Staff Comment/Analysis:</u> The applicant has proposed suitable native plant species from the City of Kirkland’s Native Plantings List, which will be nursery propagated (see Attachments 8 and 10).</i>
☐	☐	☒	KZC 90.145.6.b(3) – Plant materials may be supported with material (e.g., stakes, guy wires) only when necessary. Staking and ties shall follow the International Society of Arboriculture standards. Where support is necessary, stakes, guy wires, or other measures must be removed as soon as the plan can support itself, usually after the first growing season. <i><u>Staff Comment/Analysis:</u> The applicant is not proposing use of any support materials. Should support materials be required to assist plant materials, all stakes and ties must follow the International Society of Arboriculture standards and be removed as soon as the plant can support itself.</i>

☒	☐	☐	KZC 90.145.6.b(4) – The stream buffer mitigation area replacement at a minimum ratio of 1:1 pursuant to KZC 90.65 is met. <u>Staff Comment/Analysis:</u> <i>The total new net impervious area on the subject property is 636 square feet thus requiring a partial vegetative buffer or 1:1 planting. The mitigation enhancement is proposed at a ratio of 1:1 (see Attachments 1 and 10).</i>
☒	☐	☐	KZC 90.145.6.b(5) – Proposed erosion control measures comply with the City's Public Works Pre-Approved Plans: <u>Staff Comment/Analysis:</u> <i>The applicant has submitted an erosion plan (see Attachment 1). The erosion plan should be submitted with the land surface modification permit and should include any applicant pre-approved plans.</i>
☒	☐	☐	KZC 90.145.6.b(6) – Mitigation is consistent with other requirements in this code, including sight distance requirements at intersection pursuant to Chapter 115 KZC. <u>Staff Comment/Analysis:</u> <i>The mitigation plan is consistent with other requirements in the Kirkland Zoning Code.</i>
☒	☐	☐	KZC 90.145.6.b(7) – All planted areas of the mitigation project have a temporary, above ground sprinkler system set to automatic timers. Temporary sprinkler systems shall be removed in the final year of monitoring once vegetation is well established. When public or private water is not available, a plan for reliable watering by truck or hand shall be included. <u>Staff Comment/Analysis:</u> <i>The applicant has confirmed that all plant zones will be irrigated (see Attachment 10). Per KZC 90.145.6.b(7). The watering system would not be removed until the final monitoring year.</i>

Complies as proposed	Not Applicable	Complies as conditioned	CODE SECTION
			Wetland Compensatory Mitigation
☐	☐	☐	KZC 90.150.2 – Table 90.150.1 establishes mitigation ratios for wetlands and wetland buffers. The minimum mitigation ratio for permanent wetland impact is 12:1. The minimum mitigation ratio for wetland buffer alteration is 1:1. <u>Staff Comment/Analysis:</u> <i>The project proposes 270 square feet of permanent wetland buffer impacts and zero permanent wetland impacts. The applicant is proposing to enhance the wetland buffer area adjacent to the construction site at a ratio of 3.62:1, in the</i>

			<i>amount of 978 square feet (see Attachment 1). The proposal complies with the minimum 1:1 buffer alteration ratio requirement.</i>
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- b. Conclusion: Based on the mitigation sequencing analysis above, and the review by The Watershed Company of the project plans, mitigation plan, and monitoring and maintenance plans, the proposal is consistent with the mitigation sequencing and general mitigation requirements of KZC 90.145 and wetland compensatory mitigation requirements of 90.150, provided that:
- (1) The applicant should implement the approved mitigation plan pursuant to the standards in KZC 90.145 along with the recommendations of the City's consulting qualified critical area professional found in Attachment 9.
 - (2) The applicant should implement and comply with the approved monitoring and maintenance plan in Attachments 1, 8, and 10 with the recommendations of the City's consulting qualified critical area professional found in Attachment 12 and submit a monitoring report to the Planning Official at required scheduled intervals.

4. GENERAL ZONING CODE CRITERIA

- a. Fact: Zoning Code section 145.45.2 states that a Process I application may be approved if:
- (1) It is consistent with all applicable development regulations and, to the extent there is no applicable development regulation, the Comprehensive Plan; and
 - (2) It is consistent with the public health, safety, and welfare.
- b. Conclusion: The proposal complies with the criteria in section 145.45.2. It is consistent with all applicable development regulations. It will serve the public use and interest and is consistent with the public health, safety, and welfare because it will maintain an existing stormwater infrastructure that is consistent with applicable development regulations.

F. DEVELOPMENT STANDARDS

1. Fact: Additional comments and requirements placed on the project are found on the Development Standards, Attachment 3.
2. Conclusion: The applicant should follow the requirements set forth in Attachment 3.

III. SUBSEQUENT MODIFICATIONS

Modifications to the approval may be requested and reviewed pursuant to the applicable modification procedures and criteria in effect at the time of the requested modification.

IV. APPEALS AND JUDICIAL REVIEW

The following is a summary of the deadlines and procedures for appeals. Any person wishing to file or respond to an appeal should contact the Planning Department for further procedural information.

A. APPEALS

Appeal to the Hearing Examiner: Section 145.60 of the Zoning Code allows the Planning Director's decision to be appealed by the applicant and any person who submitted written comments or information to the Planning Director. A party who signed a petition may not appeal unless such party also submitted independent written comments or

information. The appeal must be in writing and must be delivered, along with any fees set by ordinance, to the Planning Department by 5:00 p.m., February 9, 2023, fourteen (14) calendar days following the postmarked date of distribution of the Director's decision on the application.

B. JUDICIAL REVIEW

Section 145.110 of the Zoning Code allows the action of the City in granting or denying this zoning permit to be reviewed in King County Superior Court. The petition for review must be filed within 21 calendar days of the issuance of the final land use decision by the City.

V. LAPSE OF APPROVAL

Pursuant to KZC 145.115, the applicant must begin construction or submit to the City a complete building permit application for the development activity, use of land or other actions approved under this chapter within five (5) years after the final approval of the City of Kirkland on the matter, or the decision becomes void; provided, however, that in the event judicial review is initiated per KZC 145.110, the running of the five (5) years is tolled for any period of time during which a court order in said judicial review proceeding prohibits the required development activity, use of land, or other actions.

The applicant must substantially complete construction for the development activity, use of land, or other actions approved under this chapter and complete the applicable conditions listed on the notice of decision within nine (9) years after the final approval on the matter, or the decision becomes void.

VI. APPENDICES

Attachments 1 through 10 are attached.

1. Plan Set
2. Vicinity Map
3. Development Standards
4. Arborist Report
5. SEPA DNS
6. Critical Area Report prepared by O'Neill Service Group, dated September 24, 2020
7. Critical Area Report Peer Review prepared by The Watershed Company, dated January 6, 2022
8. Critical Area Report prepared by O'Neill Service Group, dated April 6, 2022
9. Critical Area Report Peer Review prepared by The Watershed Company, dated June 22, 2022
10. Critical Area Report Addendum prepared by the City of Kirkland CIP Division and O'Neill Service Group, dated October 3, 2022

VII. PARTIES OF RECORD

Applicant Aimee Allcock, City of Kirkland Public Works CIP Project Coordinator
Planning and Building Department
Department of Public Works

Review by Planning Director:

I concur

☒

I do not concur

☐

Comments: _____



Adam Weinstein, Director

1/12/23
Date

**Preliminary
100% Review Set**Not For Construction
09-2022

CITY OF KIRKLAND

NE 142ND STREET

SURFACE WATER DRAINAGE IMPROVEMENTS

JOB NO. SDC 08900000

SEPTEMBER 2022

CITY OFFICIALS

PENNY SWEET	MAYOR
JAY ARNOLD	DEPUTY MAYOR
NEAL BLACK	COUNCIL MEMBER
KELLI CURTIS	COUNCIL MEMBER
AMY FALCONE	COUNCIL MEMBER
TOBY NIXON	COUNCIL MEMBER
JON PASCAL	COUNCIL MEMBER
KURT TRIPLETT	CITY MANAGER
JULIE UNDERWOOD	PUBLIC WORKS DIRECTOR (INTERIM)
ROD STEITZER, P.E.	CAPITAL PROJECTS MANAGER

CONTACT PERSONNEL

NAME	AGENCY	PHONE
I-WEN YANG, P.E.	COK PROJECT ENGINEER	425.587.3832
CM INSPECTOR TBD	PROJECT INSPECTOR	TBD
TBD	COK FIELD REPRESENTATIVE	425.623.5086
TBD	COK FIELD REPRESENTATIVE	425.496.4265
NORCOM	COK POLICE DEPARTMENT	425.587.3400
NORCOM	COK FIRE DEPARTMENT	425.587.3650
SPILL RESPONSE HOTLINE	COK	425.587.3900
JEANNE COLEMAN	PUGET SOUND ENERGY GAS	425.563.6550
BRAD LANDIS	VERIZON BUSINESS	425.201.0901
KEN McDOWELL	WOODINVILLE WATER DISTRICT	425.587.4104
RICHARD COX	SEATTLE PUBLIC UTILITIES	206.684.8117
BRANDON HUMPHREY	NORTHSHORE UTILITY DISTRICT	425.521.3736
CONSTRUCTION COORDINATOR	KING COUNTY METRO	206.684.2732
JOE FORDON	COMCAST	425.263.5348
JAY SCHWAB	FRONTIER COMMUNICATIONS	425.263.4019
JASON ACCUARDI	ZAYO	206.456.2858
PHILIP FISK	WAVE BROADBAND	425.988.3295
STEVE FOSS	KING COUNTY WTD	206.255.6047
EMERGENCY		911
ONE CALL UTILITY LOCATE		811

KIRKLAND



PROJECT LOCATIONS
77TH AVE NE AND
NE 142ND PL



INDEX OF DRAWINGS

1	COVER PAGE
2	GENERAL NOTES
3	LEGEND AND ABBREVIATIONS
4	SITE PLAN, SURVEY NOTES AND CONTROL
5	TEMPORARY EROSION AND SEDIMENTATION CONTROL (TESC) NOTES
6	TESC AND DEMOLITION PLAN
7	TESC AND GENERAL DETAILS
8	STORMWATER PLAN
9	STORMWATER PROFILES
10	DETAILS
11	DETAILS
12	SURFACE RESTORATION PLAN
13	PLANTING PLAN

GENERAL NOTES:

1.

A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION. LIMITS OF OBTAINED PERMITS ARE INDICATED IN THE APPENCIES OF THE BID AND CONTRACT DOCUMENTS MANUAL FOR THE NE 142ND STREET SURFACE WATER DRAINAGE IMPROVEMENTS PROJECT.
2.

ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS AND CURRENT WSDOT/APWA STANDARDS AND SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AND THE BID AND CONTRACT DOCUMENTS MANUAL FOR THE NE 142ND STREET SURFACE WATER DRAINAGE IMPROVEMENTS PROJECT.
3.

APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE LOCATIONS SHOWN AND FOR DISCOVERY OF POSSIBLE ADDITIONAL UTILITIES NOT SHOWN SO AS TO AVOID DAMAGE OR DISTURBANCE. THE UNDERGROUND UTILITY LOCATION SERVICE SHALL BE CONTACTED FOR FIELD LOCATION PRIOR TO ANY CONSTRUCTION. THE OWNER OR THEIR REPRESENTATIVE SHALL BE CONTACTED IF A UTILITY CONFLICT EXISTS. FOR UTILITY LOCATION IN KING COUNTY, CALL 811. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT UTILITY LOCATES ARE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
4.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THEIR ACTIVITIES WITH LOCAL UTILITY COMPANIES TO ENSURE THAT ALL UTILITIES ARE INSTALLED ACCORDING TO THESE PLANS AND THE REQUIREMENTS OF THE INDIVIDUAL UTILITY COMPANIES.
5.

REFERENCES HEREIN TO "PLAN NO. CK-### ARE TO CITY OF KIRKLAND PRE-APPROVED PLANS (STANDARD DETAILS) AS INCLUDED, AND AS MAY BE AMENDED, ON THE DETAIL SHEETS. IF A NEEDED DETAIL IS NOT INCLUDED IN THE PROJECT SPECIFICATIONS, WSDOT STANDARD PLANS, OR PROJECT PLANS, THE CITY OF KIRKLAND PRE-APPROVED PLANS ARE TO BE REFERENCED.
6.

STOCKPILING OF CONSTRUCTION MATERIALS IN CITY OF KIRKLAND RIGHT OF WAY WITHOUT WRITTEN PERMISSION OF ENGINEER IS PROHIBITED.
7.

SURVEY OF EXISTING UTILITIES DOES NOT INCLUDE ALL PRIVATE IRRIGATION SYSTEMS. CONTRACTOR SHALL CONFIRM LOCATION AND OPERATION OF ALL IRRIGATION SYSTEMS PRIOR TO DISCONNECTING. CONTRACTOR SHALL MAKE SAME DAY REPAIRS ON ANY SYSTEMS AND CONFIRM CORRECT OPERATION WITH HOMEOWNER WITHIN SEVEN DAYS AFTER REPAIR IS MADE. CONTRACTOR SHALL MOVE IRRIGATION FEATURES AS NECESSARY PRIOR TO PROPER INSTALLATION OF WATER SERVICE BOX.

STORM DRAINAGE PLAN NOTES:

1.

BEFORE ANY CONSTRUCTION MAY OCCUR, THE CONTRACTOR SHALL HAVE PLANS WHICH HAVE BEEN SIGNED AND APPROVED BY THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT, OBTAINED ALL CITY, COUNTY, STATE, FEDERAL AND OTHER REQUIRED PERMITS, HAVE POSTED ALL REQUIRED BONDS, PREPARED A SWPPP AND RECEIVED CITY APPROVAL, AND HAVE HELD A PRE-CONSTRUCTION CONFERENCE.
2.

ALL STORM DRAINAGE IMPROVEMENTS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF KIRKLAND PUBLIC WORKS PRE-APPROVED PLANS AND POLICIES AND THE CITY OF KIRKLAND AMENDMENTS TO THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, PREPARED BY WSDOT AND THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA). THE MOST UP TO DATE CITY OF KIRKLAND PUBLIC WORKS PRE-APPROVED PLANS ARE FOUND ON THE WEBSITE:
<https://www.kirklandwa.gov/Government/Departments/Development-Services-Center/Tools-and-Resources/Pre-Approved-Plans>.
3.

ANY DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL, ALL CHANGES SHALL BE SUBMITTED TO THE CITY.

4.

A COPY OF THE APPROVED STORM WATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5.

ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY STABILIZED TO THE SATISFACTION OF THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS FOR THE PREVENTION OF ON-SITE EROSION AFTER THE COMPLETION OF CONSTRUCTION.
6.

MINIMUM COVER OVER STORM DRAINAGE PIPES IN ROW OR VEHICULAR PATH SHALL BE 18 INCHES, UNLESS OTHER DESIGN IS APPROVED.
7.

ALL CATCH BASINS SHALL BE TYPE 1 UNLESS OTHERWISE NOTED. CATCH BASINS WITH A DEPTH OF OVER FIVE FEET (5') TO THE PIPE INVERT SHALL BE A TYPE 2 CATCH BASIN. TYPE 2 CATCH BASINS EXCEEDING FIVE FEET (5') IN DEPTH SHALL HAVE A STANDARD LADDER INSTALLED.
8.

ALL STORM DRAINAGE MAIN EXTENSIONS WITHIN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS MUST BE STAKED FOR LINE AND GRADE PRIOR TO STARTING CONSTRUCTION.
9.

ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF ONE FOOT (1') AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"-8" ROCK/40%-70% PASSING; 2"-4" ROCK/30%-40% PASSING; 2"-MINUS ROCK/10%-20% PASSING. RECYCLED CONCRETE SHALL NOT BE USED FOR EROSION PROTECTION, INCLUDING FOR CONSTRUCTION ENTRANCE OR TEMPORARY STABILIZATION ELSEWHERE ON SITE.
10.

ALL PIPE, MANHOLES, CATCH BASINS, AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH THE CURRENT STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (WSDOT). THIS SHALL INCLUDE NECESSARY LEVELING OF THE TRENCH BOTTOM OR THE TOP OF THE FOUNDATION MATERIAL AS WELL AS PLACEMENT AND COMPACTION OF REQUIRED BEDDING MATERIAL TO UNIFORM GRADE SO THAT THE ENTIRE LENGTH OF THE PIPE WILL BE SUPPORTED ON A UNIFORMLY DENSE, UNYIELDING BASE. IF THE NATIVE MATERIAL IN THE BOTTOM OF THE TRENCH MEETS THE REQUIREMENTS FOR "GRAVEL BACKFILL FOR PIPE BEDDING", THE FIRST LIFT OF PIPE BEDDING MAY BE OMITTED PROVIDED THE MATERIAL IN THE BOTTOM OF THE TRENCH IS LOOSENEED, REGRADED, AND COMPACTED TO FORM A DENSE UNYIELDING BASE. ALL PIPE BEDDING SHALL BE APWA CLASS B, TYPE 1, OR BETTER. PIPE SHALL NOT BE INSTALLED ON SOD, FROZEN EARTH, LARGE BOULDERS, OR ROCK. PIPE BEDDING FOR FLEXIBLE PIPES SHALL BE PEA GRAVEL TO THE SPRINGLINE OF THE PIPE.
11.

CONSTRUCTION OF DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25NTU, AND NOT CONSIDERED A PROHIBITED DISCHARGE (PER KMC 15.52.090). TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-300) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.
12.

ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 PERCENT.
13.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, CONFINED SPACE PROTECTION, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE A TRAFFIC CONTROL PLAN APPROVED BY THE CITY OF KIRKLAND. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, TRAFFIC CONTROL, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL APPLY.
14.

NO FINAL CUT OR FILL SLOPE SHALL EXCEED SLOPES OF TWO (2) HORIZONTAL TO ONE (1) VERTICAL WITHOUT STABILIZATION BY ROCKERY OR BY A STRUCTURAL RETAINING WALL.

15.

ALL MANHOLE LADDERS SHALL BE FIRMLY ATTACHED AND EXTEND TO WITHIN 1' OF THE BOTTOM OF THE STRUCTURE.
16.

APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING UTILITY LOCATIONS WHETHER OR NOT THESE UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL CARE TO AVOID DAMAGE TO ANY UTILITY. IF CONFLICTS WITH EXISTING UTILITIES ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION INSPECTOR AND ANY CHANGES REQUIRED SHALL BE APPROVED BY THE DEVELOPMENT ENGINEER PRIOR TO COMMENCEMENT OF RELATED CONSTRUCTION ON THE PROJECT.
17.

THE UNDERGROUND UTILITY LOCATION SERVICE SHALL BE CONTACTED FOR FIELD LOCATION OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. THE OWNER OR THEIR REPRESENTATIVE SHALL BE CONTACTED IF A UTILITY CONFLICT EXISTS. FOR UTILITY LOCATION KING COUNTY, CALL 1-800-424-5555. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT UTILITY LOCATES ARE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
18.

THE CONTRACTOR SHALL VERIFY THE LOCATIONS, WIDTHS, THICKNESS, AND ELEVATIONS OF ALL EXISTING PAVEMENTS AND STRUCTURES THAT ARE TO INTERFERE WITH NEW WORK. PROVIDE ALL TRIMMING, CUTTING, SAW CUTTING, GRADING, LEVELING, SLOPING, COATING, AND OTHER WORK, INCLUDING MATERIALS AS NECESSARY, TO CAUSE THE INTERFACE WITH EXISTING WORKS TO BE PROPER, ACCEPTABLE TO THE ENGINEER AND THE CITY OF KIRKLAND, COMPLETE IN PLACE AND READY TO USE.
19.

ALL INLET, MANHOLE, AND CATCH BASIN FRAMES AND GRATES SHALL NOT BE ADJUSTED TO GRADE UNTIL IMMEDIATELY PRIOR TO FINAL PAVING. ALL CATCH BASIN GRATES SHALL BE SET 0.10' BELOW PAVEMENT LEVEL.
20.

OPEN CUT ROAD CROSSINGS FOR UTILITY TRENCHES ON EXISTING TRAVELED ROADWAY SHALL BE BACKFILLED ONLY WITH 5/8" MINUS CRUSHED ROCK AND MECHANICALLY COMPACTED (UNLESS OTHERWISE APPROVED BY THE CITY). FOR STREETS CLASSIFIED AS ARTERIALS OR COLLECTORS, BACKFILL FOR CROSSINGS SHALL BE CDF. CUTS INTO THE EXISTING ASPHALT SHALL BE NEAT LINE CUT WITH SAW OR JACKHAMMER IN A CONTINUOUS LINE. A TEMPORARY COLD MIX PATCH MUST BE PLACED IMMEDIATELY AFTER BACKFILL AND COMPACTION. A PERMANENT HOT MIX PATCH SHALL BE PLACED WITHIN 30 DAYS AND SHALL BE A MINIMUM OF 1" THICKER THAN THE ORIGINAL ASPHALT WITH A MINIMUM THICKNESS OR 2". SEE STANDARD D.02.
21.

ALL DAMAGES INCURRED TO PUBLIC AND/OR PRIVATE PROPERTY BY THE CONTRACTOR DURING THE COURSE OF CONSTRUCTION SHALL BE PROMPTLY REPAIRED TO THE SATISFACTION OF THE CITY CONSTRUCTION INSPECTOR BEFORE PROJECT APPROVAL AND/OR THE RELEASE OF THE PROJECT'S PERFORMANCE BOND.
22.

GROUT ALL SEAMS AND OPENINGS IN ALL INLETS, CATCH BASINS, AND MANHOLES. JETSET GROUT AND SIMILAR PRODUCTS ARE NOT ALLOWED.
23.

WHEN WIDENING AN EXISTING ROADWAY WHERE AN EXISTING TYPE 1 CATCH BASIN WILL REMAIN IN THE TRAVEL LANE, THE EXISTING FRAME AND COVER SHALL BE REPLACED WITH A ROUND, LOCKING FRAME AND COVER.
24.

FOR OTHER THAN SINGLE-FAMILY DWELLINGS, ALL EXPOSED OR READILY EXPOSED INDOOR STORM DRAINAGE PIPING/PLUMBING SHALL BE LABELED WITH THE WORDS "STORM DRAIN" WITH MINIMUM 2 INCH HIGH LETTERS.
25.

RECYCLED CONCRETE SHALL NOT BE USED AROUND STORMWATER FACILITIES.
26.

ALL FASTENERS (BOLTS, NUTS, WASHERS, ETC.) ON MANHOLE AND CATCH BASIN LIDS TO BE STANDARD SIZE. NO METRIC FASTENERS ALLOWED.

PLANTING NOTES:

GENERAL PLANTING NOTES

1.

PLANT INSTALLATION ACTIVITIES SHALL BE IN ACCORDANCE WITH WSDOT STD SPEC 8-02; IN PARTICULAR STD SPEC 8-02.3(7) SHALL BE FOLLOWED FOR PLANTING LAYOUT AND STD SPEC 8-02.3(8), 8-02.3(9), AND 8-02.3(12) FOR INSTALLATION, AND STD SPEC 8-02.3(13) FOR ESTABLISHMENT.
2.

ALL PLANTING MATERIAL SHALL BE NURSERY-GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO OR HARDIER THAN THOSE AT THE SITE AND COMPLY WITH WSDOT STD SPEC 9-14.6.
3.

PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY.
4.

PLANT NAMES SHALL CONFORM TO FLORA OF PACIFIC NORTHWEST BY HITCHCOCK AND CRONQUIST, UNIVERSITY OF WASHINGTON PRESS, 1973.
5.

PROTECT PLANTS AT ALL TIMES DURING PLANTING OPERATION TO PREVENT ROOTS FROM DRYING OUT.
6.

DO NOT INSTALL PLANT MATERIAL WHEN AMBIENT TEMPERATURE MAY DROP BELOW 35 DEGREES OR ABOVE 80 DEGREES. DO NOT INSTALL PLANTS WHEN WIND VELOCITY EXCEEDS 30MPH.
7.

DO NOT PLANT SHRUB SPECIES WITHIN 6 FEET OF EXISTING TREES.
8.

MULCH SHALL BE WOOD CHIPS COMPRISED OF GROUND FIR OR HEMLOCK, PER STD SPEC 9-14.4(3). SEE SHEET 12 FOR AREAS OF FULL COVERAGE MULCH. SEE SHRUB AND GROUND COVER PLANTING DETAIL FOR MULCH COVERAGE AROUND SHRUBS, GROUND COVER, AND TREES. TAPER MULCH AWAY FROM STEMS OF PLANTS. ARBORIST WOODCHIPS, SAWDUST, BEAUTY BARK AND PRODUCTS LABELED "HOG FUEL" ARE NOT ACCEPTABLE.
9.

SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE CITY, PER WSDOT STD SPEC 9-14.6(6).
10.

PLANTING ZONES SHALL BE IRRIGATED AS NEEDED FOR THE FIRST ONE (1) YEAR AFTER PLANT ACCEPTANCE AND CONTRACT COMPLETION. THE IRRIGATION SYSTEM SHALL PROVIDE A WATERING PROGRAM CAPABLE OF DELIVERING AT LEAST ONE INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR AT LEAST THE FIRST ONE (1) YEAR FOLLOWING PLANT INSTALLATION. A TEMPORARY ABOVE-GROUND SYSTEM IS PREFERRED, BUT IN THE ABSENCE OF A RELIABLE OR PRACTICABLE WATER SOURCE, ALTERNATIVE WATERING METHODS MAY BE USED. IF WATER IS SUPPLIED BY A NEARBY UTILITY, IT SHALL BE PAID FOR BY THE CONTRACTOR IN A TIMELY MANNER. APPLICATION SHALL BE IN A CONTROLLED, SLOW MANNER ALLOWING WATER TO SOAK INTO THE SOIL AND THAT DOES NOT GENERATE SURFACE RUNOFF.
11.

IN ALL PLANTING AREAS, 100 PERCENT SURVIVAL OF INSTALLED VEGETATION THROUGH A COMBINATION OF PLANT SURVIVAL AND PLANT REPLACEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR THE ONE (1) YEAR FOLLOWING CONTRACT COMPLETION.
12.

THE CONTRACTOR SHALL CONTROL INVASIVE COVER WITHIN THE PLANTING AREA FOR THE ONE (1) YEAR FOLLOWING CONTRACT COMPLETION.

SEQUENCE OF WORK

1.

STAKE THE BOUNDARIES OF THE IMPACT AREA LINE PER THE DESIGN.
2.

INSTALL TESC AND TREE PROTECTION FENCING PER THE DESIGN AT THE LIMITS OF GRADING TO PROTECT CRITICAL AREAS FROM CONSTRUCTION-IMPACTED STORMWATER.
3.

CARRY OUT THE CIVIL PROJECT - CLEAR AND GRUB, GRADE, INSTALL UTILITY, BACKFILL, ETC. GRADE TO FINAL CONFIGURATION.

4.

AMEND PLANTING AREA SOIL WITH FOUR (4) INCHES OF COMPOST. APPLY COMPOST EVENLY THROUGHOUT THE PLANTING AREA AS SHOWN ON THE PLANTING PLAN. DO NOT APPLY COMPOST BELOW OHWM.
5.

MIX COMPOST INTO NATIVE (OR BACKFILLED) SOIL SO THAT THE TOP 14 INCHES OF COMBINED MATERIAL ARE DECOMPACTED AND MIXED (4 INCHES OF COMPOST INCORPORATED INTO THE TOP 10 INCHES OF NATIVE OR BACKFILLED MATERIAL). CAUTION: DO NOT "RIP" OR "ROTTILL" INSIDE OF CRITICAL ROOT ZONES OF TREES TO BE RETAINED AS THIS CAN DAMAGE LIVE ROOTS. MODIFIED AMENDING (SUCH AS PIT AMENDING) MAY BE APPROVED IN ROOT ZONES OF SAVED TREES TO AVOID DAMAGE. THE CITY SHALL REVIEW AND APPROVE AMENDING PRIOR TO MOVING TO STEP #6.
6.

SPREAD A FOUR (4)-INCH LAYER OF WOODCHIP MULCH OVER THE PREPARED SOIL ABOVE THE OHWM. THE CITY SHALL REVIEW AND APPROVE MULCH DEPTH PRIOR TO PLANT INSTALLATION.
7.

INSTALL PLANTS PER THE PLANTING PLAN AS FOLLOWS:

a.

PULL BACK WOODCHIP MULCH FROM THE PLANTING AREA.

b.

INSTALL THE PLANT AND REPLACE THE MULCH, ENSURING THE MULCH DOES NOT TOUCH THE STEM OF THE PLANT.

c.

PLANTS SHALL BE INSTALLED IN THE DORMANT SEASON THAT EXTENDS FROM OCTOBER 15, THROUGH MARCH 15.

d.

IF INSTALLED OUTSIDE OF THIS PERIOD, PLANTS SHALL BE WATERED HEAVILY IMMEDIATELY FOLLOWING INSTALLATION, AND PROVIDED SUPPLEMENTAL WATERING REGULARLY THROUGH THE FIRST DRY SEASON.

e.

THE CITY SHALL REVIEW AND APPROVE THE FINAL PLANT INSTALLATION PRIOR TO ACCEPTING THE PLANT INSTALLATION.
8.

IMPLEMENT IRRIGATION SYSTEM PROGRAM

MAINTENANCE

THE SITE SHALL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS FOR A PERIOD OF ONE (1) YEAR FOLLOWING ACCEPTANCE OF THE AS-BUILT CONDITIONS.

1.

CONTRACTOR SHALL COORDINATE AND ATTEND PLANT MAINTENANCE MEETING WITH THE CITY ONCE EVERY TWO (2) MONTHS FOR A PERIOD OF ONE (1) YEAR FOLLOWING ACCEPTANCE OF AS-BUILT CONDITIONS.
2.

FOLLOW PUNCH LIST ITEMS GENERATED DURING SITE MONITORING.
3.

GENERAL WEEDING FOR ALL PLANTED AREAS:

a.

EVERY TWO (2) MONTHS, REMOVE ALL COMPETING WEEDS AND WEED ROOTS BY HAND FROM THE BUFFER MITIGATION AREA.

b.

NO LINE TRIMMERS SHOULD BE USED INSIDE OF THE MITIGATION AREA AS THEY WILL DAMAGE NATIVE VEGETATION.

c.

REPLACE ANY PLANT THAT DIES WITHIN ONE (1) YEAR OF CONTRACT ACCEPTANCE. REPLACEMENT OF DEAD PLANT SHALL OCCUR AS SOON AS POSSIBLE WITHIN THE DORMANT SEASON (PLANTING DATES DESCRIBED IN ITEM 7c. ABOVE).

d.

IRRIGATION SHALL BE PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 1 INCH OF WATER PROVIDED PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR AT LEAST THE FIRST ONE (1) YEAR FOLLOWING CONTRACT ACCEPTANCE.

Preliminary
100% Review Set
Not For Construction
09-2022

Call 48 Hours
Before You Dig

1-800-424-5555
UNDERGROUND SERVICE

CITY OF KIRKLAND
GENERAL NOTES

SHEET:	2
SCALE:	NTS
FILENAME:	P19-10634_2_Notes



CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS
123 FIFTH AVENUE KIRKLAND, WA 98033
(425) 587–3800 www.kirklandwa.gov

NO.	DATE	BY	APPR.	REVISION

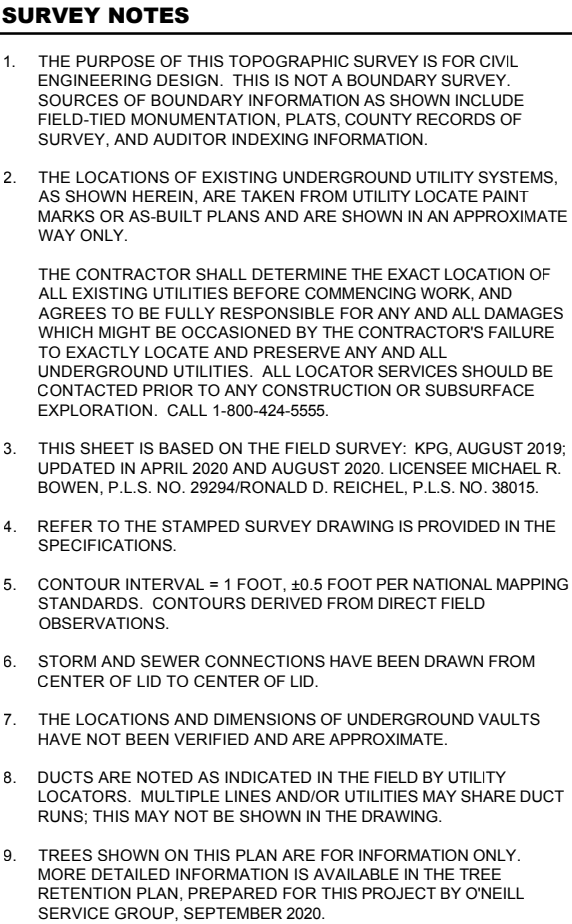




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C. Talich, P.E.	09-2022
DESIGNED BY:	DATE
P. Simon	09-2022
DRAWN BY:	DATE
R. Dorn, P.E.	09-2022
CHECKED BY:	DATE



WASHINGTON STATE PLANE COORDINATE SYSTEM,
NORTH ZONE, NAD 83/91.

NAVD 88

CONTROL POINT LIST				
PT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
1	SPIKE	269511.40	1294749.94	421.19
100	SPIKE	269329.17	1294676.44	418.69
101	SPIKE	269755.16	1294735.67	428.47
103	SPIKE	269499.57	1294838.13	419.61
204	PK	269359.65	1294734.76	418.14
205	HT	269351.85	1294837.49	417.78

1-800-424-5555
UNDERGROUND SERVICE



NO.	DATE	BY	APPR.	REVISION



R. Dorn, P.E. 09-2022
CHECKED BY: DATE

CITY OF KIRKLAND
SITE PLAN, SURVEY NOTES
AND CONTROL

SHEET:

4

SCALE:

As Shown

FILENAME:

P19-10634_4_Site

- a. CONDUCT PRE-CONSTRUCTION MEETING.
- b. FLAG OR FENCE CLEARING LIMITS.
- c. POST SIGN WITH NAME AND PHONE NUMBER OF TESC SUPERVISOR.
- d. INSTALL CATCH BASIN PROTECTION.
- e. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
- f. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
- g. CONSTRUCT SEDIMENT PONDS AND TRAPS.
- h. GRADE AND STABILIZE CONSTRUCTION ROADS.
- i. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
- j. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
- k. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE CITY TESC MINIMUM REQUIREMENTS.
- l. COVER ALL AREAS WITHIN THE SPECIFIED TIME FRAME WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, CRUSHED ROCK OR EQUIVALENT.
- m. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN 7 DAYS.
- n. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
- o. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS SHALL BE STABILIZED, AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

2. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS CLEAN AND FREE OF CONTAMINANTS AT ALL TIMES AND FOR PREVENTING AN ILLICIT DISCHARGE (KMC 15.52) INTO THE MUNICIPAL STORM DRAIN SYSTEM. IF YOUR CONSTRUCTION PROJECT CAUSES AN ILLICIT DISCHARGE TO THE MUNICIPAL STORM DRAIN SYSTEM, THE CITY OF KIRKLAND STORM MAINTENANCE DIVISION WILL BE CALLED TO CLEAN THE PUBLIC STORM SYSTEM, AND OTHER AFFECTED PUBLIC INFRASTRUCTURE. THE CONTRACTOR(S), PROPERTY OWNER, AND ANY OTHER RESPONSIBLE PARTY MAY BE CHARGED ALL COSTS ASSOCIATED WITH THE CLEAN-UP AND MAY ALSO BE ASSESSED MONETARY PENALTIES (KMC 1.12.200). THE MINIMUM PENALTY IS \$500. A FINE FOR A REPEAT VIOLATION SHALL BE MULTIPLIED BY THE NUMBER OF VIOLATIONS, AS FINE MAY BE REDUCED OR WAIVED FOR PERSONS WHO IMMEDIATELY SELF-REPORT VIOLATIONS TO THE CITY AT 425-587-3900. A FINAL INSPECTION OF YOUR PROJECT WILL NOT BE GRANTED UNTIL ALL COSTS ASSOCIATED WITH THE CLEAN-UP, AND PENALTIES, ARE PAID TO THE CITY OF KIRKLAND
3. CONSTRUCTION DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25 NTU, AND NOT CONSIDERED AN ILLICIT DISCHARGE (PER KMC 15.52.090). TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.
4. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS AND SPECIFICATIONS.
5. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE SET BY SURVEY AND CLEARLY FLAGGED IN THE FIELD BY A CLEARING CONTROL FENCE PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE OR REMOVAL OF ANY GROUND COVER BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE PERMITTEE/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
6. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
7. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
8. A COPY OF THE APPROVED ESC PLANS SHALL BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
9. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.
10. THE ESC FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS ON THE APPROVED PLANS. LOCATIONS MAY BE MOVED TO SUIT FIELD CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY OF KIRKLAND INSPECTOR.

- ## STORMWATER POLLUTION PREVENTION AND SPILL SITE PLAN REQUIREMENTS

THE SWPPS SITE PLAN SHALL BE CREATED BY THE CONTRACTOR. IT SHALL INCLUDE THE LOCATION AND DESCRIPTION OF BMPs REQUIRED TO PREVENT POLLUTION AND CONTROL SPILLS FROM CONSTRUCTION ACTIVITIES INCLUDING FINAL CLEANUP, AND FROM CHEMICALS AND OTHER MATERIALS USED AND STORED ON THE CONSTRUCTION SITE. THE SITE PLAN DRAWING ELEMENT OF THE SWPPS PLAN SHALL INCLUDE ALL OF THE INFORMATION REQUIRED FOR THE BASE MAP. INFORMATION REQUIRED BY WSDOT STANDARD SPECIFICATIONS SECTION 1-07.15(1), THE MINIMUM ELEMENTS IN THE SPECIAL PROVISIONS, AS WELL AS:

1. EXISTING AND PROPOSED ROADS, DRIVEWAYS, PARKING AREAS, BUILDINGS, DRAINAGE FACILITIES, UTILITY CORRIDORS NOT ASSOCIATED WITH ROADWAYS, RELEVANT CRITICAL AREAS AND ASSOCIATED BUFFERS, AND PROPOSED TOPOGRAPHY.
2. IDENTIFY LOCATIONS WHERE LIQUIDS WILL BE STORED AND DELINEATE SECONDARY CONTAINMENT AREAS THAT WILL BE PROVIDED.
3. IDENTIFY LOCATIONS WHERE CONSTRUCTION MATERIALS AND WASTES WILL BE GENERATED AND STOCKPILED (STOCKPIILING OF MATERIAL IN RIGHT OF WAY IS SUBJECT TO ENGINEER APPROVAL PER GENERAL NOTE 6 SHEET 2).
4. IDENTIFY LOCATION OF FUELING FOR VEHICLES AND EQUIPMENT IF STATIONARY TANKS WILL BE USED.
5. DELINEATE CONTAINMENT AREAS FOR FUEL SPILLS.
6. SHOW LOCATIONS OF LIGHTING AND SIGNAGE FOR FUELING DURING EVENING HOURS.
7. DELINEATE MAINTENANCE AND REPAIR AREAS AND CLEARLY NOTE THAT DRIP PANS OR PLASTIC SHALL BE USED BENEATH VEHICLES. ALSO, CLEARLY NOTE THAT SIGNS SHALL BE POSTED THAT STATE NO VEHICLE WASHING MAY OCCUR IN THE AREA.
8. DELINEATE TRUCK WASHOUT AREAS AND IDENTIFY THE LOCATION OF SLURRY/WASHWATER SUMPS AND RINSING AREA FOR TOOLS.
9. DELINEATE WHERE CHEMICALS WILL BE APPLIED AND IDENTIFY WHERE THEY WILL BE STORED.
10. IDENTIFY WHERE THE SPILL RESPONSE MATERIALS WILL BE STORED.

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09-2022

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C. Talich, P.E. 09-2022
DESIGNED BY: DATE:

P. Simon 09-2022
DRAWN BY: DATE

R. Dorn, P.E. 09-2022
CHECKED BY: DATE:

CITY OF KIRKLAND

**TEMPORARY EROSION AND
SEDIMENTATION CONTROL (TESC)
NOTES**

SHEET

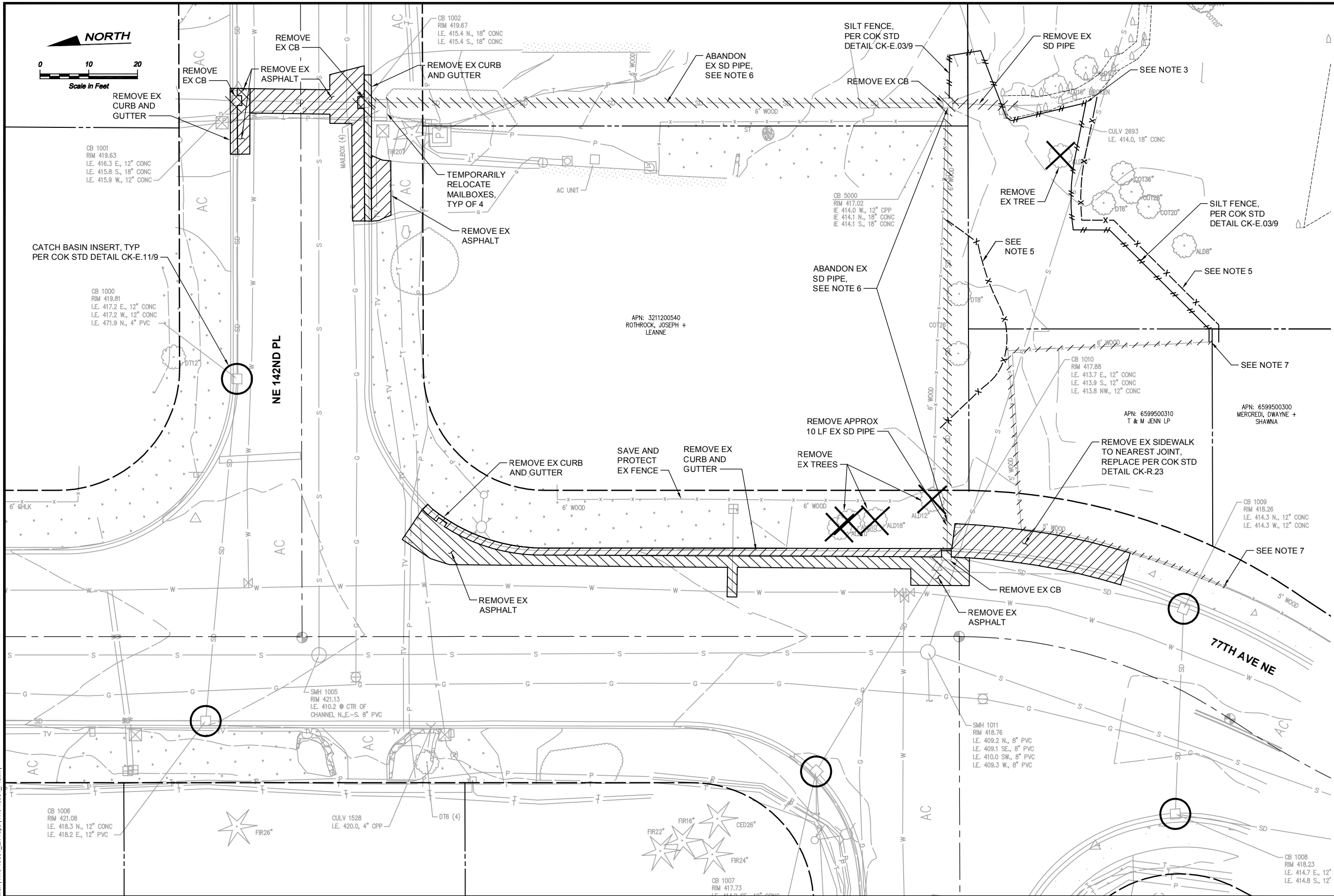
5

SCALE:

ITS

FILENAME

B19 10634 5 EC Note



- NOTES:**
1. REFER TO SHEET 5 FOR TESC NOTES.
 2. ALL PROPOSED CATCH BASINS SHALL BE INSTALLED WITH CATCH BASIN INSERTS IN ACCORDANCE WITH COK STD DETAIL CK-E.11/7 AND WITH THE REQUIREMENTS FOR TESC MEASURES INCLUDED IN THIS CONTRACT.
 3. SILT FENCE ADJACENT TO THE CREEK SHALL ONLY BE REMOVED DURING IN-WATER WORK TO CONNECT THE EARTHEN CHANNEL TO THE STREAM AND TO REMOVE THE EXISTING PIPE. WORK SHALL BE SCHEDULED TO MINIMIZE IN-WATER WORK. REMOVED SILT FENCE SHALL BE REPLACED AT THE END OF EACH WORKING DAY.
 4. EXTENT OF CURB AND GUTTER REMOVAL SHALL BE TO NEAREST EXPANSION JOINT.
 5. CLEARING CONTROL LIMITS FENCE, 6-FT HIGH CHAIN LINK. SEE NOTE 19 ON SHEET 5. CLEARING CONTROL FENCE SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE CITY PRIOR TO INSTALLATION SO AS TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION AND RECENTLY PLANTED RIPARIAN PLANTINGS.
 6. ABANDON EX SD PIPE BY FILLING THE ENTIRE LENGTH OF PIPE WITH CDF.
 7. REMOVE EXISTING FENCE FROM POST TO POST.
 8. PROTECT TREES, NOT MARKED FOR REMOVAL, AND MINIMIZE ROOT DAMAGE, TO THE EXTENT POSSIBLE, TO AVOID AN UNPLANNED REMOVAL OF TREE(S).
 9. FULLY PLUG THE EXISTING PIPE ON THE INLET END FOR A DISTANCE OF TWO PIPE DIAMETERS WITH CONCRETE PER WSDOT STD SPEC 7-08.3(4) AND ABANDON THE EX SD PIPE BY FILLING THE ENTIRE LENGTH WITH WITH CDF.

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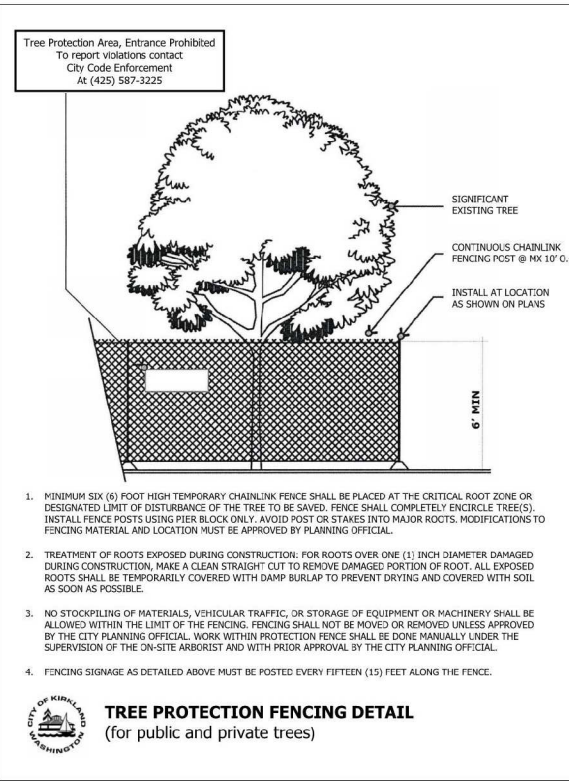
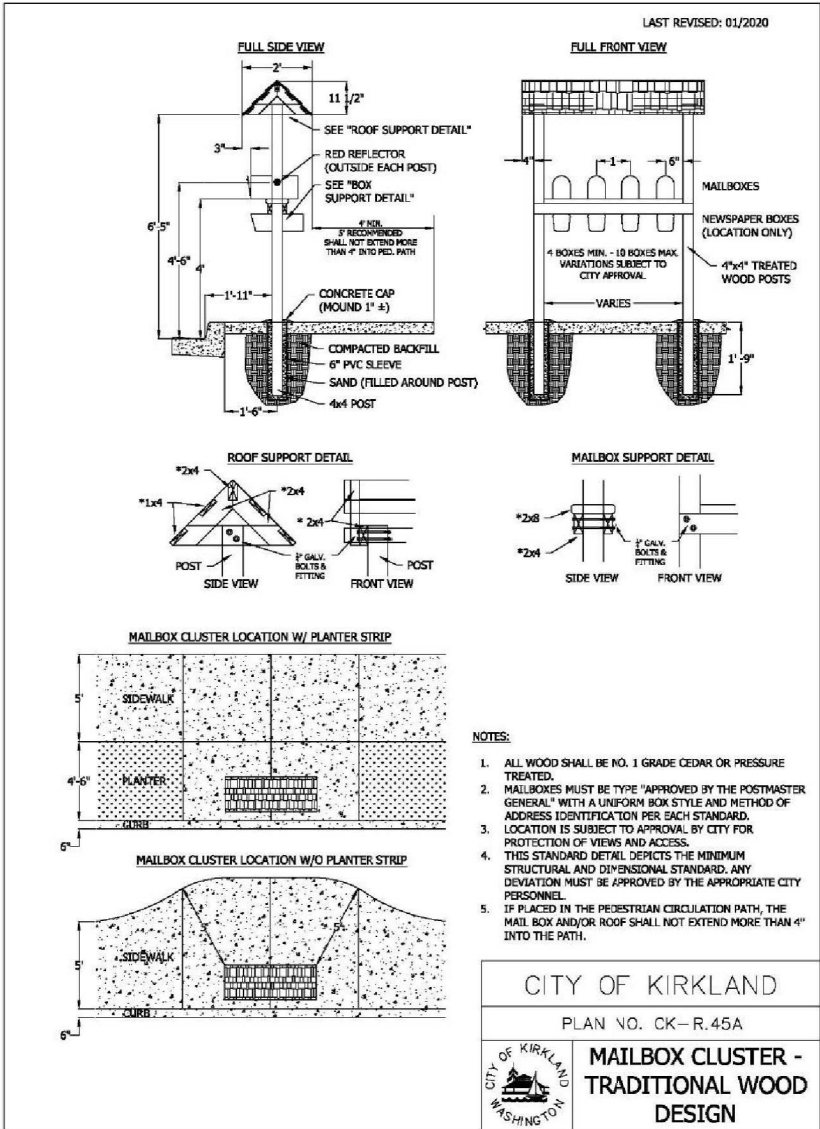
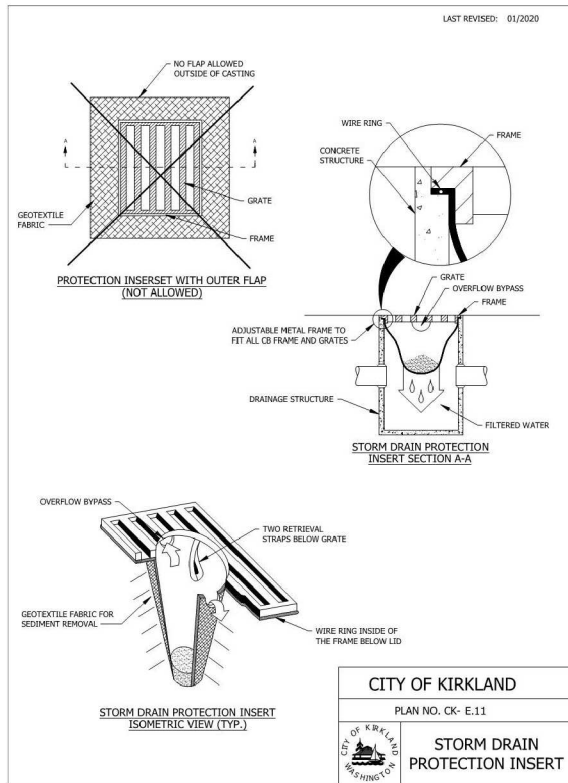
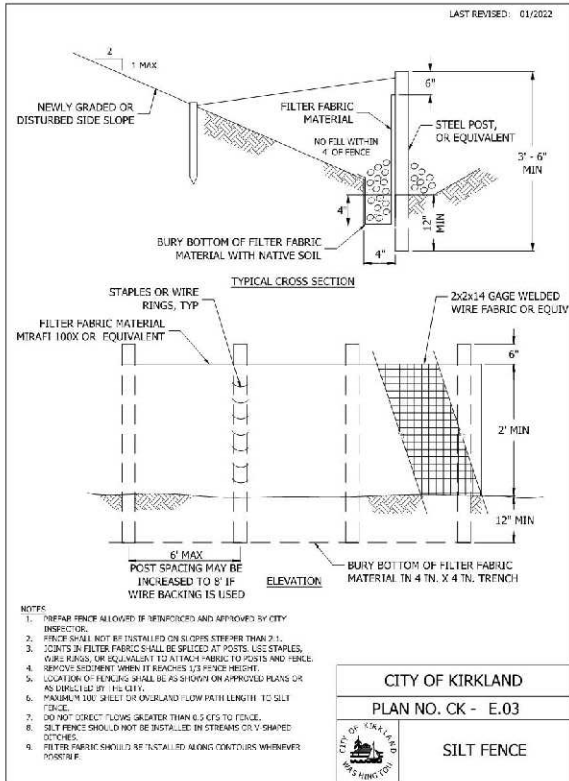


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DESIGNED BY: DATE
P. Simon 09-2022
DRAWN BY: DATE
R. Dorn, P.E. 09-2022
CHECKED BY: DATE

CITY OF KIRKLAND
TESC AND DEMOLITION PLAN

SHEET:
6
SCALE:
1" = 20'-0"
FILENAME:
P19-10634_6_TESC



TREE PROTECTION AREA
Entrance Prohibited
To report violations contact
City Code Enforcement
At (425) 587-3225

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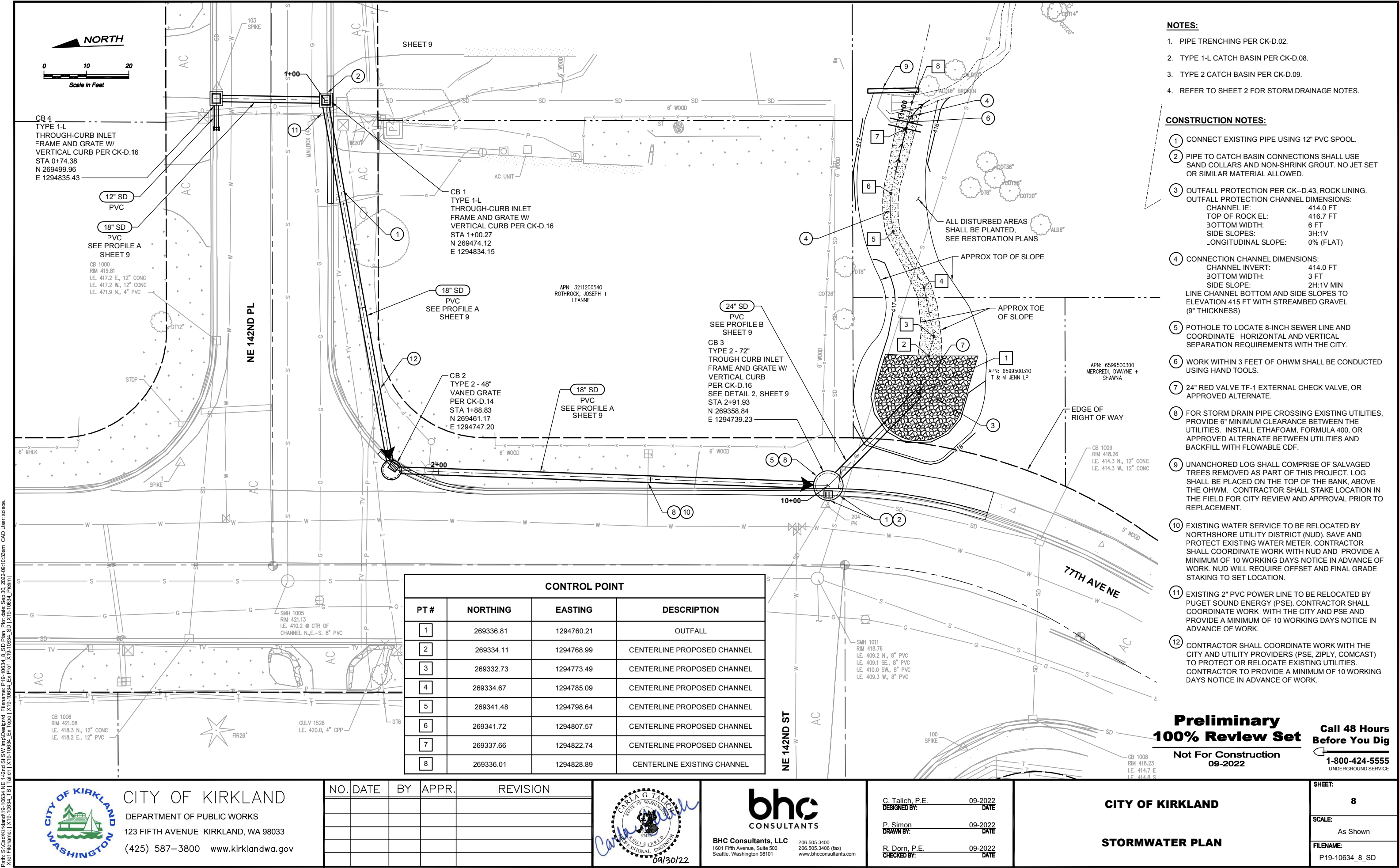
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CITY OF KIRKLAND
TESC AND GENERAL DETAILS

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09-2022

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SHEET:
7
SCALE:
NTS
FILENAME:
P19-10634_7_TESC Dets



- NOTES:**
- 1. PIPE TRENCHING PER CK-D.02.
 - 2. TYPE 1-L CATCH BASIN PER CK-D.08.
 - 3. TYPE 2 CATCH BASIN PER CK-D.09.
 - 4. REFER TO SHEET 2 FOR STORM DRAINAGE NOTES.

- CONSTRUCTION NOTES:**
- 1. CONNECT EXISTING PIPE USING 12" PVC SPOOL.
 - 2. PIPE TO CATCH BASIN CONNECTIONS SHALL USE SAND COLLARS AND NON-SHRINK GROUT. NO JET SET OR SIMILAR MATERIAL ALLOWED.
 - 3. OUTFALL PROTECTION PER CK-D.43, ROCK LINING. OUTFALL PROTECTION CHANNEL DIMENSIONS:
CHANNEL IE: 414.0 FT
TOP OF ROCK EL: 416.7 FT
BOTTOM WIDTH: 6 FT
SIDE SLOPES: 3H:1V
LONGITUDINAL SLOPE: 0% (FLAT)
 - 4. CONNECTION CHANNEL DIMENSIONS:
CHANNEL INVERT: 414.0 FT
BOTTOM WIDTH: 3 FT
SIDE SLOPE: 2H:1V MIN
LINE CHANNEL BOTTOM AND SIDE SLOPES TO ELEVATION 415 FT WITH STREAMBED GRAVEL (9" THICKNESS)
 - 5. POTHOLE TO LOCATE 8-INCH SEWER LINE AND COORDINATE HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS WITH THE CITY.
 - 6. WORK WITHIN 3 FEET OF OHWM SHALL BE CONDUCTED USING HAND TOOLS.
 - 7. 24" RED VALVE TF-1 EXTERNAL CHECK VALVE, OR APPROVED ALTERNATE.
 - 8. FOR STORM DRAIN PIPE CROSSING EXISTING UTILITIES, PROVIDE 6" MINIMUM CLEARANCE BETWEEN THE UTILITIES. INSTALL ETHAFOAM, FORMULA 400, OR APPROVED ALTERNATE BETWEEN UTILITIES AND BACKFILL WITH FLOWABLE CDF.
 - 9. UNANCHORED LOG SHALL COMPRISE OF SALVAGED TREES REMOVED AS PART OF THIS PROJECT. LOG SHALL BE PLACED ON THE TOP OF THE BANK, ABOVE THE OHWM. CONTRACTOR SHALL STAKE LOCATION IN THE FIELD FOR CITY REVIEW AND APPROVAL PRIOR TO REPLACEMENT.
 - 10. EXISTING WATER SERVICE TO BE RELOCATED BY NORTHSORE UTILITY DISTRICT (NUD). SAVE AND PROTECT EXISTING WATER METER. CONTRACTOR SHALL COORDINATE WORK WITH NUD AND PROVIDE A MINIMUM OF 10 WORKING DAYS NOTICE IN ADVANCE OF WORK. NUD WILL REQUIRE OFFSET AND FINAL GRADE STAKING TO SET LOCATION.
 - 11. EXISTING 2" PVC POWER LINE TO BE RELOCATED BY PUGET SOUND ENERGY (PSE). CONTRACTOR SHALL COORDINATE WORK WITH THE CITY AND PSE AND PROVIDE A MINIMUM OF 10 WORKING DAYS NOTICE IN ADVANCE OF WORK.
 - 12. CONTRACTOR SHALL COORDINATE WORK WITH THE CITY AND UTILITY PROVIDERS (PSE, ZIPLY, COMCAST) TO PROTECT OR RELOCATE EXISTING UTILITIES. CONTRACTOR TO PROVIDE A MINIMUM OF 10 WORKING DAYS NOTICE IN ADVANCE OF WORK.

CONTROL POINT			
PT #	NORTHING	EASTING	DESCRIPTION
1	269336.81	1294760.21	OUTFALL
2	269334.11	1294768.99	CENTERLINE PROPOSED CHANNEL
3	269332.73	1294773.49	CENTERLINE PROPOSED CHANNEL
4	269334.67	1294785.09	CENTERLINE PROPOSED CHANNEL
5	269341.48	1294798.64	CENTERLINE PROPOSED CHANNEL
6	269341.72	1294807.57	CENTERLINE PROPOSED CHANNEL
7	269337.66	1294822.74	CENTERLINE PROPOSED CHANNEL
8	269336.01	1294828.89	CENTERLINE EXISTING CHANNEL

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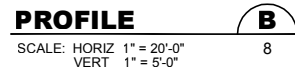
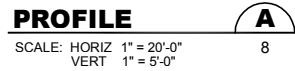


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P. Simon 09-2022
DRAWN BY: DATE
R. Dorn, P.E. 09-2022
CHECKED BY: DATE

CITY OF KIRKLAND
STORMWATER PLAN

SHEET:	8
SCALE:	As Shown
FILENAME:	P19-10634_8_SD



- ### **CONSTRUCTION NOTES:**
- 1 STREAMBED GRAVEL, 6" TO 12" THICK.
 - 2 OUTFALL PROTECTION PER CK-D.43 ROCK LINING.
 - 3 WORK WITHIN 3 FEET OF THE OHWM SHALL BE CONSTRUCTED USING HAND TOOLS.
 - 4 EXISTING WATER SERVICE TO BE RELOCATED BY NUD. CONTRACTOR SHALL COORDINATE WORK WITH NUD AND PROVIDE A MINIMUM OF 10 WORKING DAYS NOTICE IN ADVANCE OF WORK. NUD WILL REQUIRE OFFSET AND FINAL GRADE STAKING TO SET LOCATION.
 - 5 EXISTING 1.5" PVC TV. LOCATE AND COORDINATE WITH THE CITY PRIOR TO INSTALLATION OF 18" SD.
 - 6 24" RED VALVE TF-1 EXTERNAL CHECK VALVE, OR APPROVED ALTERNATE.
 - 7 CONNECT TO EX 12" RCP SD WITH MAXI COUPLING CONNECTOR. MATCH INVERT ELEVATION OF EXISTING 12" RCP SD.

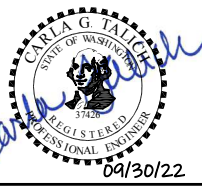


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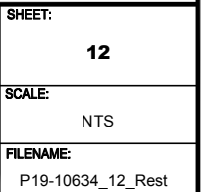
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CITY OF KIRKLAND

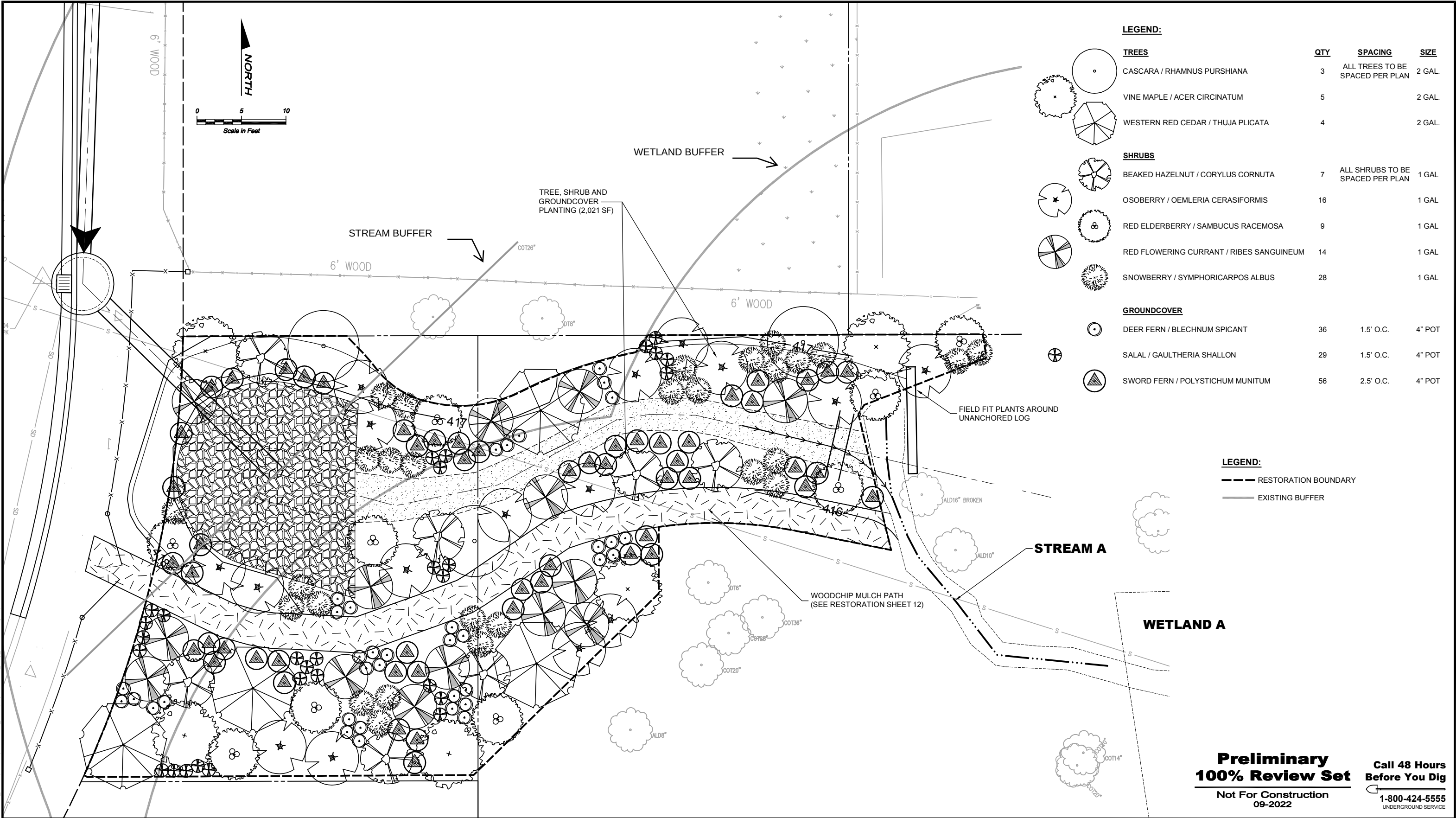
STORMWATER PROFILES

SHEET: 9
SCALE: As Shown
FILENAME: P19-10634 9 SD





Path: S:\CityOfKirkland\19-10634-NE 142nd St SW Imp Design\Sheet\19-10634-Planting Plot date: Sep 30, 2022 08:44:24am CAD User: solboe
Xref Filename: 19-10634-Planting Plot.dwg Xref Path: 19-10634-Planting Plot.dwg



LEGEND:

TREES

CASCARA / RHAMNUS PURSHIANA

QTY

SPACING

SIZE

3

ALL TREES TO BE SPACED PER PLAN

2 GAL.

VINE MAPLE / ACER CIRCINATUM

5

2 GAL.

WESTERN RED CEDAR / THUJA PLICATA

4

2 GAL.

SHRUBS

BEAKED HAZELNUT / CORYLUS CORNUTA

7

ALL SHRUBS TO BE SPACED PER PLAN

1 GAL

OSOBERRY / OEMLERIA CERASIFORMIS

16

1 GAL

RED ELDERBERRY / SAMBUCUS RACEMOSA

9

1 GAL

RED FLOWERING CURRANT / RIBES SANGUINEUM

14

1 GAL

SNOWBERRY / SYMPHORICARPOS ALBUS

28

1 GAL

GROUND COVER

DEER FERN / BLECHNUM SPICANT

36

1.5' O.C.

4" POT

SALAL / GAULTHERIA SHALLON

29

1.5' O.C.

4" POT

SWORD FERN / POLYSTICHUM MUNITUM

56

2.5' O.C.

4" POT

LEGEND:

--- RESTORATION BOUNDARY

--- EXISTING BUFFER

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M. Foster
DESIGNED BY: 09-2022
DATE
J. Stewart
DRAWN BY: 09-2022
DATE
A. McDonald
CHECKED BY: 09-2022
DATE



O'Neill Service Group
09/30/22

**CITY OF KIRKLAND
PLANTING PLAN**

SHEET:	13
SCALE:	1" = 10'-0"
FILENAME:	P19-10634_Planting

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Development Standards List

File: SAR20-00588

ZONING CODE STANDARDS

85.25.1 Geotechnical Report Recommendations. The geotechnical recommendations contained in the report by OSG O'Neill Service Group dated August 14, 2020 shall be implemented.

90.55 Wetlands and Wetland Buffers. No land surface modification may take place and no improvement may be located in a wetland or within the environmentally sensitive area buffers for a wetland, except as specifically provided in this Section.

90.55 Structure Setback from Wetland Buffers. A 10-foot-wide structure setback is required from the upland edge of the entire buffer. Improvements listed in KZC 90.140 are permitted within the setback.

90.190 Wetland Buffer Fence. Prior to development, the applicant shall install a six-foot high construction phase fence along the upland boundary of the wetland buffer with silt screen fabric installed per City standard. The fence shall remain upright in the approved location for the duration of development activities. Upon project completion, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, a permanent split rail, open slatted with at least 18 inches between each slat, wrought iron, chain link, or similar nonsolid fence between three (3) and six (6) feet in height must be installed along the entire edge of the buffer.

90.65 Streams and Stream Buffers. No land surface modification may take place and no improvements may be located in a stream except as specifically provided in this Section.

90.65 Structure Setback from Stream Buffers. A 10-foot-wide structure setback is required from the upland edge of the entire buffer. Improvements listed in KZC 90.140 are permitted within the setback.

90.190 Stream Buffer Fence. Prior to development, the applicant shall install a six-foot high construction phase fence along the upland boundary of the entire stream buffer with silt screen fabric installed per City standard. The fence shall remain upright in the approved location for the duration of development activities. Upon project completion, the applicant shall install between the upland boundary of all stream buffers and the developed portion of the site, a permanent split rail, open slatted with at least 18 inches between each slat, wrought iron, chain link, or similar nonsolid fence between three (3) and six (6) feet in height must be installed along the entire edge of the buffer.

KZC 90.160 Monitoring and Maintenance of Critical Area Mitigation or Vegetative Buffer Enhancement: Critical area mitigation and vegetative buffer enhancement will require that the applicant submit a monitoring and maintenance plan consistent with the criteria found in 95.160, which is prepared by a qualified professional and reviewed by the City's wetland consultant. The cost of the plan and the City's review shall be borne by the applicant.

95.50 Tree Installation Standards. Installation of supplemental trees to be planted shall conform to Kirkland Zoning Code Section 95.50.

95.52 Prohibited Vegetation. Plants listed as prohibited in the Kirkland Plant List shall not be planted in the City. These plants include Himalayan and Evergreen Blackberry, English Holly,

Fragrant water lily; Bindweed or Morning Glory, Bird Cherry, English and Atlantic Ivy; Herb Robert; Bohemian, Giant, Himalayan, and Japanese Knotweed; Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, Black Locust, European Mountain Ash, Tree-of-Heaven, Common Hawthorn, and English laurel.

110.60.5 Street Trees. All trees planted in the right-of-way must be approved as to species by the City. All trees must be two inches in diameter at the time of planting as measured using the standards of the American Association of Nurserymen with a canopy that starts at least six feet above finished grade and does not obstruct any adjoining sidewalks or driving lanes.

115.25 Work Hours. It is a violation of this Code to engage in any development activity or to operate any heavy equipment before 7:00 am. or after 8:00 pm Monday through Friday, or before 9:00 am or after 6:00 pm Saturday. No development activity or use of heavy equipment may occur on Sundays or on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas Day. The applicant will be required to comply with these regulations and any violation of this section will result in enforcement action, unless written permission is obtained from the Planning official.

115.95 Noise Standards. The City of Kirkland adopts by reference the Maximum Environmental Noise Levels established pursuant to the Noise Control Act of 1974, RCW 70.107. See Chapter 173-60 WAC. Any noise, which injures, endangers the comfort, repose, health or safety of persons, or in any way renders persons insecure in life, or in the use of property is a violation of this Code.

115.135 Sight Distance at Intersection. Areas around all intersections, including the entrance of driveways onto streets, must be kept clear of sight obstruction as described in this section.

145.22.2 Public Notice Signs. Within seven (7) calendar days after the end of the 21-day period following the City's final decision on the permit, the applicant shall remove all public notice signs.

Prior to issuance of a grading or building permit:

90.190 Wetland Buffer Fence. Prior to development, the applicant shall install a six-foot high construction phase fence along the upland boundary of the wetland buffer with silt screen fabric installed per City standard. The fence shall remain upright in the approved location for the duration of development activities. Upon project completion, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, a permanent split rail, open slatted with at least 18 inches between each slat, wrought iron, chain link, or similar nonsolid fence between three (3) and six (6) feet in height must be installed along the entire edge of the buffer.

90.190 Stream Buffer Fence. Prior to development, the applicant shall install a six-foot high construction phase fence along the upland boundary of the entire stream buffer with silt screen fabric installed per City standard. The fence shall remain upright in the approved location for the duration of development activities. Upon project completion, the applicant shall install between the upland boundary of all stream buffers and the developed portion of the site, a permanent split rail, open slatted with at least 18 inches between each slat, wrought iron, chain link, or similar nonsolid fence between three (3) and six (6) feet in height must be installed along the entire edge of the buffer.

95.30.4 Tree Protection Zone (TPZ). A description and location of tree protection measures during construction for trees to be retained must be shown on demolition and grading plans, including the TPZ distance specified in feet from the face of each tree trunk.

95.32 Tree Protection. Prior to development activity or initiating tree removal on the site,

vegetated areas and individual trees to be preserved shall be protected from potentially damaging activities. Protection measures for trees to be retained shall include (1) placing no construction material or equipment within the protected area of any tree to be retained; (2) providing a visible temporary protective chain link fence at least 6 feet in height around the protected area of retained trees or groups of trees until the Planning Official authorizes their removal; (3) installing visible signs spaced no further apart than 15 feet along the protective fence stating "Tree Protection Area, Entrance Prohibited" with the City code enforcement phone number; (4) displaying site plans showing approved tree retention/protection in plain view with general contractor or other responsible party's phone number; (5) prohibiting excavation or compaction of earth or other damaging activities within the barriers unless approved by the Planning Official and supervised by a qualified professional; and (6) ensuring that approved landscaping in a protected zone shall be done with light machinery or by hand.

NE 142nd Street Surface Water Drainage Improvements Kirkland, Washington

Tree Retention Plan

September 24, 2020

Prepared by:



O'Neill Service Group, LLC
17619 NE 67th Court / Suite 100
Redmond, WA 98052

Prepared for:



BHC Consultants
1601 Fifth Avenue, Suite 500
Seattle, WA 98101

Revision History

Revision Number	Revision Date	Description of Changes
00	09/24/2020	Initial Submittal

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1.0 Introduction

O'Neill Service Group (OSG) was contracted to inventory trees and provide a tree retention and removal analysis in support of the City of Kirkland's (City) NE 142nd Street Drainage Improvements Project (Project). The intent of the Project is to alleviate flooding issues along NE 142nd Place and 77th Avenue NE by installing new stormwater conveyance pipes in the right-of-way (ROW) beneath 77th Avenue NE and NE 142nd Place, abandoning or removing the storm system within private property, and replacing the outfall to an adjacent jurisdictional stream. This report is being developed concurrently with engineering, landscape architectural, and construction work plans to be submitted for permit approval. OSG has also prepared a Critical Area Report that describes restoration plans associated with this Project including a planting plan which compliments this Plan.

This Tree Retention Plan is divided into three general sections. The first summarizing basic findings of the tree inventory. The second analyzes the proposal and discusses impacts to the on-site trees, and the third contains recommended tree protection Best Management Practices (BMPs) that, in part, originate from City of Kirkland requirements. This document is intended to meet the requirements of the City of Kirkland Zoning Code Section 90.30, and to be used as a guide during construction to reduce construction impacts to the subject trees.

2.0 Project Location

The Project is located in the Finn Hill neighborhood of the City of Kirkland at the intersection of NE 142nd Place and 77th Ave NE. The project proposes work within the City ROW with a portion occurring in an adjacent, undeveloped parcel (Tax Parcel No. 6599500310) and the Inglewood Presbyterian Church property further east (Tax Parcel No. 2426049077) (Figure 1).

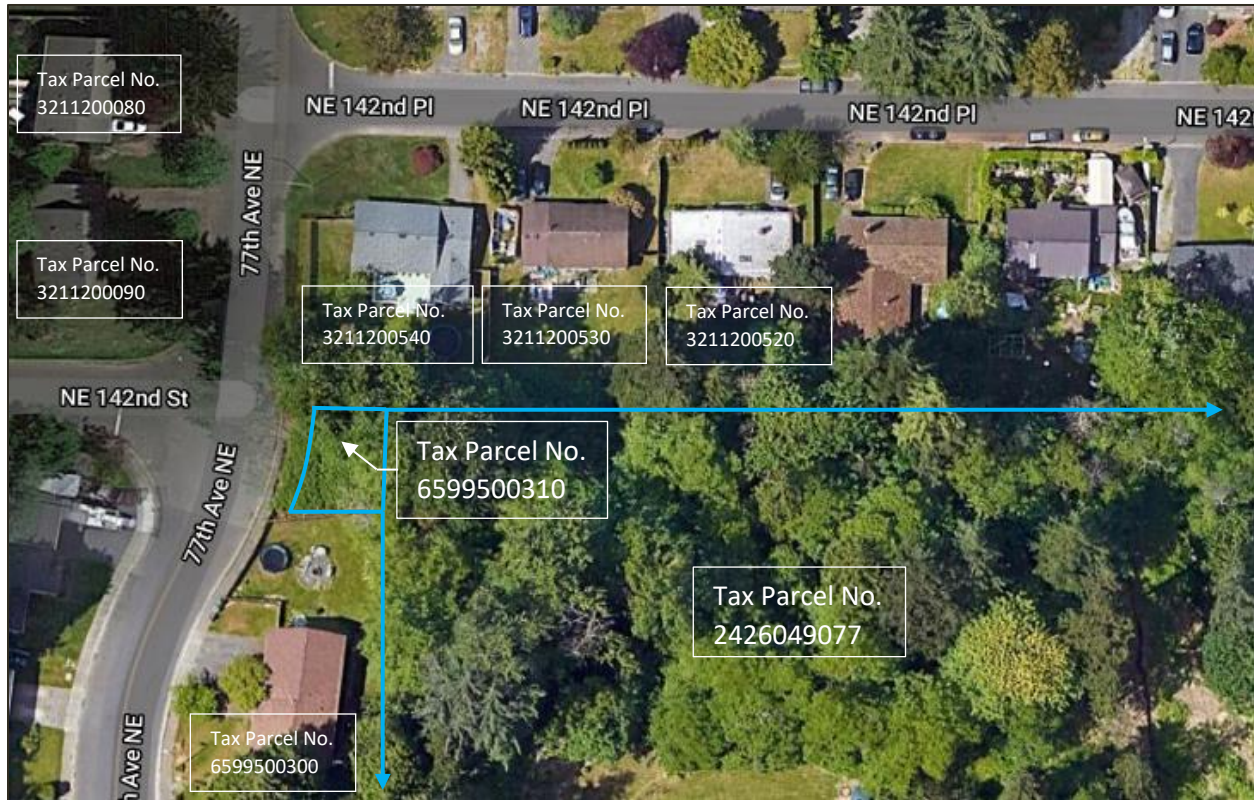


Figure 1 - Vicinity Map showing the location of the project area and associated parcels (Source: Google Earth)

3.0 General Site Conditions

Situated in Kirkland's Finn Hill Neighborhood, the Project is bordered by a residential development composed of single-family lots. The undeveloped parcel is relatively flat, with small piles of gravel and stone along with detritus such as pieces of wood and trash. The east and west sides of the parcel are open while to the north and south a wooden fence delineates the neighboring residential properties. Vegetation predominantly consists of Himalayan blackberry. One non-significant tree is rooted on this parcel.

The Inglewood Presbyterian Church parcel is situated further east. Stormwater from the ROW discharges into the jurisdictional stream, Stream A, in the northwest corner of the parcel and flows southeast along its northern edge before flowing into Wetland A. Vegetation is composed of riparian tree and shrub species such as Red alder and Black cottonwood trees with an understory of shrub species such as Red Elderberry and Salmonberry adjacent to the stormwater outfall and stream channel. This plant community transitions to a mature Douglas-fir/Western Red Cedar forest type in the non-wetland area. The church parcel appears to be an active restoration site.

3.1 Environmentally Critical Areas

A wetland reconnaissance was performed by OSG in July 2019 to confirm the presence of Critical Areas in and adjacent to the subject parcel. The results of this report included the presence of a Category III wetland and a Type Ns stream on the church parcel.

3.2 Tree Inventory Methods

One ISA-Certified Arborist and one Staff Ecologist visited the site on July 22, 2020 to inventory and assess trees rooted in the project area and immediate vicinity. Subject trees were measured for size using guidelines outlined in the *Guide for Plant Appraisal, 9th Edition* (CLTA, 2000) (Guide). Trunk diameters were measured 4.5 feet above the ground surface (diameter at breast height [DBH]) using a graduated metal loggers diameter tape. Low branching, leaning, multi-stemmed trees, or trees on a slope were measured using the *Modifications to Tree Size Measurements* section of the Guide.

Multi-stemmed trees were given a one-stem equivalent diameter in the attached inventory log using the total cross-sectional trunk area for all stems contributing to the canopy. The cross-sectional derived equivalent DBH was used for determining "significance" status as defined by the Kirkland Zoning Code (KZC) for trees.

Average branch radius was measured to the approximate average branch length using the logger's tape. Height was visually estimated to the nearest five feet. A condition rating was assigned to each tree using a scale from one to six, one being excellent and six being completely dead. The health factor combines an assessment of tree vigor and the soundness of the above-ground structure. Tree risk was not the primary target of this assessment, but a basic, ISA Level 1 screening of all trees in the inventory was performed. Potentially hazardous trees were noted during the inventory.

3.3 Significant Trees

The regulatory status of trees was determined by reviewing the KZC Chapter 95 in August of 2020. Relevant data was used to determine significance and for evaluation of the proposal. According to Chapter 95.10 – *Definitions*, a "Significant Tree" is a tree that is at least six (6) inches in diameter at breast height (DBH) as measured at 4.5 feet from the ground. All subject trees were compared to this definition. Any tree that was rated as "dead" was not classified as "significant".

4.0 Tree Inventory Results

A total of 26 trees were identified and assessed within and adjacent to the project limits (Table 1, Appendix A; Plan Map, Appendix B). Of these, 24 trees are large enough to be considered "significant" per the KZC; two small stature trees (Tree No. 2581, a Japanese Maple, and No. 2587, a Vine Maple) were under six inches DBH. A total of six trees were located on residential parcels and were identified and visually assessed but not tagged in the field. The most common tree species, at eight individuals each, is both Red Alder and Black Cottonwood. A total of nine unique tree species are rooted within the project area.

Table 1 - Summary of subject trees within project area

# WITHIN PROJECT AREA	TREE SPECIES	COMMON NAME	DECID/ EVERG	TOTAL COMBINED DBH (IN)	AVERAGE TRUNK DIAMETER (IN)
1	<i>Acer circinatum</i>	Vine Maple	D	5.6	5.6
1	<i>Acer palmatum</i>	Japanese Maple	D	5.0	5.0
8	<i>Alnus rubra</i>	Red Alder	D	107.8	13.5
1	<i>Malus fusca</i>	Pacific Crabapple	D	8.2	8.2
1	<i>Picea abies</i>	Norway Spruce	E	18.0	18.0
8	<i>Populus balsamifera</i>	Black Cottonwood	D	182.3	22.8
4	<i>Pseudotsuga menziesii</i>	Douglas-fir	E	82.6	20.6
1	<i>Sorbus aucuparia</i>	European Mountain Ash	D	8.0	8.0
1	<i>Thuja plicata</i>	Western Red Cedar	E	30.0	30.0
26				447.5	17.2

The average diameter across all trees assessed is relatively large, driven up by the presence of several large-diameter Black Cottonwoods on the church parcel and specimen Douglas-fir and Western Red Cedar trees rooted on residential properties along 77th Ave NE (Figure 2) (Figure 3). These tree species exhibit trunk diameters, on average, of at least twenty inches in diameter. Small stature and codominant trees reduced the overall average diameter to 17 inches.

Vegetation in the project area consists of both landscape and native origin. Along the 77th Ave NE and NE 142nd Place, vegetation consists of well-maintained trees and shrubs on residential property (Figure 4). Late successional conifers such as Douglas-fir, Western Red Cedar and Norway Spruce were assessed in this location (Figure 5). East of 77th Ave NE, vegetation is predominantly composed of riparian and wetland tree species such as Red Alder and Black Cottonwood with individuals of Vine Maple and Pacific Crabapple (Figure 6).

4.1 Tree Health and Condition

More than half of the trees assessed were judged to be in excellent, good, or fair condition. The remaining trees that exhibited poor health are located on the north side of the entrance to the undeveloped parcel along 77th Ave NE (e.g. 2582, 2583, and 2584) and within the riparian area on the church parcel adjacent to Stream A (e.g., No. 116, 117, 118 and 140 (Figure 7). Trees rooted on the church parcel will remain due to their function within the critical area and safe distance from the project limits.

4.2 Jurisdiction and Ownership

Six of the assessed trees are rooted on private property while seven trees are rooted in the ROW. One non-significant tree is located on the undeveloped parcel (Tax Parcel No. 6599500310) while twelve trees are rooted on the church parcel (Tax Parcel No. 2426049077).

1

5.0 Site Photos



2
3
4

Figure 2 – Large diameter specimen trees such as Douglas-fir, Western Red Cedar and Norway Spruce are rooted on the residential properties surrounding the project limits. Note: tree pictured is tree number 2579 (Photo on July 22, 2020).



Figure 3 – Detail of tree number 2586, one of the large diameter Black Cottonwood trees rooted on private property (Photo July 22, 2020).



Figure 4 – Trees rooted on the surrounding residential properties are predominantly comprised of well-maintained landscape trees (Photo July 22, 2020).



Figure 5 – Tree number 2580, a high retention value Norway Spruce, is rooted within the right-of-way along NE 142nd Place (Photo July 22, 2020).



Figure 6 – The church and undeveloped parcels are dominated by Black Cottonwood and Red Alder. Photo taken from east (photo July 22, 2020).



Figure 7 - The remaining trees that exhibit declining health are located on the north side of the entrance to the undeveloped parcel along 77th Ave NE (pictured) and within the riparian area on the church parcel further east (Photo July 22, 2020).

6.0 Project Description

The intent of the project is to alleviate flooding issues along NE 142nd Place and 77th Avenue NE. Currently the stormwater system is routed through private property before discharging into a catch basin that outlets to a jurisdictional stream, near the northeast corner of the Inglewood Presbyterian Church property. The catch basin and nearby pipes are undersized, which results in upstream flooding. The project proposes to alleviate flooding by installing new stormwater conveyance pipes in the ROW beneath 77th Avenue NE and NE 142nd Place, abandoning or removing the storm system within private property, and replacing the outfall to Stream A. The improved conveyance system will be designed to convey peak flows without backing water up in the City ROW. Permit drawings and application narratives developed by the applicant and the design team detail the engineering and landscape elements of the proposal. These documents will be submitted concurrently with this report under separate covers.

7.0 Impact Assessment

As detailed in Appendix B, Tree Retention and Removal Plan Sheet, the stormwater facility will require tree removal. A total of seven significant trees will be removed from the site. The other 19 trees will be retained and subject to the tree protection criteria outlined below. Fifty percent of the Black Cottonwood trees will be retained and protected during construction.

Table 2 - Tree retention and removal table.

TREE SPECIES	COMMON NAME	# SIGNIFICANT	PROPOSED SIGNIFICANT REMOVALS	PROPOSED RETAIN TREES
<i>Acer circinatum</i>	Vine Maple	-	-	1
<i>Acer palmatum</i>	Japanese Maple	-	-	1
<i>Alnus rubra</i>	Red Alder	8	3	5
<i>Malus fusca</i>	Pacific Crabapple	1	-	1
<i>Picea abies</i>	Norway Spruce	1	-	1
<i>Populus balsamifera</i>	Black Cottonwood	8	4	4
<i>Pseudotsuga menziesii</i>	Douglas-fir	4	-	4
<i>Sorbus aucuparia</i>	Mountain Ash	1	-	1
<i>Thuja plicata</i>	Western Red Cedar	1	-	1
TOTAL →		26	7	19
PERCENTAGE →		100%	27%	73%

8.0 Code Analysis

The Project would most likely be subject to the provisions of KZC 95.30 – *Tree Retention Associated with Development Activity*. Utility projects would fit under the third column under the 95.30(5.) *TREE RETENTION PLAN* table. According to this table the applicant is required to a) retain and protect trees with a high retention value to the maximum extent possible, b) retain and protect trees with a moderate retention value if feasible, and c) provide preservation and maintenance agreement pursuant to KZC 95.51 for all remaining trees on the subject property. A set replacement ratio for projects of this nature is not offered.

9.0 Mitigation Sequencing

The Kirkland Zoning Code compels applicants, through the design and planning process, to first avoid impacts wherever possible, then reduce potential damage to trees and sensitive areas, and finally to compensate for any unavoidable permanent or temporary loss to natural resources. The following section discusses how the design team followed the principals of Mitigation Sequencing as outlined in KZC 90.145 and tree retention detailed in KZC 95.30.

9.1 Avoidance

The design of the utility alignment went through engineering design changes to avoid significant on-site trees, including a change to the alignment of the outfall pipe that resulted in fewer lost trees, and was made for that purpose.

The Project will occur in both paved and vegetated areas. Equipment will be staged on pavement during excavation within the ROW to avoid impacting adjacent high value trees. The Norway Spruce, Western Red Cedar and Douglas-fir trees located on private property and within the ROW would be considered “High Retention Value” trees per KZC 95.30(5.). These will be retained and protected with BMPs outlined in the third section of this report.

Ingress/egress will be conducted through the small parcel along 77th Ave NE. This avoids utilizing the Church parcel, thus keeping equipment and vehicles outside of the forested wetland and avoiding most impacts to buffers and the stream. This strategy also avoids a small grove of Red Alder and Black Cottonwood trees rooted south of the conveyance pipe alignment. Chain link fencing will be installed in this area per the TESC and Civil Demolition Plan and will act as tree protection fencing to avoid damage to the critical root zones of the subject grove.

9.2 Minimization

Tree Protection BMPs will be employed where construction occurs near critical root zones of protected trees. Tree protection fencing, root discovery and pruning methods will be employed during construction, and any pruning needed for clearance will follow industry standard practices. A list of BMPs are included below to assist with reducing impacts to retain trees.

9.3 Compensation

As discussed, the project will require removal of seven significant trees. The KZC does not require compensation for the removals related to this stormwater project, but the applicant will voluntarily replace the trees at a 1.6:2 ratio (replacement to removals). See the attached planting plan for the details on the tree replacement plan. The Critical Area Report, submitted separately, describes the mitigation plan, maintenance and monitoring the applicant will follow to provide successful tree and plant establishment.

10.0 Mitigation Plan

Two Western Red Cedar, two Cascara, and two Vine Maple trees will be installed in addition to over one hundred native shrubs and groundcover to be planted in the area where tree removal will occur to compensate for the impacts associated with this project (Table 3). The mitigation plan is detailed in the Critical Area Report, which details the construction sequence (soil amendment, planting, mulching) and the five-year maintenance and monitoring plan to be implemented to promote successful plant establishment.

1 Table 3 - List of replacement trees and other plants to be installed.

Type	Common Name	Scientific Name	QTY	Size
Trees (6)	Cascara	<i>Rhamnus purshiana</i>	2	5-gal
	Vine Maple	<i>Acer circinatum</i>	2	5-gal
	Western Red Cedar	<i>Thuja plicata</i>	2	5-al
Shrubs (38)	Beaked Hazelnut	<i>Corylus cornuta</i>	2	1-gal
	Osoberry	<i>Oemleria cerasiformis</i>	8	1-gal
	Red Elderberry	<i>Sambucus racemosa</i>	6	1-gal
	Red Flowering Currant	<i>Ribes sanguineum</i>	6	1-gal
	Snowberry	<i>Symphoricarpos albus</i>	16	1-gal
Groundcover (142)	Deer Fern	<i>Blechnum spicant</i>	37	4" pot
	Salal	<i>Gaultheria shallon</i>	44	4" pot
	Sword Fern	<i>Polystichum munitum</i>	61	4" pot
		TOTAL →	186	

2 11.0 Tree Protection BMPs

3 This section outlines a list of best management practices and procedures that should be set up and
 4 followed ahead of and during construction. These include physical items such as fencing, but also include
 5 setting up meeting with the contractor to ensure the intent of this plan is met, that impacted roots and
 6 branches are treated according to industry standards, and that procedures are in place for unanticipated
 7 changes.

8 A. Pre-Construction Meeting

- 9 a. Schedule and conduct a pre-construction meeting with the owner and the contractor
 10 prior to beginning work to review any questions the contractor may have regarding trees
 11 and vegetation requiring protection. Following the meeting, a walkthrough with the
 12 contractor to discuss the contractor's plan for setting up and maintaining tree protection
 13 BMPs prior to work should be completed.

- 14 b. Prior to this meeting, mark all trees to remain and or be removed as described in this
 15 specification for review and approval by the applicant.

16 B. Establish Tree Protection Zone

- 17 a. Establish high-visibility construction fencing (HVCF) or chain link fencing if appropriate
 18 prior to land disturbing activity along the limits of disturbance as detailed in the plans or
 19 determined by the arborist.

- 20 b. Fencing shall be established at the edge of the critical root zone of protected trees,
 21 retained trees, or at the location indicated on the construction drawings if work will be
 22 within the Critical Root Zone (CRZ). The zone to be protected is called the Tree Protection
 23 Zone (TPZ)

- c. Install highly visible signs on the fence of each discrete TPZ. Signs will state, "**Tree and Soil Protection Zone, Entrance Prohibited**" and provide the City phone number for code enforcement to report violations.
 - d. No construction access or equipment storage shall be allowed in the tree protection area or placed near trees.
 - e. No excavation or compaction of soil will be allowed within the Tree Protection Zone once established. Any proposed change must be approved by the Arborist.
 - f. The tree protection fencing shall stay in place for the duration of the project.
 - g. TESC and tree protection fencing can be the same fence except in Critical Areas, where tree protection fencing will consist of chain-link fence and silt fence.
- C. Identify Roots of Protected Trees that may be impacted
- a. Prior to construction, identify and mark with spray paint all visible, large roots from trees to protect in the construction area (roots from trees to remove are excluded and may be destroyed).
 - b. Large diameter roots (roots larger than 2 inches in diameter) from protect trees should be cut by hand at the furthest point from the tree as possible while still allowing for excavation to occur for the project element.
 - c. Do not cut large tree roots with hydraulic equipment such as an excavator bucket as this may damage roots inside of the TPZ.

11.1 Construction BMPs

A. Order of Operations for Root Excavation of Retained Trees

1. Install TESC/tree protection fencing.
2. Demo trees to be removed. Do not grub.
3. Prune retain trees for construction access if needed using industry standard practices.
4. Install trunk protection BMPs for retained trees if work will be very close to any trunks, as needed.
5. Construct stormwater system.
6. Install mitigation plantings.

B. Root Pruning for Retained Trees Adjacent to Work (does not apply to the removed trees)

1. Roots 2 inch and larger in diameter (from retained trees) and that conflict with the project shall only be cut back to the minimum necessary. Work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
2. Roots (from retained trees) larger than 2 inches in diameter shall be hand cut using a sharp saw. Large roots shall not be cut with hydraulically driven equipment (excavator buckets, etc.) as they typically "rip" or "tear" roots beyond protection limits and damage the root zone beyond the necessary amount.
3. Retained Trees that receive excessive root impacts from excavation shall be evaluated by a Certified Arborist.

11.2 Tree Removal

- A. Remove all trees indicated by the project plans and specifications, as requiring removal, in a manner that will not damage adjacent trees, structures, or compact the soil in protection zones.
- B. Remove trees that are adjacent to protected trees and structures, in sections, to limit the opportunity of damage to adjacent crowns, trunks, ground plane elements or structures.
- C. Protect adjacent paving, soil, trees, ground cover plantings and understory plants to remain from damage during all tree removal operations. Protection includes the root system, trunk, limbs, and crown from breaking or scarring, and the soil from compaction.

11.3 Post Construction BMPs

- A. Removal of Fencing and other Plant Protection
 1. At the end of the construction period and when consistent with the requirement of other permits (e.g., site stability is achieved per the requirements of the NPDES permits for construction stormwater), remove all construction fencing, temporary wood chips, temporary mulch, geotextile, trunk protection or any other tree and plant protection material.

1

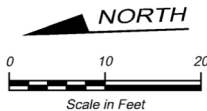
Appendix A - Tree Inventory Log

TREE INVENTORY
NE 142nd Street Surface Water Drainage Improvements

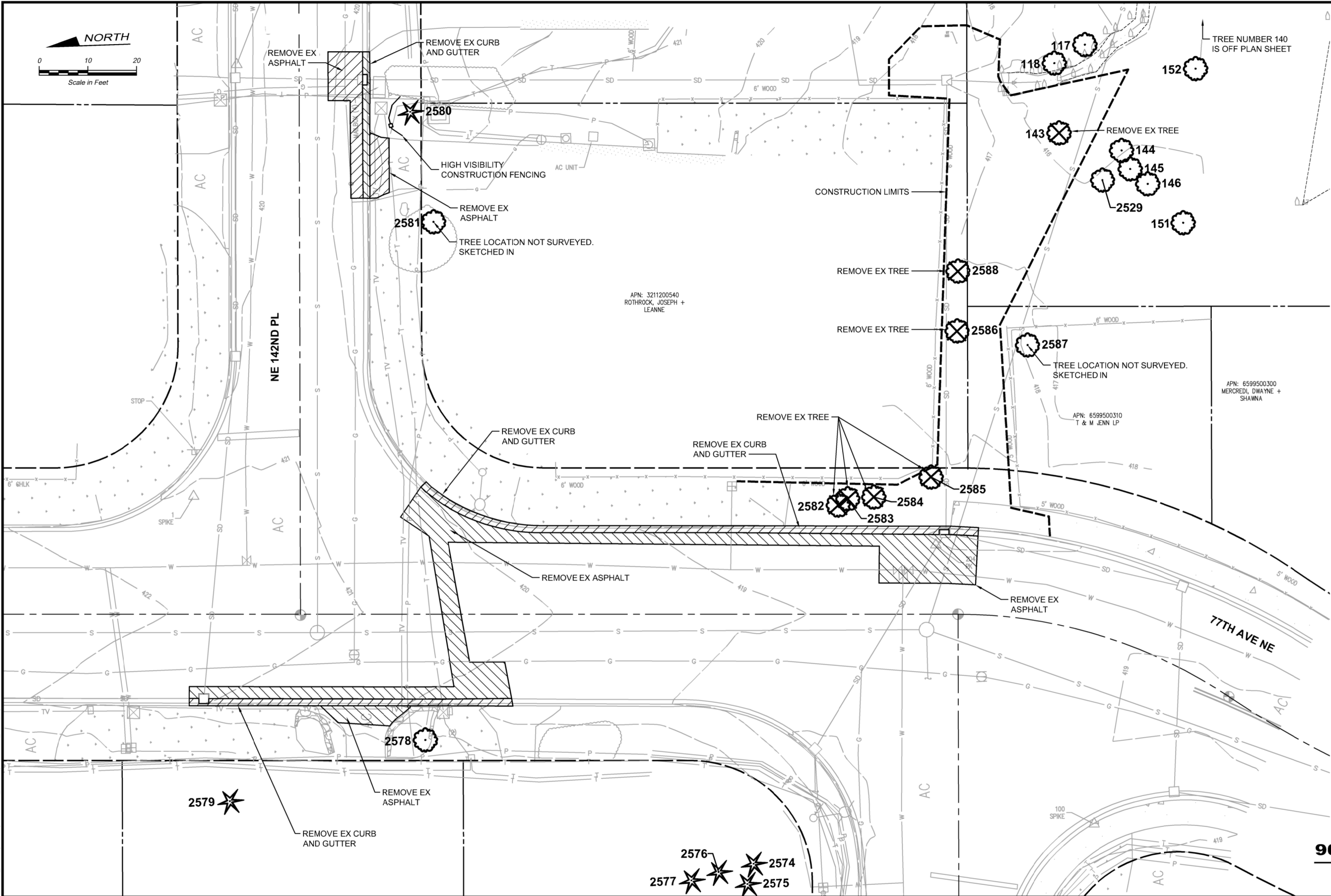
	TAG NO.	SPECIES NAME	# STEMS	DBH 1 (IN)	DBH 2 (IN)	DBH 3 (IN)	DBH 4 (IN)	DBH 5 (IN)	DBH 6 (IN)	COMBINED DBH* (IN)	HEIGHT (FEET)	CANOPY RADIUS (FEET)	CRITICAL ROOT ZONE RADIUS (FEET)	CONDITION	SIGNIFICANT PER KZC 95.10	NOTES
1	2574	Thuja plicata,(Western Red Cedar)	1	30.0						30.0	55	20	30	GOOD	X	Small amount of twig dieback; small wound to southwest; codominant at 3 feet
2	2575	Pseudotsuga menziesii,(Douglas-fir)	1	18.0						18.0	75	15	18	GOOD	X	Shaded to east; nice branching structure
3	2576	Pseudotsuga menziesii,(Douglas-fir)	2	4.0	14.0					14.6	80	15	15	GOOD	X	Codominant at ground level; nice structure and form
4	2577	Pseudotsuga menziesii,(Douglas-fir)	1	18.0						18.0	75	15	18	GOOD	X	Small amount of twig dieback in lower crown; nice structure
5	2578	Sorbus aucuparia, (European Mountain Ash)	4	3.0	4.5	5.0	3.0			8.0	20	8	8	GOOD	X	Codominant at 6 inches above ground surface; splitting again at 1.5 feet above ground surface; some suckering
6	2579	Pseudotsuga menziesii, (Douglas-fir)	1	32.0						32.0	80	25	32	GOOD	X	Lower branches pruned; nice branching structure
7	2580	Picea abies, (Norway Spruce)	1	18.0						18.0	60	15	18	GOOD	X	Sight lean to west corrected at 12 feet; tridominant at 12 feet
8	2581	Acer palmatum, (Japanese maple)	1	5.0						5.0	6	8	5	EXCELLENT		Foliage in good condition
9	2582	Alnus rubra, (Red Alder)	1	10.3						10.3	20	10	10	POOR	X	Lost top; Heavily infested with blackberry; 20° lean to north
10	2583	Alnus rubra, (Red Alder)	1	9.4						9.4	35	10	9	POOR	X	Codominant at 15 feet; small canopy; decay at 16 feet;
11	2584	Populus balsamifera, (Black Cottonwood)	1	19.0						19.0	45	20	19	POOR	X	45° lean to northeast; large surface roots to east; suckering
12	2585	Populus balsamifera, (Black Cottonwood)	1	16.8						16.8	40	25	17	POOR	X	Large cavity to north with response growth;at base 28 inches by three inches then 10 feet by 6 inches; tridominant at 12 feet
13	2586	Populus balsamifera, (Black Cottonwood)	1	37.0						37.0	90	25	37	FAIR	X	Moderate twig dieback; branch fall evident
14	2587	Acer circinatum, (Vine Maple)	2	5.0	2.6					5.6	25	15	6	GOOD		45° lean to south; codominant at 3 inches; dripline in project area
15	2588	Populus balsamifera, (Black Cottonwood)	2	8.7	3.3					9.3	35	10	9	V. POOR	X	Hollow at base; 20° lean to north; suckering at base; moderate twig dieback; shaded to south
16	143	Populus balsamifera, (Black Cottonwood)	1	16.8						16.8	48	20	17	FAIR	X	Large sucker at 12 feet; 30° lean to south and corrected at 35 feet; suckering at base
17	144	Populus balsamifera, (Black Cottonwood)	1	35.0						35.0	85	30	35	FAIR	X	Codominant with tree number 145; suckering
18	145	Populus balsamifera, (Black Cottonwood)	1	27.9						27.9	85	25	28	FAIR	X	Codominanat with tree number 144
19	146	Populus balsamifera, (Black Cottonwood)	1	20.5						20.5	80	30	21	FAIR	X	Serpentine trunk; ivy to 35 feet; small amount of twig dieback
20	151	Alnus rubra, (Red Alder)	1	8.6						8.6	50	12	9	FAIR	X	Serpentine trunk; limited branching due to shade; moderate twug and branch dieback
21	152	Alnus rubra, (Red Alder)	1	11.0						11.0	40	10	11	V. POOR	X	Serpentine trunk; lost top at 40 feet; exfoliating bark near top; habitat tree
22	118	Alnus rubra, (Red Alder)	1	15.5						15.5	6	0	16	DEAD	X	Cut off at 6 feet and place on ground surface; habitat tree
23	117	Alnus rubra, (Red Alder)	1	9.9						9.9	25	0	10	DEAD	X	45° lean to east; caught in tree number 116; habitat tree
24	140	Alnus rubra, (Red Alder)	2	16.7	22.3					27.9	55	15	28	V. POOR	X	Codominant at ground surface; stem 1 lost top at 50 feet; stem 2 lost top at 45 feet; exfoliating bark; habitat tree
25	116	Alnus rubra, (Red Alder)	2	11.5	10.0					15.2	55	15	15	V. POOR	X	Codominanat at ground surface; stem 2 dead
26	2529	Malus fusca, (Pacific Crabapple)	3	6.0	4.0	4.0				8.2	35	20	8	FAIR	X	30° lean to northeast; moderate twig dieback

1

Appendix B - Tree Retention and Removal Plan Sheet



- LEGEND:**
- ★ EVERGREEN TREE TO BE RETAINED
 - ⊗ DECIDUOUS TREE TO BE RETAINED
 - ✕ TREE TO BE REMOVED



**Preliminary
90% Review Set**

Not For Construction
09-2020

**Call 48 Hours
Before You Dig**

1-800-424-5555
UNDERGROUND SERVICE



CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS
123 FIFTH AVENUE KIRKLAND, WA 98033
(425) 587-3800 www.kirklandwa.gov

NO.	DATE	BY	APPR.	REVISION



BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101
206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

C. Talich, P.E. 04-2020
DESIGNED BY: DATE
P. Simon 04-2020
DRAWN BY: DATE
R. Dorn, P.E. 04-2020
CHECKED BY: DATE

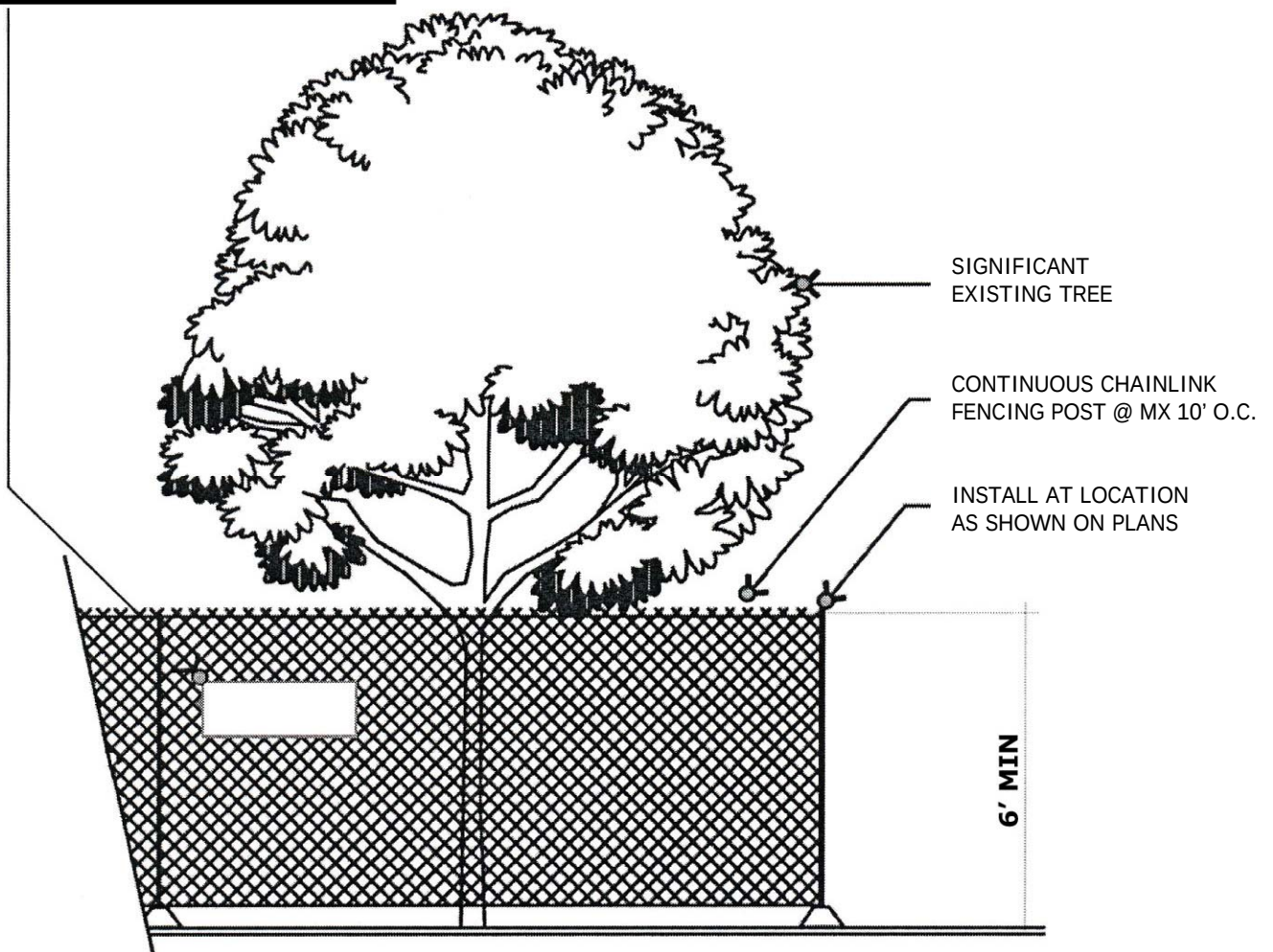
CITY OF KIRKLAND
TREE REMOVAL AND RETENTION PLAN

SHEET:
TREE-01
SCALE:
1" = 20'-0"
FILENAME:
P19-10634_TREE

1

Appendix C - City of Kirkland Tree Protection Fencing Detail

Tree Protection Area, Entrance Prohibited
To report violations contact
City Code Enforcement
At (425) 587-3225



1. MINIMUM SIX (6) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING AND COVERED WITH SOIL AS SOON AS POSSIBLE.
3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.
4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE.



TREE PROTECTION FENCING DETAIL

(for public and private trees)

TREE PROTECTION AREA

Entrance Prohibited

To report violations contact

City Code Enforcement

At (425) 587-3225

**CITY OF KIRKLAND**

Planning and Building Department
 123 5th Avenue, Kirkland, WA 98033
www.kirklandwa.gov ~ 425.587.3600

DETERMINATION OF NON-SIGNIFICANCE (DNS)

DATE ISSUED: May 10, 2022**City Planner:** Jennifer Anderer**File No.:** SEP20-00592**Phone:** (425) 587-3239**Project Name:** NE 142nd Street Stormwater Improvements**Email:** janderer@kirklandwa.gov**Project Location/Address:** 7718 NE 141st Street**Proponent:** I-Wen Yang, Project Engineer, City of Kirkland

Project Description: The proposed project includes work to improve stormwater conveyance and reduce flooding in the City's stormwater system near the intersection of NE 142nd Street and 77th Avenue NE. The proposed work will include installation of new stormwater conveyance pipes under NE 142nd Street and 77th Avenue NE, abandoning and removal of storm system components within Parcel No. 6599500310, and replacement of the outfall to the adjacent stream located near the northwest corner of 7718 NE 141st Street. The outfall replacement includes removing approximately 14 feet of pipe and replacing it with an open channel. The project also includes the installation of approximately 275 linear feet of stormwater pipe ranging in diameter from 18 inches to 24 inches and rehabilitating approximately 235 linear feet of 12-inch diameter pipe using trenchless methods.

Lead agency is the City of Kirkland.

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

Comment Period Information:

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date issued. Comments must be submitted to Jennifer Anderer, project planner at janderer@kirklandwa.gov by 5:00 PM on May 24, 2022. Please reference file number SEP20-00592.

Responsible Official:
04/29/2022

Adam Weinstein, AICP, Planning & Building Director
 City of Kirkland
 Planning & Building Department
 123 Fifth Avenue, Kirkland, WA 98033 – 425.587.3600

Date

Appeal Information:

There is no administrative appeal period for this DNS (KMC 24.02.230(a)).

Publish in The Seattle Times on: Tuesday, May 10, 2022

Distribute this notice with a copy of the Environmental Checklist to:GENERAL NOTICING

- Department of Ecology - Environmental Review
- Muckleshoot Tribal Council - Environmental Division, Tribal Archeologist
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat
- Cascade Water Alliance – Director of Planning
- Finn Hill Neighborhood Association
- Lake Washington School District No. 414: Budget Manager and Director of Support Services
- Washington State Dept. of Archaeology & Historic Preservation
- King County Dept. of Transportation - Employer Transportation Representative
- Seattle & King County Public Health - SEPA Coordinator
- City of Kenmore - Director, Planning Dept.

AGENCIES WITH JURISDICTION, AFFECTED AGENCIES, AND/OR INTERESTED PARTIES

- Department of Ecology - Environmental Review
- Department of Fish and Wildlife – Olympia
- Washington State Department of Transportation – Local and Development Services Manager
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat Program
- U.S. Army Corps of Engineers - Seattle District
- King County Natural Resources and Parks - Director
- Eastside Audubon Society
- Northshore Utility District - Operations Department, Engineering Director, and Senior Civil Engineer
- King County Wastewater Treatment Division – SEPA Lead and Property Agent

cc: Applicant
 Planning Department File, Case No. SAR20-00588

Distributed by: _____



(Karin Bayes, Office Specialist)

May 10, 2022

Date



CITY OF KIRKLAND
PLANNING & BUILDING DEPARTMENT
123 5th Avenue, Kirkland, WA 98033
425.587.3600 ~ www.kirklandwa.gov

English:

To request information from this document in English, please contact the Title VI Coordinator at titlevicoordinator@kirklandwa.gov or (425) 587-3831.

Chinese, simplified:

如需此文件中信息的简体中文版本, 请发送电子邮件至 titlevicoordinator@kirklandwa.gov 或拨打 (425) 587-3831 联络 Title VI 协调员。

Russian:

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Vietnamese:

Để yêu cầu thông tin từ tài liệu này bằng Tiếng Việt, vui lòng liên hệ với Điều Phối Viên Tiêu Đề VI theo địa chỉ titlevicoordinator@kirklandwa.gov hoặc theo số (425) 587-3831.

Alternate Formats:

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Title VI: Kirkland's policy is to fully comply with Title VI of the Civil Rights Act by prohibiting discrimination against any person on the basis of race, color, national origin or sex in the provision of benefits and services resulting from its programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with the City. To request an alternate format, file a complaint or for questions about Kirkland's Title VI Program, contact the Title VI Coordinator at 425-587-3831 (TTY Relay: 711) or TitleVICoordinator@kirklandwa.gov.

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [\[HELP\]](#)

1. Name of proposed project, if applicable:
142nd Street Surface Water Improvement Project
2. Name of applicant:
I-Wen Yang, Project Engineer, City of Kirkland Public Works Department

3. Address and phone number of applicant and contact person:
123 Fifth Avenue, Kirkland, WA 98033-6189
Phone: (425) 587-3832
iyang@kirklandwa.gov
4. Date checklist prepared:
April 6, 2022
5. Agency requesting checklist:
City of Kirkland
6. Proposed timing or schedule (including phasing, if applicable):
Summer/Fall 2022
7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
No
8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
Critical Areas Report (ONeill Service Group, 2022)
Tree Retention Plan (ONeill Service Group, 2022)
Geotechnical Report (ONeill Service Group, 2020)
9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.
No
10. List any government approvals or permits that will be needed for your proposal, if known.
City of Kirkland Critical Areas
City of Kirkland Land Surface Modification
Washington State Department of Fish and Wildlife (WDFW) Hydraulic Permit Approval (HPA)
11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)
This project will improve stormwater conveyance and reduce flooding in the City of Kirkland's stormwater system. Proposed improvements include installing new stormwater conveyance pipes in the right-of-way beneath 77th Avenue NE and NE 142nd Place, abandoning and removing storm system components within private property, and replacing the outfall to an adjacent stream. The outfall replacement includes removing approximately 14 feet of pipe and replacing it with an open channel. The project includes the installation of approximately 275 linear feet of stormwater pipe ranging in diameter from 18 to 24 inches and

rehabilitating approximately 235 linear feet of 12-inch diameter pipe using trenchless repair methods.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

77th Avenue NE & NE 142nd Place, Kirkland, Washington

Northwest corner of the northeast quarter of Section 24, Township 26N, Range 4E

See Site Location map, attached.

B. Environmental Elements [\[HELP\]](#)

1. Earth [\[help\]](#)

a. General description of the site:

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____

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

4 percent

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

Fill material and gravelly sandy loam

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

No

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The total disturbed area is anticipated to be approximately 3,393 square feet within the outfall area and 3,000 square feet within the developed right-of-way; for a total of approximately 7,400 square feet.

Total cut and fill for the project is approximately 800 cubic yards of cut and 700 cubic yards of fill. The excavation of the new outfall channel is estimated at approximately 120 cubic yards. Outfall protection rock quantity is approximately 27 cubic yards. Proposed stream gravel quantity for the new outfall channel is approximately 42 cubic yards. No work is proposed within the Ordinary High Water Mark (OHWM) of Stream A. Work within 3 feet of the stream will be completed using hand tools.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
Erosion could occur within the open utility trench excavation and outfall areas. Temporary erosion and sediment control measures will be installed prior to earthwork activities and maintained throughout construction to control erosion and sedimentation within the work area.
- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?
The proposed outfall will be protected from erosion with approximately 360 square feet of rock armoring. Otherwise, no new impervious areas are proposed.
- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
Temporary erosion and sediment control measures (TESC) will include fenced clearing limits, catch basin inlet protection, silt fence, retention structures (such as an above ground tank, if needed for bypassing stormwater or to provide water quality prior to discharge). Disturbed areas during construction will be minimized to control the amount of area exposed to erosion. Disturbed vegetated areas will be permanently replanted with grass, landscaping, and native plantings as shown on the plans.

2. Air [\[help\]](#)

- a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.
There is some potential for dust being generated by construction equipment and vehicles during construction. Quantity is anticipated to be small due to the small work areas and would be mitigated through street sweeping within the project area.
- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.
No
- c. Proposed measures to reduce or control emissions or other impacts to air, if any:
Dust will be controlled by street sweeping within the project area.

3. Water [\[help\]](#)

- a. Surface Water: [\[help\]](#)
- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.
The stormwater outfall flows into Stream A, an unnamed tributary to Denny Creek.
 - 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.
The replacement of the stormwater outfall, removal of the existing outfall, and native plantings will be completed within 200 feet of the stream. See the

attached Plan Drawings for the NE 142nd Street Surface Water Improvements and the Critical Areas Report prepared for the project.

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

None

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

During the installation of the new outfall, stormwater will be diverted around the work area, either through the existing 12-inch outfall pipe or through a temporary pipe placed on the ground within the project limits.

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

No

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

No

b. Ground Water: [\[help\]](#)

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No

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

Not applicable

c. Water runoff (including stormwater):

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

Stormwater runoff within the project area is collected through a curb and gutter system that flows into catch basin inlets into the storm drainage pipe network located within 77th Avenue and NE 142nd Place and the surrounding neighborhood. The stormwater pipe network discharges to Stream A at an existing outfall.

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

There is a chance that a spill could occur during construction. Equipment used for construction, such as an excavator, typically uses fuel and hydraulic fluids for operation. Prior to construction, the Contractor will prepare an spill

prevention plan to be used to avoid spills and plan for immediate cleanup if a spill should occur. The Contractor will be required to check equipment frequently for proper operation and have spill control materials on hand should the need arise.

The final connection between the new open channel outfall and Stream A will be completed using hand tools to minimize the chance for sediment to enter the stream.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No

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

Work is proposed to occur during the drier summer months when the runoff potential and groundwater elevations are low. Because the storm system replacements are near to the outfall and the outfall requires replacement, a stormwater bypass during construction may be needed. The project includes redundancy to allow for phasing during construction to keep the storm system operational. Pipe trench excavations may encounter groundwater. The geotechnical report indicates that potential water within the trench may be handled using a sump pump. Surface and groundwater during construction will be monitored for turbidity and routed to treatment if required to meet regulatory discharge limits.

Erosion control measures and a Spill Prevention and clean up plan are requirements of the construction contract. Monitoring and enforcement will be conducted by the City.

4. **Plants** [\[help\]](#)

- a. Check the types of vegetation found on the site:

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

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

Disturbance to vegetation will be kept to the minimum needed to replace the stormwater pipe and outfall. Five significant trees require removal. A significant tree is at least 6 inches in diameter at breast height, measured 4.5 feet from the ground. Trees to be removed include five Red Alders near the existing and

proposed stormwater outfall. There are also some shrubs (red elderberry and salmonberry) and weeds (Himalayan blackberry) near the outfall area that will be removed. For the disturbed area of approximately 3,393 square feet related to the outfall replacement, a planting plan for the project has been prepared that includes native trees and shrubs.

Within the right-of-way, approximately 3,000 square feet of landscaping and lawn will be removed and replaced in-kind.

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

None

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

Disturbed areas will be restored to match their existing condition to the extent practicable.

- e. List all noxious weeds and invasive species known to be on or near the site.

Himalayan blackberry

5. *Animals* [\[help\]](#)

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: hawk, heron, eagle, songbirds, other:

mammals: deer, bear, elk, beaver, other:

fish: bass, salmon, trout, herring, shellfish, other _____

birds (American Crow, American Robin), deer

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

None

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

No

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

Install approximately 207 native riparian plantings (trees, shrubs, and ground cover) near the replaced outfall as shown on the Plans.

- e. List any invasive animal species known to be on or near the site.

Not applicable

6. *Energy and Natural Resources* [\[help\]](#)

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

None

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

No

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

None

7. *Environmental Health* [\[help\]](#)

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

No

- 1) Describe any known or possible contamination at the site from present or past uses.

None

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

Fuel and lubricants used by construction equipment

- 4) Describe special emergency services that might be required.

None. Standard construction practices and equipment will be used for the proposed project.

- 5) Proposed measures to reduce or control environmental health hazards, if any:

Standard erosion control best management practices and spill prevention methods will be used for this project.

b. Noise

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

None

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

Short-term noise during construction will include use of construction equipment and vehicle traffic to deliver equipment and materials. Hours of construction would be in accordance with the City of Kirkland noise ordinance. There will be no noise associated with the completed project.

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

Construction hours will be limited in accordance with the City's noise ordinance.

8. Land and Shoreline Use [\[help\]](#)

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

Current land use includes neighborhood streets, a church, and single-family homes. The proposed project will not affect the current land uses on nearby or adjacent properties.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

No

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No

c. Describe any structures on the site.

Fencing, sidewalks, underground utilities.

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

Residential fencing will be removed and replaced. Stormwater catch basins and pipe will be removed and installed.

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

Single Family Residential, RSA 6

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

Low density residential, LDR 6

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

Not applicable

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

Yes. A portion of the project lies within stream and wetland buffers, as described in the Critical Areas Report for the project.

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

None

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

None

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

Not applicable

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

Not applicable. Proposed land use matches existing land use.

- m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

Not applicable

9. Housing [\[help\]](#)

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

None

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

None

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

Not applicable

10. Aesthetics [\[help\]](#)

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

Not applicable

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

None

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

Not applicable

11. Light and Glare [\[help\]](#)

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

None

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

No

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

None

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

None

12. Recreation [\[help\]](#)

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

Neighborhood sidewalks

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

No

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

None

13. Historic and cultural preservation [\[help\]](#)

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe.

No

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

Review of site, GIS data, as-built documentation. Work will be completed in existing disturbed areas. An inadvertent discovery plan will be included in the Contract Documents that will include contractor requirements during construction.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

Work will be completed in existing disturbed areas. An inadvertent discovery plan will be developed and provided to the construction contractor.

14. Transportation [\[help\]](#)

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

The project site is located near the intersection of 77th Avenue NE & NE 142nd Place in Kirkland, Washington. The project site is northwest of the intersection of Juanita Drive and NE 141st Street.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?
No. The closest transit stop is on 84th Ave NE (King County Route 255), approximately 0.5 miles from the project site.
- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?
None
- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).
No
- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.
No
- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?
None
- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.
No
- h. Proposed measures to reduce or control transportation impacts, if any:
Not applicable

15. Public Services [\[help\]](#)

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.
No
- b. Proposed measures to reduce or control direct impacts on public services, if any.
None

16. Utilities [\[help\]](#)

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

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

Stormwater improvements (City of Kirkland)

Water system adjustments (Northshore Utility District)

C. Signature [\[HELP\]](#)

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

Signature: Carla Talich

Name of signee Carla Talich, PE

Position and Agency/Organization Project Manager, BHC Consultants

Date Submitted: April 6, 2022

D. Supplemental sheet for nonproject actions [\[HELP\]](#)

(IT IS NOT NECESSARY to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposed measures to protect such resources or to avoid or reduce impacts are:

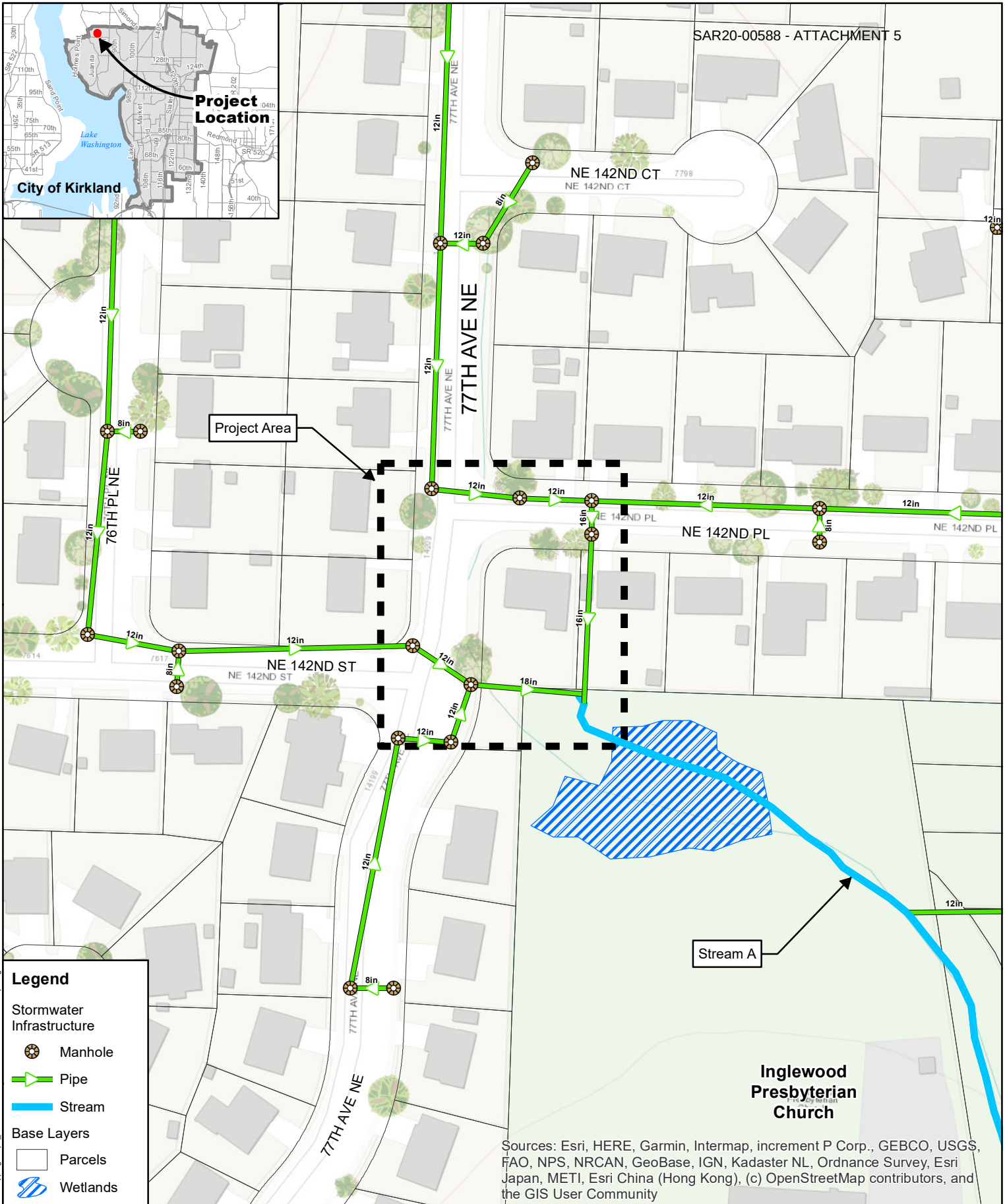
5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.



This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

Critical Area Report

**NE 142nd Street Surface Water Drainage Improvements
Kirkland, Washington**

Critical Area Report

September 24, 2020

Prepared by:



O'Neill Service Group, LLC
17619 NE 67th Ct, Suite 100
Redmond, WA 98052

Prepared for:



BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle Washington 98101

Revision History

Revision Number	Revision Date	Description of Changes
00	9/24/2020	Initial Submittal

Critical Area Report

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1.0 INTRODUCTION

This Critical Area Report (CAR) has been developed in support of the City of Kirkland's (City) NE 142nd Street Surface Water Drainage Improvements Project (Project) located in the City of Kirkland, Washington. The City of Kirkland Public Works (applicant) proposes updating the current stormwater sewer system located in the Big Finn Hill/Juanita Drive neighborhood to implement a flood reduction strategy. This document is intended to complement a permit-level submittal package to be submitted to the City of Kirkland Planning Department for review. This plan references the 90 percent Design Drawing Set submitted concurrently with this CAR and under a separate cover.

A Category III wetland and Type Ns stream are located east of the subject property on the parcel owned by the Inglewood Presbyterian Church. No wetlands or streams are located on the small subject property; however, regulatory buffers may encumber some of the parcel. Also, the project may impact a portion of other adjacent parcels. This CAR will describe the existing conditions, detail the project, quantify impact areas, and lay out a restoration plan that aims to restore and improve critical area function. This CAR has been prepared in accordance with Kirkland Zoning Code (KZC) Chapter 90.110 – *Critical Area Report* and meets the requirements of KZC Sections 90.55 through 90.65, which discuss wetlands, streams, and their associated buffers.

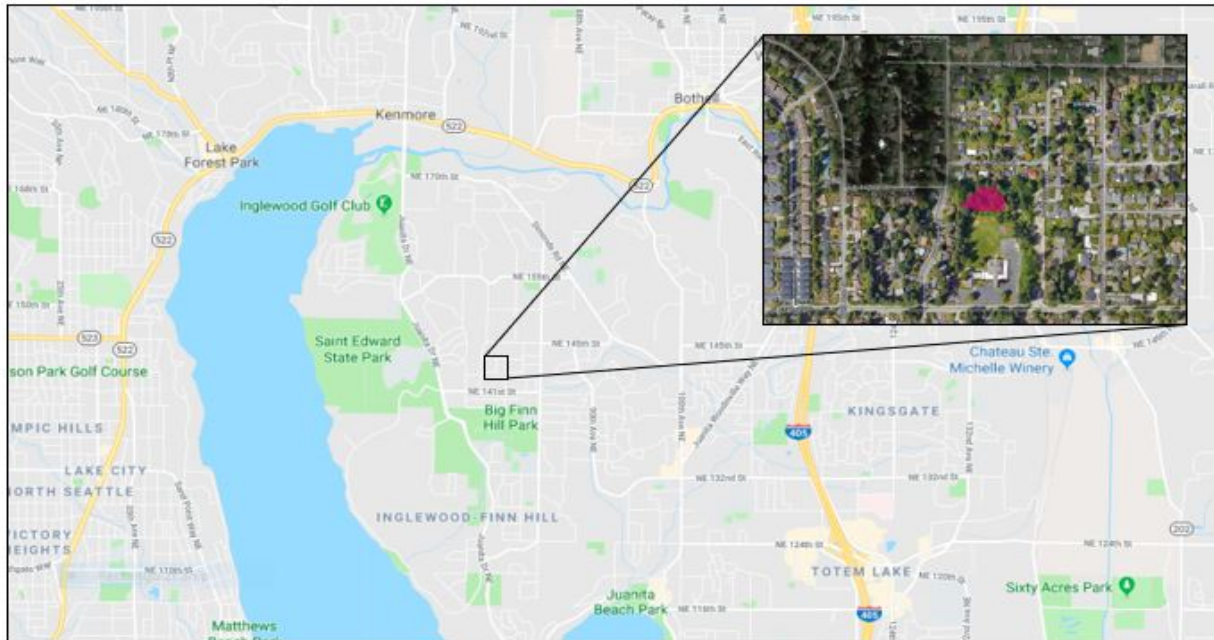


Figure 1 - Vicinity Map and inset illustrating the location of the proposed Project. Source Google Map, 2019.

2.0 PROJECT LOCATION

The subject parcel is situated in the southeastern quarter of Section 24, Township 26 North, Range 3 East (King County Tax Parcel Number 6599500310). The adjacent portion of the neighboring property, owned

by the Inglewood Presbyterian Church (Parcel Number 2426049077), was also screened for the presence of wetlands and streams.

3.0 BASELINE CONDITIONS

3.1 Landscape Setting

The subject property is in the East Lake Washington Kenmore sub-basin in the Cedar Sammamish Water Resources Area (WRIA 8). A tributary to Denny Creek outfalls on the Church property east of the subject property. Upstream, the tributary flows through a storm system which drains the broader residential neighborhood north of the Project. Below the Project, the tributary flows southward to Denny Creek and eventually discharges into Lake Washington. The surrounding land use is predominately residential. However, two large parks consisting of forested open space are within one kilometer of the subject parcel: Saint Edward State Park to the northwest and Big Finn Hill Park to the south.

3.2 Existing Vegetation

Vegetation in the wetland on the Church parcel (Wetland A) consists of hydrophytic species. Red alder (*Alnus rubra*, FAC) and black cottonwood (*Populus balsamifera*, FAC) dominate the overstory. Red-osier dogwood (*Cornus sericea*, FAC), twinberry (*Lonicera involucrata*, FAC), Oregon ash (*Fraxinus latifolia*, FACW), Mexican hedge nettle (*Stachys mexicana*, FACW), and salmonberry (*Rubus spectabilis*, FAC) dominate the understory. The herbaceous layer is composed of small-fruited bulrush (*Scirpus microcarpus*, OBL), reed canarygrass (*Phalaris arundinaceae*, FACW) and creeping buttercup (*Ranunculus repens*, FAC). Giant horsetail (*Equisetum telmateia*, FACW), Ladyfern (*Athyrium cyclosorum*, FAC) and Himalayan blackberry (*Rubus armeniacus*, FAC) are also present but less abundant than the other dominant species.

The non-wetland area of the Project consists of a mixed overstory of Western red cedar (*Thuja plicata*, FAC), black cottonwood, and bigleaf maple (*Acer macrophyllum*, FACU) with an understory of osoberry (*Oemleria cerasiformis*, FACU), red elderberry (*Sambucus racemosa*, FACU), and sword fern (*Polystichum munitum*, FACU).

Invasive species identified within the wetland and stream buffers include Himalayan blackberry, English holly (*Ilex aquifolium*, FACU), and climbing nightshade (*Solanum dulcamara*, FAC).

The residential area surrounding the Project site is mainly comprised of lawn grass, various ornamental shrubs, and tree species identified in the Tree Retention Plan prepared under a separate cover. More detail is included in the Wetland and Stream Reconnaissance Study, attached to this document as Appendix B.

3.3 Critical Areas

Wetland A is a small, forested, depressional wetland located entirely on the adjacent Church property. The wetland receives water from the tributary, stormwater runoff, and precipitation. A storm drain leading from the City of Kirkland municipal storm drain network discharges in the Project area at the north reach of the jurisdictional stream.

Stream A is a non-fish bearing, unnamed tributary to Denny Creek. The stream daylights on the Church property adjacent to the subject parcel by way of a 12-inch concrete culvert that is part of the Kirkland stormwater infrastructure. More detail can be found in the attached Wetland and Stream Reconnaissance Report located in Appendix B.

A delineation was performed in July 2020. The flags of the wetland and stream were located by professional land surveyors and incorporated into the drawings that accompany this plan.

There is no existing habitat on the subject property or in the vicinity for federally listed, state listed, or priority species. This includes species of local importance pursuant to KZC 90.95. This was verified in the field and by online mapping resources established by Washington Department of Fish and Wildlife.

4.0 SITE PHOTOS



Figure 2 – Overview photo showing the interior of the wetland. Photo taken facing north. (Photo from 7/22/2020)



Figure 3 – Channelized Stream A entering the Wetland A interior. Photo taken facing south and with direction of flow. (Photo from 7/22/2020)



Figure 4 – Wetland delineation flagging on the western wetland boundary. Tall Himalayan blackberry dominates the western boundary. (Photo 7/22/2020).



Figure 5 – Residential homes border the Project area to the north. Photo taken facing northwest from Stream A. (Photo 7/22/2020).



Figure 6 – The interior of Wetland A exhibits areas of occasional flooding, with a margin of emergent and shrub vegetation. Photo taken facing north. (Photo 7/22/2020)



Figure 7 - A Google Street View image taken from 77th Avenue NE shows the area of vegetation impact is composed largely of Himalayan blackberry and some red alder trees. (Image courtesy of Google Earth, 2020)

5.0 PROPOSED PROJECT DEVELOPMENT

5.1 Project Description

The applicant is proposing a stormwater utility upgrade to alleviate repeated localized flooding at the intersection of 77th Avenue NE and NE 142nd Street in the City of Kirkland. Storm events and the subsequent runoff frequently overwhelm the currently undersized infrastructure there and lead to several inches of standing water in the public ROW and over the roadway. The Project will reconfigure and upsize underground stormwater pipes in and around that intersection; reconfigure an outfall to a regulatory stream channel; and restore the surrounding hard surfaces and vegetation. Completion of this Project will resolve flooding issues and restore the critical area buffer in a manner than protects critical area buffer function in the City of Kirkland.

This Report accompanies the 90 percent, permit-level drawings, and other supporting material. These distinct documents show the location, scope, materials, and details of the proposed Project. Work in the Stream A and Wetland A buffer will include installing a construction perimeter, installing TESC measures, clearing and grubbing vegetation inside of the work area, excavation and preparation of subgrade for the new pipe and associated underground structures, backfilling, stabilization and restoration of surfaces.

5.2 Impact to Critical Areas

Impacts are shown in the Impact Figure attached to the restoration plan sheet set. The impacts are a combination of temporary (where construction will require removal of vegetation that will be replanted following construction) and permanent conversion (where stream buffer will be converted to stream channel). Some of the work will take place where wetland and stream buffer overlap, some will be in only stream buffer. Grading will be required up to the ordinary high water mark (OHWM) of the existing stream but has been designed to avoid direct impacts to the jurisdictional channel. The following table is a summary of the impacts and conversions anticipated:

Table 1 – Type and area of impacts anticipated due to the Project.

Impact Type	Area (SF)	Current Vegetative Condition	Duration	Reason
Total Impact	1,463	Mix	Total - mixed	Overall project to improve stormwater flow.
Wetland/Stream Buffer	1,180	Small diameter red alder and Himalayan blackberry, Small amount of mowed lawn.	Temporary	Construction Access and pipe alignment.
Wetland/Stream Buffer to Stream Channel	283	Small diameter red alder and Himalayan blackberry.	Permanent Conversion	Construct new outfall to Existing Stream Channel

The impacted area consists of a mix of Himalayan blackberry and red alder trees, as well as an approximately 160-square-foot residential lawn north of the existing outfall. It is the intent of this plan to restore these areas to better than current conditions.

6.0 MITIGATION SEQUENCING

The Project follows guidelines for mitigation sequencing (avoidance, minimization, rectifying impact, reducing impact, compensation, and monitoring) outlined in KZC Section 90.145 – *Mitigation*. These criteria were sequentially applied to the Project to guide its design with the goal of minimizing impacts to the stream, wetland, and associated buffers. The following section discusses how the proposal follows the sequencing steps detailed in the KZC.

6.1 Avoid

The purpose of the Project is to reroute and daylight a conveyance that ties to a tributary. As such, the work that accomplishes the other goals established by the City must interface with a critical area. As such, total avoidance would not be compatible with the Project. However, the design has gone through several iterations to avoid removal of significant on-site trees inside of the critical area buffer. The outfall alignment was routed to impact the least number of trees. Most of the improvement will take place under existing hard surfaces (beneath the street), so much of the work will avoid impacting critical areas and associated buffers.

6.2 Minimize & Reduce

The newly designed pipe route minimizes impact to jurisdictional buffers and critical root zones by avoiding specific trees and buffer areas, as previously described above. Impacts to on-site critical areas will be minimized to the greatest extent possible through proactive design efforts. In addition, minimization efforts include limiting light, noise, toxic and stormwater runoff, human disturbance, and dust that may enter the critical areas (KZC 90.155.1). The project limits are as narrow as possible in order to implement the work.

BMPs will be implemented during construction and operation to minimize sedimentation to wetlands and streams and contamination-associated pollutants in stormwater runoff. Construction will be phased so that excavation and utility installation will be done prior to final physical connection to the existing stream channel, reducing overall impact to water quality.

6.3 Rectify

After avoiding and minimizing impacts, the next mitigation sequencing activity requires the Project to rectify impacts discussed above. Restoration of these temporarily impacted critical areas will include removing construction related material, soil improvement, stabilizing the site, planting with native plants, and implementing a monitoring and maintenance regime. Specific restoration activities include removing

all temporary fill material used for construction staging or access roads from all buffer areas, restoring grades to pre-construction conditions, and loosening the soils to restore soil and hydrologic conditions and adding soil amendments, where necessary, to restore soil fertility, porosity, and texture. The contractor will be required to meet soil decompaction levels suitable for plant establishment.

Native plant communities will be selected for each impact area to meet site conditions (i.e., sunny, shady, wet, or dry) and growth preferences (i.e., tall, or short tree, shrub, or groundcover). Adjacent buffer areas within the site are currently dominated by invasive species, such as Himalayan blackberry and reed canarygrass. When possible, non-native invasive species adjacent to temporarily affected areas will be cleared to avoid interference with long-term maintenance and monitoring.

6.4 Monitor

The site will be monitored and maintained for a period of at least five years per requirements of KZC Section 90.160. The maintenance and monitoring plans are outlined in Sections 9.5 and 9.7.

7.0 Code Analysis

Chapter 90 of the KZC generally does not allow activities within Critical Areas or their buffer if it is practicable to move the action. The code recognizes that some activities, some specifically related to stormwater system maintenance (i.e. 90.35, 90.40), must be permitted due to the regularity, location of the work, and the fact that the work is needed to maintain important infrastructure that may also be in sensitive areas. Maintenance and normal repair of stormwater systems in buffers are activities that are reviewable at the planning official level. But because this Project is to construct new stormwater infrastructure, it would apparently and most likely not fit the permitted or exempt activities highlighted in this paragraph. In fact, it appears that strict application of the Chapter in general would preclude the Project as it falls inside of the inner portion of Critical Area buffers and butts against a jurisdictional stream.

Section 90.45 – *Public Agency and Public Utility Exceptions* provides relief for a public agency if the strict application of KZC Chapter 90 would prohibit necessary utility upgrades. It appears that the application of the KZC would prevent the physical work needed to upgrade the stormwater system. The Project likely fits with this provision. However, the final permitting pathway depends on Planning review and approval of this and other permit documents, and coordination between Planning and the applicant.

The approval process with this Section is elevated to Planning Director level, but the decision criteria is like that of exceptions and permitted activities. The criteria the Director will use is summarized in the code and is as follows below. This document, along with the restoration plan is intended to satisfy these criteria. The OSG response describing consistency follows each code section.

a. *There is no other practical alternative to the proposed project with less impact on the critical areas or buffer;*

There is no way to design this project outside of the critical area buffer and without being adjacent to the stream. The engineer has designed the alignment of the new storm drain in a manner that affects the fewest number of trees possible and has the lowest impact on the buffer (by narrowing the construction boundary).

b. *Strict application of this chapter would unreasonably restrict or prohibit the ability to provide public utilities or public agency services to the public;*

Other provisions of the chapter would require the utility be built outside of the inner portion of the stream and wetland buffer. As stated elsewhere, due to the nature of the project, this is not feasible. The strict application of provisions within the chapter would not allow for constructing the new utility where it needs to be to alleviate flooding in the intersection.

c. *The proposal minimizes impacts to the critical area or buffer through mitigation sequencing, and through type and location of mitigation, pursuant to KZC 90.145 and 90.150, if applicable, including such installation measures as locating facilities in previously disturbed areas, boring rather than trenching, and using pervious or other low impact materials; and*

Mitigation sequencing principals were used by the engineer to align the storm drain at a 90 degree angle to the stream alignment, impacting the smallest area of buffer, and also reducing the impact to the red alder grove rooted to the west of the existing stream channel. Although the function of the utility improvement requires a certain magnitude of impact, the design minimizes it as best as possible. Included with this report is a mitigation plan that details the enhancement planting using a diverse mix of native plants that will improve buffer function from existing conditions. See below for the KZC 90.145 and 90.150 analysis.

d. *The proposal protects and/or enhances critical area and buffer functions and values, consistent with the best available science and with the objective of no net loss of critical area functions and values.*

In the spirit of *no net loss of functions and values*, the mitigation plan included will enhance temporarily impacted buffer so that the relationship between restored area to impacts is greater than 1:1, and that the remaining landscape will grow into a buffer that provides higher function than that provided under the current conditions.

8.0 FUNCTIONAL LIFT ANALYSIS

The following is a comparison of the current conditions of the work area compared to how the work area will function provided that successful implementation and plant establishment is achieved per the

following plan. Three important functions that are used by the Department of Ecology to categorize wetlands are used here to judge the changes that are proposed - Water Quality, Hydrologic and Habitat Functions.

8.1 Water Quality

Existing Condition - Stream A currently receives untreated stormwater from roadways and urban, developed areas, which then enters Denny Creek downstream of the Project. The compacted Himalayan blackberry and alder plants are rooted in a compacted lot beside the existing stream channel. The compacted ground provides little water quality improvement for water that surface flows towards the channel.

Proposed Condition - Installation of diverse native vegetation and varying plant structures, along with compost-amended soil and a layer of woodchip mulch, will slow water velocity during floods while trapping sediments and associated pollutants from surface runoff.

Summary – The Water quality function that the small project area contributes to surface water flows is lifted under the proposal.

8.2 Hydrologic Function

Existing Condition – Flood attenuation is important within the Denny Creek drainage basin because it regularly floods adjacent properties. Lack of dense vegetation and the presence of compacted soil in the project area reduces time of concentration for surface water flowing towards the stream. This helps contribute to peak flows during storm events, increasing the intensity (albeit, by a small amount) of downstream flooding.

Proposed Condition – The installation of a dense mix of native plants, compost-amended soil, and a layer of woodchip mulch will help increase time of concentration by holding water on foliage, trapping it in organic matter in the soil, and slowing it at its surface flows towards the stream channel.

Summary – The mitigation portion of the project will help turn a low-functioning patch of land into a vegetated plot that absorbs and slows flood water. Although a small change that may not have a significant effect on the system, actions like this multiplied across the basin combine to benefit downstream resources.

8.3 Habitat Function

Existing Condition – The red alder and blackberry provide some habitat for birds, mammals, insects, and amphibians. But species diversity is low and forage opportunities are depressed compared to a diverse forest habitat.

Proposed Condition – Addition of a diverse array of native plants, including seed- and nut-producing plants, will attract birds and wildlife to the buffer. Restored stream and buffer will create habitat for insects, amphibians, birds, and small mammals.

Summary – The mitigation plan includes some localized habitat functional lift through decreasing the invasive vegetation communities on-site and by increasing areas with diverse, multistoried vegetation community.

8.4 Overall Condition of the Buffer

The reduced critical area buffer condition is somewhat degraded and performs some moderate to low functions. The proposal would increase all three functions discussed in this section.

9.0 MITIGATION PLAN

In all, a total of 1,704 square feet of enhancement, stream conversion, lawn restoration and woodchip mulch application will serve as the restoration component. The project will enhance 1,019 square feet of stream and wetland buffer with trees, shrubs, and groundcover, and convert 282 square feet of stream buffer to new stream channel. A 162-square-foot patch of impacted lawn will be restored to “in-kind” in the northern neighbor’s yard. A 224 square foot “no-plant” zone over the utility will be amended with woodchip mulch to help lift hydrologic function compared to the compacted existing soil. See the Planting Plan sheet for more detail.

Project mitigation goals, objectives, and performance standards will be used to track and measure the success of the mitigation site. OSG designed mitigation goals, objectives, and performance standards to meet the City of Kirkland regulatory requirements. The mitigation goals describe the overall intent of mitigation efforts; the objectives describe individual components of the mitigation site in detail.

Performance standards are measurable criteria for determining if the goals and objectives are being achieved. Monitoring of performance standards are used to guide management and maintenance of the mitigation site and to evaluate compliance with regulatory permits in the final year of monitoring.

The proposed enhancement planting plan along with a planting schedule is shown in the attached mitigation plan drawings. Both Table 1 below in this text and the Planting Plan sheet show the plantings proposed under this mitigation plan.

1 *Table 2 - Plant schedule for the buffer enhancement area.*

Type	Common Name	Scientific Name	QTY	Size
Trees (6)	Cascara	<i>Rhamnus purshiana</i>	2	2-Gal
	Vine maple	<i>Acer circinatum</i>	2	2-Gal
	Western red cedar	<i>Thuja plicata</i>	2	2-Gal
Shrubs (38)	Beaked Hazelnut	<i>Corylus cornuta</i>	2	1-gal
	Osoberry	<i>Oemleria cerasiformis</i>	8	1-gal
	Red elderberry	<i>Sambucus racemosa</i>	6	1-gal
	Red flowering currant	<i>Ribes sanguineum</i>	6	1-gal
	Snowberry	<i>Symphoricarpos albus</i>	16	1-gal
Groundcover (142)	Deer fern	<i>Blechnum spicant</i>	37	4" pot
	Salal	<i>Gaultheria shallon</i>	44	4" pot
	Sword fern	<i>Polystichum munitum</i>	61	4" pot
		TOTAL →	186	

2 The planting plan aims to establish three species of native trees, five species of native shrubs, and three
3 species of groundcover. All plant choices are endemic to the Pacific Northwest and have proven success
4 in mitigation sites in the Puget Sound lowland ecoregion. Cascara, vine maple, and Western red cedar will
5 be installed evenly throughout the site. Western red cedar provides slow, but long-lasting evergreen
6 foliage. Cascara and Vine maple are fast growers to shade establishing herbaceous plants and shrubs. A
7 mix of quick growing, thicket-forming, pollinator-friendly, and food-bearing shrubs such as snowberry
8 (*Symphoricarpos albus*), osoberry and red elderberry are distributed on either side of the new conveyance
9 line footprint and feathered into the eastern edge of the site to seamlessly transition into the existing off-
10 site restoration area. The groundcover is chosen to be tough and shade- and drought-tolerant and provide
11 a lower stratum to round out the new planted buffer area.

12 A wide variety of plant species are used to compensate for possible failure of one or more taxa. The
13 sections on Performance Standards, Reporting, and the Contingency Plan discuss this possibility and are
14 located in Sections 9.7, 9.8 and 9.9.

15 Overall, this plan is designed to meet the requirement of the KZC. The actions outlined here will help lift
16 critical functions of the stream and wetland buffer that will be temporarily affected by the Project.

9.1 Mitigation Goal, Objectives, and Performance Standards

The goal and objectives for the proposed mitigation actions are based on the presence of critical areas within the Project area. The mitigation plan aims to enhance the newly proposed critical area buffer in such a way that the enhancements rectify any protective and functionality losses.

9.1.1 Goal

Lift the Stream A and Wetland A Buffer Functions

9.1.2 Objectives

- 1 Establish a diverse mix of native groundcover, shrub, and tree species within the stream and wetland buffers.
- 2 Control invasive weed species.
- 3 Monitor and maintain the site for a period of at least five years.

9.1.3 Performance Standards

These performance standards shall be used to ensure the objectives are met and to measure the success of the mitigation site over time. If performance standards are met at the end of Year 5, the site shall be deemed successful. If performance standards are not met during any given year, contingency actions shall be implemented to correct any deficiency. The responsible Planning official may extend the duration of the program and the number of visits at the end of the established monitoring and maintenance period if the program requirements have not been met.

1. **Native Cover:** In all areas, the following standards shall apply:

- a) **Year 1:** 100 percent survival of installed vegetation through a combination of survival and plant replacement
- b) **Year 2:** 80 percent survival of installed vegetation
- c) **Year 3:** At least 50 percent native vegetation coverage within the enhanced and created buffer for installed vegetation
- d) **Year 5:** At least 80 percent native vegetation coverage on average throughout the mitigation area
 - At least two out of the three strata established (trees, shrubs, groundcover) must achieve 20 percent aerial coverage by the end of year 5.

2. **Plant Survival:** Survival of woody-stemmed mitigation plantings will be 100 percent (achievable through survival or replanting) at the end Year 1. If one species exhibit widespread mortality, consider replacing with another species better suited for the conditions. Plant survival will not be tracked in Years 3 through 5 as volunteer and spreading individuals render counting the original plants difficult and irrelevant to the goals of the plan.

3. **Species Diversity:** By end of Year 5, establish at least two (2) trees, (3) shrubs, and two (2) groundcover plant species in the planting area (minus the lawn reestablishment area). Volunteer species can count towards this diversity requirement provided they are native and desirable.

4. **Invasive Cover:** No more than 10 percent total aerial cover during any growing season during the maintenance and monitoring period will be allowed. Invasive weeds, for the purposes of

this plan, are those species listed by the King County Noxious Control Board including Class A, B, C, non-regulated noxious weeds, and weeds of concern.

In addition to the mitigation-specific standards above, the KZC outlines the following list of standards applicable to construction and design of the final condition of the proposed development. These design requirements will also be incorporated into the process and design.

- A. Exterior lights that face the wetland or buffer will be shielded so that they are downcast and directed away from critical area and associated buffer pursuant to KZC Section 115.85.
- B. Activities that generate noise shall be located away from the wetland, or noise impacts shall be minimized through design or insulation techniques. Activities or uses that generate relatively continuous, potentially disruptive exterior noise, will provide an additional 10 feet in width of heavily vegetated buffer strip immediately adjacent to the outer wetland buffer.
- C. Toxic runoff from pollution generating surfaces will be treated prior to discharge to wetlands.
- D. Treated stormwater runoff may be allowed into wetland buffers through the requirements of the Western Washington Phase II Municipal Stormwater Permit, National Pollutant Discharge Elimination System (NPDES), administered by the Washington State Department of Ecology. Additionally, low impact development techniques will be used per the City's standards.
- E. Pet and human disturbance will be limited through sign and fence installation along the edge of the buffers. The wetland and buffer may be placed in a separate conservation easement or tract pursuant to KZC 90.210.
- F. Best Management Practices will be utilized to control dust.

9.2 Material Definitions

1. **Irrigation system:** A watering program capable of delivering at least one inches of water per week from June 1 through September 30 for at least the first three years following plant installation. A temporary above-ground system is preferred, but in the absence of a reliable or practicable water source, alternative watering methods may be used. Application should be in a controlled, slow manner allowing water to soak into the soil and that does not generate surface runoff.
2. **Qualified Critical Area Professional:** A Professional Wetland Scientist, Landscape Architect, or similarly qualified person, with at least five years' experience delineating wetlands using the state or federal manuals, preparing wetland reports, conducting functional assessments, and/or developing and implementing mitigation plans.
3. **Wood chip mulch:** Wood chip mulch shall meet WSDOT Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT Standard Specification) for Wood Strand Mulch as defined 9-14.4(4). Arborist woodchips, sawdust, beauty bark and products labeled "hog fuel" are not acceptable. Many suppliers carry readily available, weed free products that meet the above-cited WSDOT specification.
4. **Compost:** Compost shall meet WSDOT Spec 9-14.4(8). This product be sources by many suppliers in the greater Seattle area and shall meet WSDOT specification.

9.3 Sequence of Work

1. Stake the boundaries of the Impact Area Line per the design.

2. Install TESC fencing (e.g., high-visibility silt fence) per the design at the limits of grading to protect critical areas from construction-impacted stormwater.
3. Carry out the civil project – Clear and Grub, grade, install utility, backfill, etc. Grade to final configuration.
4. Amend planting area soil with four (4) inches of compost. Apply compost evenly throughout the planting area as shown on the planting plan. Do not apply compost below OHWM.
5. Mix compost into native (or backfilled) soil so that the top 14 inches of combined material are decompacted and mixed (4 inches of compost incorporated into the top 10 inches of native or backfilled material). **CAUTION: Do not “rip” or “rototill” inside of critical root zones of trees to be retained** as this can damage live roots. Modified amending (such as pit amending) may be approved in root zones of saved trees to avoid damage.

HOLD POINT – A. Qualified Critical Area Professional shall inspect and sign off on soil amending prior to moving to Step #6.

6. Spread a four (4)-inch layer of **woodchip mulch** over the prepared soil above the OHWM.
7. Install plants per the planting plan.

HOLD POINT - B. Qualified Critical Area Professional shall inspect and sign off on plant quality and mulch depth prior to plant installation. This shall be done prior to plant installation.

- a. Pull back woodchip mulch from the planting area,
- b. Install the plant and replace the mulch, ensuring the mulch does not touch the stem of the plant.
- c. Plants should be installed in the dormant season that extends from October 15, through March 15.
- d. If installed outside of this period, plants should be watered heavily immediately following installation, and provided supplemental watering regularly through the first dry season.

HOLD POINT - C. Qualified Critical Area Professional shall inspect and sign off on final plant installation and document findings in the as-built report.

8. A reliable method of watering, capable of applying at least one inch of water per week, will be utilized for the first three years to ensure installed plants establish. The irrigation system will provide coverage to all planting areas in the buffer and will not extend outside of this area.

9.4 Changes

Any requested changes in materials defined herein, including plant species and plant stock size, shall be approved in writing by the Qualified Critical Area Professional and/or the engineer prior to delivery to the site.

9.5 Maintenance

The site will be maintained in accordance with the following guidelines for a period of five years following acceptance of the as-built conditions, or to the end of the modified mitigation and monitoring period.

1. Follow punch list items generated during site monitoring.
2. General weeding for all planted areas:
 - a. At least twice yearly, remove all competing weeds and weed roots by hand from the buffer mitigation area.
 - b. No line trimmers should be used inside of the mitigation area as they will damage native vegetation.
3. Replace any plant that dies within one year of as-built acceptance.
4. The applicant will ensure that water is provided for the entire planted area with a minimum of 1 inch of water provided per week from June 15 through September 30 for at least the first three years following installation through the operation of a temporary irrigation system.

9.6 Monitoring Plan

This monitoring plan is intended to ensure successful establishment of the mitigation plan. Lasting for a period of at least five years, the program is designed to track the success of the site over time against the performance standards outlined above and provide a reporting mechanism to the City of Kirkland.

9.6.1 As-built documentation

Following installation of the mitigation plan, the Qualified Critical Area Professional will make a site inspection visit and prepare an as-built document that confirms successful installation of the plan, records any approved changes in plant species, quantities, planting areas and location of large woody debris. The as-built document will also record the locations of monitoring transects and photo points. The monitoring period begins once Kirkland has accepted the as-built report.

Monitoring transects shall be established during the as-built site visit. A minimum of 50 linear feet of monitoring transect (for line intercept vegetation assessment) shall be established using fixed, numbered posts. Transects can be broken into 25-foot segments to fit into the monitoring areas as needed.

9.6.2 Spring Site Visit

The Landscape Restoration Specialist will make a site inspection visit in the spring, ahead of the growing season to generate a punch list for the maintenance crew and note any deficiencies with the site.

9.6.3 Annual Fall Site Visit

The primary monitoring visit and report will be done in late summer or fall to capture the growth of the preceding growing season. The visit should be done prior to leaf drop so that cover can be accurately measured. The primary monitoring visit will note the following items:

1. Estimate of Native Woody Cover

- a. Using Line Intercept Method
2. Estimate of Noxious Weed Cover
 - a. Using Line Intercept Method
3. Count of Established Native Species per Stratum
4. Plant Count after Year 1
5. Photographs of the Site from Established Photo Points. These points can be from the transect end points.
6. Other Recommendations

9.7 Performance and Maintenance Financial Security

According to the KZC, State agencies and local governmental bodies, such as the City of Kirkland public works division, are not required to provide a performance or maintenance security.

9.8 Contingency Plan

The following protocol will be followed if deficiencies are noted at any point during site monitoring. This plan is to allow the site manager flexibility to respond to problems that may arise during the maintenance and monitoring period.

1. Providing additional supplement watering if drought conditions are present, or plants are showing signs of drought stress.
2. Replacing any unsuccessful species that exhibits high mortality with a demonstrably more successful species.
3. Adding plants to the site if cover performance standards are not being met.
4. Employing other adaptive management strategies as necessary to achieve success.

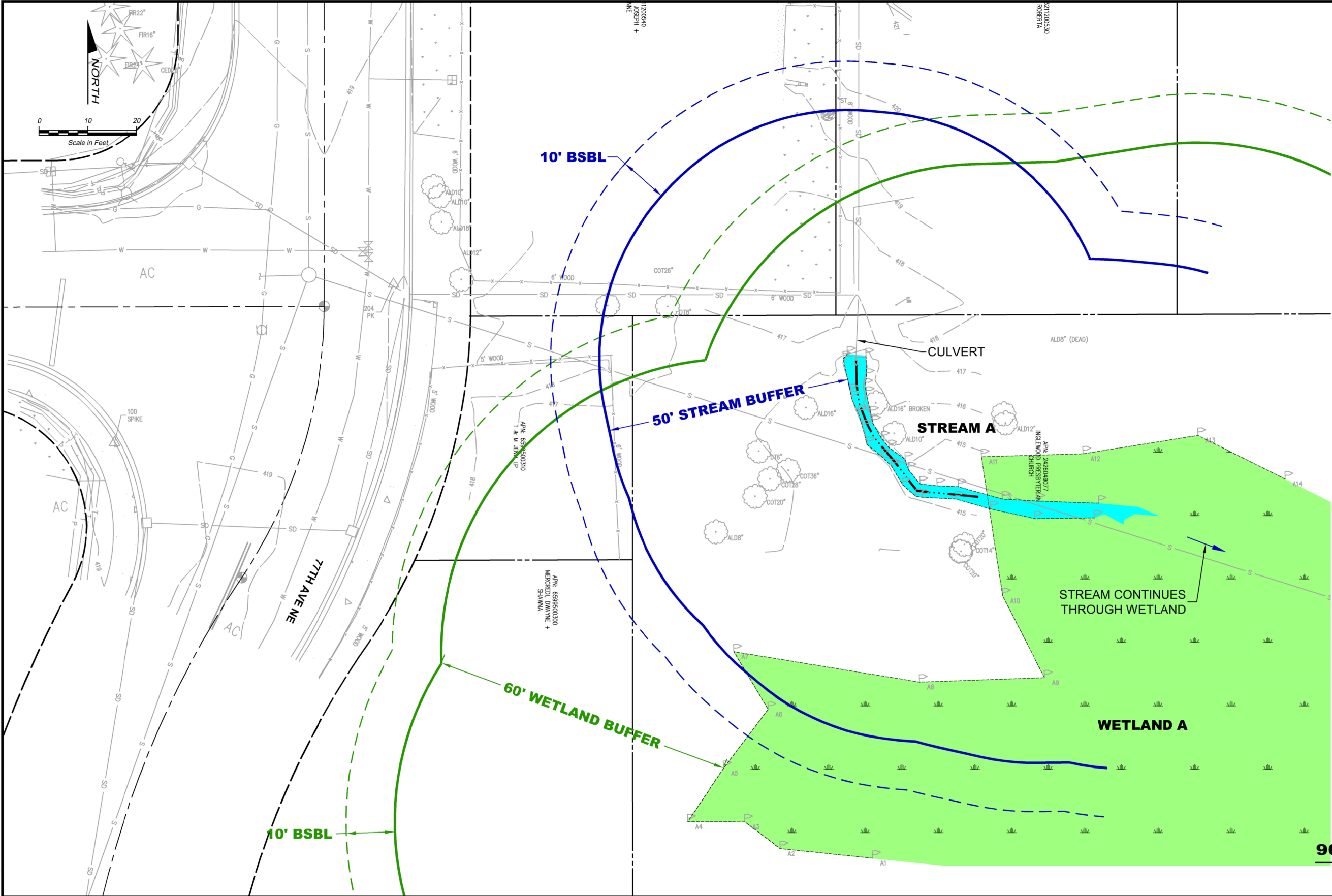
9.9 Reporting

One annual report detailing the results of each monitoring site visit will be prepared and provided to the City of Kirkland within 30 days of the Fall site visit. The main annual monitoring report will contain an evaluation of the site using each of the stated performance standards.

10.0 REFERENCES

- City of Kirkland. (2020). *Kirkland Zoning Code: A Codification of the General Ordinances of the City of Kirkland, Washington*. Kirkland: Code Publishing Company.
- Ecology, W. S. (2016). *Washington State Water Quality Atlas Mapper*, Version 1.0.0.0. Retrieved from Washington State Water Quality Atlas.
- Hruby, T. (2014). *Washington State Wetland Rating System for Western Washington-revised*. Washington State Department of Ecology Publication # 14-06-029.
- U.S. Fish & Wildlife Services. (n.d.). *Information for Planning and Construction*. Retrieved from U.S. Fish & Wildlife Services: <https://ecos.fws.gov/ipac/location/index>
- Washington Department of Fish and Wildlife. (n.d.). *PHS on the Web*. Retrieved from Washington Department of Fish and Wildlife: <http://apps.wdfw.wa.gov/phsontheweb/>
- Washington Department of Fish and Wildlife. (n.d.). *SalmonScape*. Retrieved from Washington Department of Fish and Wildlife: <http://apps.wdfw.wa.gov/salmonscape/map.html>

Appendix A - Mitigation Plan Drawings



**Preliminary
90% Review Set**

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**Call 48 Hours
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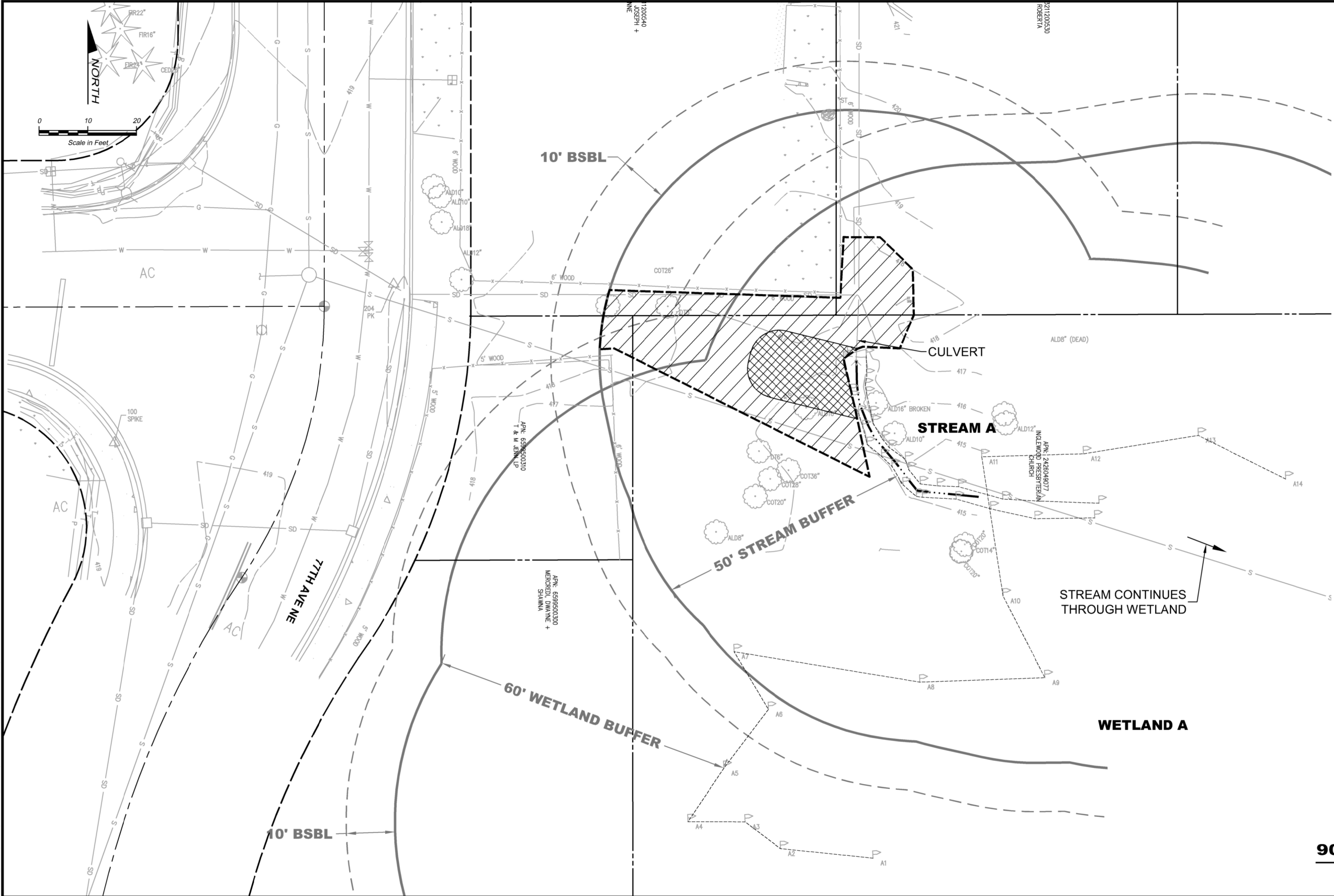
C. Talich, P.E. 04-2020
DESIGNED BY: DATE
P. Simon 04-2020
DRAWN BY: DATE
R. Dorn, P.E. 04-2020
CHECKED BY: DATE

CITY OF KIRKLAND
ENVIRONMENTAL EXISTING CONDITIONS

SHEET:
SCALE:
1" = 20'-0"
FILENAME:
P19-10634_Mitigation

LEGEND:

- TEMPORARY BUFFER IMPACT (1,180 SF)
- CONVERSION: STREAM BUFFER TO STREAM CHANNEL (283 SF)



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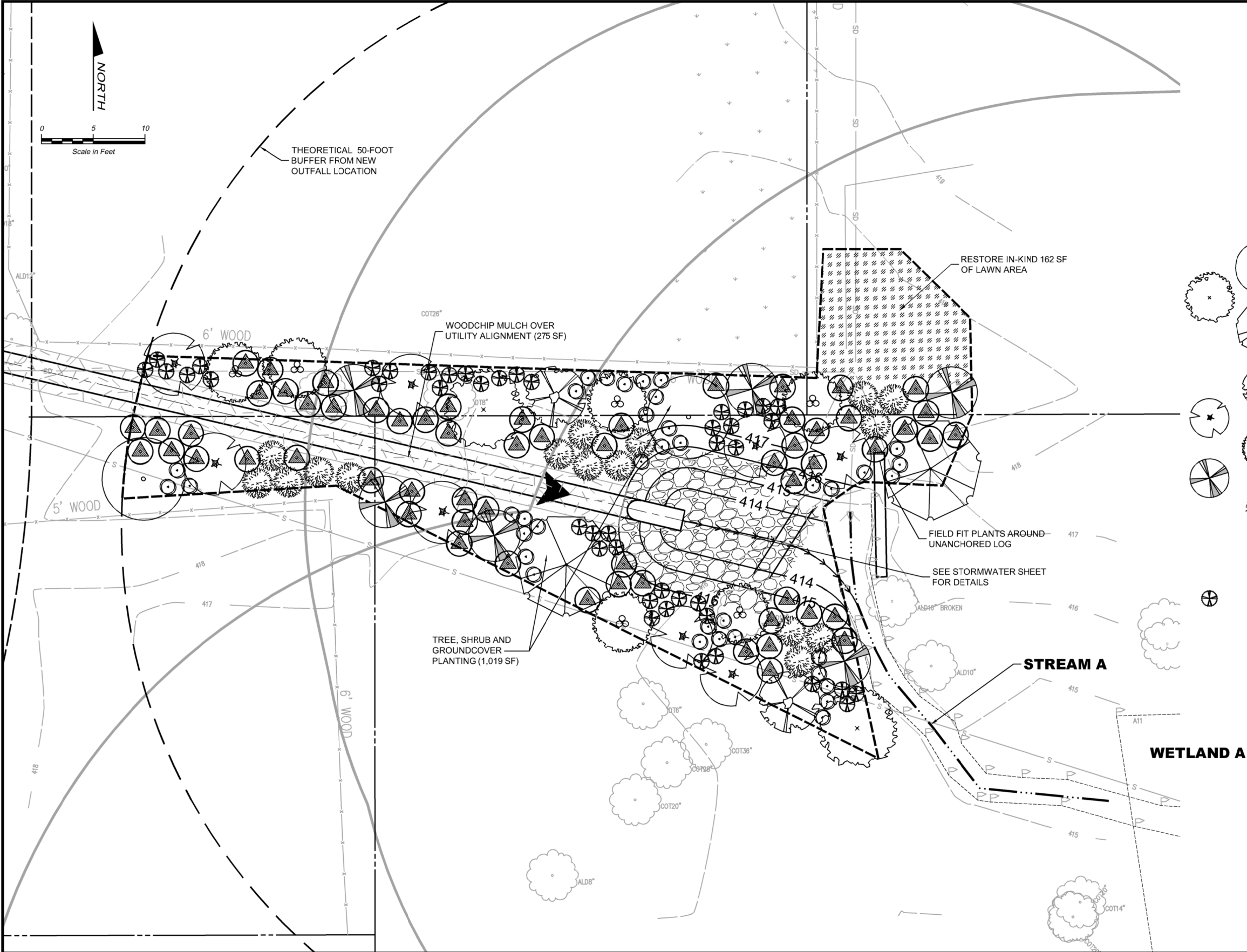
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**CITY OF KIRKLAND
IMPACT FIGURE**

SHEET:
SCALE:
1" = 20'-0"
FILENAME:
P19-10634_Impact

Path: Z:\Shared\CADD\2030_BHC City of Kirkland_Geo_Env\September 2 File\Name: P19-10634_Impact Plot date: Sep 24, 2020 09:48:17am CAD User: Jeff Stewart
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LEGEND:

- RESTORE IN-KIND LAWN (162 SF)
- RESTORATION BOUNDARY
- THEORETICAL NEW 50-FOOT TYPE Ns STREAM BUFFER
- EXISTING BUFFER

LEGEND:

TREES

- CASCARA / RHAMNUS PURSHIANA
- VINE MAPLE / ACER CIRCINATUM
- WESTERN RED CEDAR / THUJA PLICATA

SHRUBS

- BEAKED HAZELNUT / CORYLUS CORNUTA
- OSOBERRY / OEMLERIA CERASIFORMIS
- RED ELDERBERRY / SAMBUCUS RACEMOSA
- RED FLOWERING CURRANT / RIBES SANGUINEUM
- SNOWBERRY / SYMPHORICARPOS ALBUS

GROUND COVER

- DEER FERN / BLECHNUM SPICANT
- SALAL / GAULTHERIA SHALLON
- SWORD FERN / POLYSTICHUM MUNITUM

QTY	SPACING	SIZE
2	ALL TREES TO BE SPACED PER PLAN	2 GAL.
2		2 GAL.
2		2 GAL.
2	ALL SHRUBS TO BE SPACED PER PLAN	1 GAL
8		1 GAL
6		1 GAL
6		1 GAL
16		1 GAL
37	1.5' O.C.	4" POT
44	1.5' O.C.	4" POT
61	2.5' O.C.	4" POT

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CITY OF KIRKLAND
PLANTING PLAN

SHEET:
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MITIGATION PLAN

PROJECT MITIGATION GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS WILL BE USED TO TRACK AND MEASURE THE SUCCESS OF THE MITIGATION SITE. OSG DESIGNED MITIGATION GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS TO MEET THE CITY OF KIRKLAND REGULATORY REQUIREMENTS. THE MITIGATION GOALS DESCRIBE THE OVERALL INTENT OF MITIGATION EFFORTS; THE OBJECTIVES DESCRIBE INDIVIDUAL COMPONENTS OF THE MITIGATION SITE IN DETAIL.

PERFORMANCE STANDARDS ARE MEASURABLE CRITERIA FOR DETERMINING IF THE GOALS AND OBJECTIVES ARE BEING ACHIEVED. MONITORING OF PERFORMANCE STANDARDS ARE USED TO GUIDE MANAGEMENT AND MAINTENANCE OF THE MITIGATION SITE AND TO EVALUATE COMPLIANCE WITH REGULATORY PERMITS IN THE FINAL YEAR OF MONITORING.

A TOTAL OF 1,478 SF OF BUFFER EAST OF THE OUTFALL TO STREAM A WILL BE ENHANCED WITH A MIX OF NATIVE GROUNDCOVER, SHRUB AND TREE SPECIES TYPICAL OF THE REGION, OR RESTORED TO EXISTING LAWN, IN ORDER TO IMPROVE CRITICAL AREA FUNCTIONS AND BUFFER PROTECTION AS A RESULT OF THE PROPOSED PROJECT. MONITORING METHODS ARE ALSO PROVIDED TO DEMONSTRATE HOW THE MITIGATION GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS WILL BE MEASURED.

THE PROPOSED ENHANCEMENT PLANTING PLAN ALONG WITH A PLANTING SCHEDULE IS SHOWN IN THE ATTACHED MITIGATION PLAN DRAWINGS. BOTH TABLE 1 BELOW IN THIS TEXT AND THE PLANTING PLAN SHEET SHOW THE PLANTINGS PROPOSED UNDER THIS MITIGATION PLAN.

THE PLANTING PLAN WILL INSTALL THREE (3) NATIVE TREES, FIVE (5) NATIVE SHRUBS AND THREE (3) GROUNDCOVER SPECIES. ALL PLANT CHOICES ARE ENDEMIC TO THE PACIFIC NORTHWEST AND HAVE PROVEN SUCCESS IN MITIGATION SITES IN THE PUGET SOUND LOWLAND ECOREGION. CASCARA, VINE MAPLE, AND WESTERN RED CEDAR WILL BE INSTALLED EVENLY THROUGHOUT THE SITE. WESTERN RED CEDAR PROVIDES SLOW, BUT LONG-LASTING EVERGREEN FOLIAGE. CASCARA AND VINE MAPLE ARE FAST GROWERS TO SHADE ESTABLISHING HERBACEOUS PLANTS AND SHRUBS. A MIX OF QUICK GROWING, THICKET-FORMING, POLLINATOR-FRIENDLY, AND FOOD-BEARING SHRUBS SUCH AS SNOWBERRY (SYMPHORICARPOS ALBUS), OSOBERY AND RED ELDERBERRY ARE DISTRIBUTED ON EITHER SIDE OF THE NEW CONVEYANCE LINE FOOTPRINT AND FEATHERED INTO THE EASTERN EDGE OF THE SITE TO SEAMLESSLY TRANSITION INTO THE EXISTING OFF-SITE RESTORATION AREA. THE GROUNDCOVER IS CHOSEN TO BE TOUGH AND SHADE- AND DROUGHT-TOLERANT AND PROVIDE A LOWER STRATUM TO ROUND OUT THE NEW PLANTED BUFFER AREA.

A WIDE VARIETY OF PLANT SPECIES ARE USED TO COMPENSATE FOR POSSIBLE FAILURE OF ONE OR MORE TAXA. THE SECTIONS ON PERFORMANCE STANDARDS, REPORTING, AND THE CONTINGENCY PLAN DISCUSS THIS POSSIBILITY AND ARE LOCATED IN SECTIONS 9.6, 9.7 AND 9.8 OF THE CAR.

OVERALL, THIS PLAN IS DESIGNED TO MEET THE REQUIREMENT OF THE KZC. THE ACTIONS OUTLINED HERE WILL HELP LIFT CRITICAL FUNCTIONS OF THE STREAM AND WETLAND BUFFER THAT WILL BE TEMPORARILY AFFECTED BY THE PROJECT.

MITIGATION GOAL, OBJECTIVES, AND PERFORMANCE STANDARDS

THE GOAL AND OBJECTIVES FOR THE PROPOSED MITIGATION ACTIONS ARE BASED ON THE PRESENCE OF CRITICAL AREAS WITHIN THE PROJECT AREA. THE MITIGATION PLAN AIMS TO ENHANCE THE NEWLY PROPOSED CRITICAL AREA BUFFER IN SUCH A WAY THAT THE ENHANCEMENTS RECTIFY ANY PROTECTIVE AND FUNCTIONALITY LOSSES.

GOAL

LIFT THE STREAM A AND WETLAND A BUFFER FUNCTION

OBJECTIVES

- 1. ESTABLISH A DIVERSE MIX OF NATIVE GROUNDCOVER, SHRUB, AND TREE SPECIES WITHIN THE STREAM AND WETLAND BUFFERS.
- 2. CONTROL INVASIVE WEED SPECIES.
- 3. MONITOR AND MAINTAIN THE SITE FOR A PERIOD OF AT LEAST FIVE YEARS.

PERFORMANCE STANDARDS

THESE PERFORMANCE STANDARDS SHALL BE USED TO ENSURE THE OBJECTIVES ARE MET AND TO MEASURE THE SUCCESS OF THE MITIGATION SITE OVER TIME. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 5, THE SITE SHALL BE DEEMED SUCCESSFUL. IF PERFORMANCE STANDARDS ARE NOT MET DURING ANY GIVEN YEAR, CONTINGENCY ACTIONS SHALL BE IMPLEMENTED TO CORRECT ANY DEFICIENCY. THE RESPONSIBLE PLANNING OFFICIAL MAY EXTEND THE DURATION OF THE PROGRAM AND THE NUMBER OF VISITS AT THE END OF THE ESTABLISHED MONITORING AND MAINTENANCE PERIOD IF THE PROGRAM REQUIREMENTS HAVE NOT BEEN MET.

- 1. NATIVE COVER: IN ALL AREAS, THE FOLLOWING STANDARDS SHALL APPLY:
 - a. YEAR 1: 100 PERCENT SURVIVAL OF INSTALLED VEGETATION THROUGH A COMBINATION OF SURVIVAL AND PLANT REPLACEMENT;
 - b. YEAR 2: 80 PERCENT SURVIVAL OF INSTALLED VEGETATION;
 - c. YEAR 3: AT LEAST 50 PERCENT NATIVE VEGETATION COVERAGE WITHIN THE ENHANCED AND CREATED BUFFER FOR INSTALLED VEGETATION;
 - d. YEAR 5: AT LEAST 80 PERCENT NATIVE VEGETATION COVERAGE ON AVERAGE THROUGHOUT THE MITIGATION AREA. AT LEAST TWO OUT OF THE THREE STRATA ESTABLISHED (TREES, SHRUBS, GROUNDCOVER) MUST ACHIEVE 20 PERCENT AERIAL COVERAGE BY THE END OF YEAR 5.
- 2. PLANT SURVIVAL: SURVIVAL OF WOODY-STEMMED MITIGATION PLANTINGS WILL BE 100 PERCENT (ACHIEVABLE THROUGH SURVIVAL OR REPLANTING) AT THE END YEAR 1. IF ONE SPECIES EXHIBIT WIDESPREAD MORTALITY, CONSIDER REPLACING WITH ANOTHER SPECIES BETTER SUITED FOR THE CONDITIONS. PLANT SURVIVAL WILL NOT BE TRACKED IN YEARS 3 THROUGH 5 AS VOLUNTEER AND SPREADING INDIVIDUALS RENDER COUNTING THE ORIGINAL PLANTS DIFFICULT AND IRRELEVANT TO THE GOALS OF THE PLAN.
- 3. SPECIES DIVERSITY: BY END OF YEAR 5, ESTABLISH AT LEAST TWO (2) TREES, (3) SHRUBS, AND TWO (2) GROUNDCOVER PLANT SPECIES IN THE PLANTING AREA (MINUS THE LAWN REESTABLISHMENT AREA). VOLUNTEER SPECIES CAN COUNT TOWARDS THIS DIVERSITY REQUIREMENT PROVIDED THEY ARE NATIVE AND DESIRABLE.
- 4. INVASIVE COVER: NO MORE THAN 10 PERCENT TOTAL AERIAL COVER DURING ANY GROWING SEASON DURING THE MAINTENANCE AND MONITORING PERIOD WILL BE ALLOWED. INVASIVE WEEDS, FOR THE PURPOSES OF THIS PLAN, ARE THOSE SPECIES LISTED BY THE KING COUNTY NOXIOUS CONTROL BOARD INCLUDING CLASS A, B, C, NON-REGULATED NOXIOUS WEEDS AND WEEDS OF CONCERN.

IN ADDITION TO MITIGATION-SPECIFIC STANDARDS LISTED ABOVE, THE KZC OUTLINES THE FOLLOWING LIST OF STANDARDS APPLICABLE TO CONSTRUCTION AND FINAL CONDITION OF THE PROPOSED DEVELOPMENT. THESE DESIGN REQUIREMENTS WILL BE INCORPORATED INTO THE PROCESS AND DESIGN.

- A. EXTERIOR LIGHTS THAT FACE THE WETLAND OR BUFFER WILL BE SHIELDED SO THAT THEY ARE DOWNCAST AND DIRECTED AWAY FROM CRITICAL AREA AND ASSOCIATED BUFFER PURSUANT TO KZC SECTION 115.85.
- B. ACTIVITIES THAT GENERATE NOISE SHALL BE LOCATED AWAY FROM THE WETLAND, OR NOISE IMPACTS SHALL BE MINIMIZED THROUGH DESIGN OR INSULATION TECHNIQUES. ACTIVITIES OR USES THAT GENERATE RELATIVELY CONTINUOUS, POTENTIALLY DISRUPTIVE EXTERIOR NOISE, WILL PROVIDE AN ADDITIONAL 10 FEET IN WIDTH OF HEAVILY VEGETATED BUFFER STRIP IMMEDIATELY ADJACENT TO THE OUTER WETLAND BUFFER.
- C. TOXIC RUNOFF FROM POLLUTION GENERATING SURFACES WILL BE TREATED PRIOR TO DISCHARGE TO WETLANDS.
- D. TREATED STORMWATER RUNOFF MAY BE ALLOWED INTO WETLAND BUFFERS THROUGH THE REQUIREMENTS OF THE WESTERN WASHINGTON PHASE II MUNICIPAL STORMWATER PERMIT, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES), ADMINISTERED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY. ADDITIONALLY, LOW IMPACT DEVELOPMENT TECHNIQUES WILL BE USED PER THE CITY'S STANDARDS.
- E. PET AND HUMAN DISTURBANCE WILL BE LIMITED THROUGH SIGN AND FENCE INSTALLATION ALONG THE EDGE OF THE BUFFERS. THE WETLAND AND BUFFER MAY BE PLACED IN A SEPARATE CONSERVATION EASEMENT OR TRACT PURSUANT TO KZC 90.210.
- F. BEST MANAGEMENT PRACTICES WILL BE UTILIZED TO CONTROL DUST.

MATERIAL DEFINITIONS

- 1. IRRIGATION SYSTEM: A WATERING PROGRAM CAPABLE OF DELIVERING AT LEAST ONE INCHES OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR AT LEAST THE FIRST THREE YEARS FOLLOWING PLANT INSTALLATION. A TEMPORARY ABOVE-GROUND SYSTEM IS PREFERRED, BUT IN THE ABSENCE OF A RELIABLE OR PRACTICABLE WATER SOURCE, ALTERNATIVE WATERING METHODS MAY BE USED. APPLICATION SHOULD BE IN A CONTROLLED, SLOW MANNER ALLOWING WATER TO SOAK INTO THE SOIL AND THAT DOES NOT GENERATE SURFACE RUNOFF.
- 2. QUALIFIED CRITICAL AREA PROFESSIONAL: A PROFESSIONAL WETLAND SCIENTIST, LANDSCAPE ARCHITECT, OR SIMILARLY QUALIFIED PERSON, WITH AT LEAST FIVE YEARS' EXPERIENCE DELINEATING WETLANDS USING THE STATE OR FEDERAL MANUALS, PREPARING WETLAND REPORTS, CONDUCTING FUNCTIONAL ASSESSMENTS, AND DEVELOPING AND IMPLEMENTING MITIGATION PLANS.

- 3. WOOD CHIP MULCH: WOOD CHIP MULCH SHALL MEET WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (WSDOT STANDARD SPECIFICATION) FOR WOOD STRAND MULCH AS DEFINED 9-14.4(4). ARBORIST WOODCHIPS, SAWDUST, BEAUTY BARK AND PRODUCTS LABELED "HOG FUEL" ARE NOT ACCEPTABLE. MANY SUPPLIERS CARRY READILY-AVAILABLE, WEED FREE PRODUCTS THAT MEET THE ABOVE-CITED WSDOT SPECIFICATION.
- 4. COMPOST: COMPOST SHALL MEET WSDOT SPEC 9-14.4(8). THIS PRODUCT BE SOURCES BY MANY SUPPLIERS IN THE GREATER SEATTLE AREA AND SHALL MEET WSDOT SPECIFICATION.

SEQUENCE OF WORK

- 1. STAKE THE BOUNDARIES OF THE IMPACT AREA LINE PER THE DESIGN.
- 2. INSTALL TESC FENCING (E.G., HIGH-VISIBILITY SILT FENCE) PER THE DESIGN AT THE LIMITS OF GRADING TO PROTECT CRITICAL AREAS FROM CONSTRUCTION-IMPACTED STORMWATER.
- 3. CARRY OUT THE CIVIL PROJECT - CLEAR AND GRUB, GRADE, INSTALL UTILITY, BACKFILL, ETC. GRADE TO FINAL CONFIGURATION.
- 4. AMEND PLANTING AREA SOIL WITH FOUR (4) INCHES OF COMPOST. APPLY COMPOST EVENLY THROUGHOUT THE PLANTING AREA AS SHOWN ON THE PLANTING PLAN. DO NOT APPLY COMPOST BELOW OHWM.
- 5. MIX COMPOST INTO NATIVE (OR BACKFILLED) SOIL SO THAT THE TOP 14 INCHES OF COMBINED MATERIAL ARE DECOMPACTED AND MIXED (4 INCHES OF COMPOST INCORPORATED INTO THE TOP 10 INCHES OF NATIVE OR BACKFILLED MATERIAL). **CAUTION: DO NOT "RIP" OR "ROTOTILL" INSIDE OF CRITICAL ROOT ZONES OF TREES TO BE RETAINED** AS THIS CAN DAMAGE LIVE ROOTS. MODIFIED AMENDING (SUCH AS PIT AMENDING) MAY BE APPROVED IN ROOT ZONES OF SAVED TREES TO AVOID DAMAGE.

HOLD POINT - A. QUALIFIED CRITICAL AREA PROFESSIONAL SHALL INSPECT AND SIGN OFF ON SOIL AMENDING PRIOR TO MOVING TO STEP #6.

- 6. SPREAD A FOUR (4)-INCH LAYER OF WOODCHIP MULCH OVER THE PREPARED SOIL ABOVE THE OHWM.
- 7. INSTALL PLANTS PER THE PLANTING PLAN.

HOLD POINT - B. QUALIFIED CRITICAL AREA PROFESSIONAL SHALL INSPECT AND SIGN OFF ON PLANT QUALITY AND MULCH DEPTH PRIOR TO PLANT INSTALLATION. THIS SHALL BE DONE PRIOR TO PLANT INSTALLATION.

- a. PULL BACK WOODCHIP MULCH FROM THE PLANTING AREA,
- b. INSTALL THE PLANT AND REPLACE THE MULCH, ENSURING THE MULCH DOES NOT TOUCH THE STEM OF THE PLANT.
- c. PLANTS SHOULD BE INSTALLED IN THE DORMANT SEASON THAT EXTENDS FROM OCTOBER 15, THROUGH MARCH 15.
- d. IF INSTALLED OUTSIDE OF THIS PERIOD, PLANTS SHOULD BE WATERED HEAVILY IMMEDIATELY FOLLOWING INSTALLATION, AND PROVIDED SUPPLEMENTAL WATERING REGULARLY THROUGH THE FIRST DRY SEASON.

HOLD POINT - C. QUALIFIED CRITICAL AREA PROFESSIONAL SHALL INSPECT AND SIGN OFF ON FINAL PLANT INSTALLATION AND DOCUMENT FINDINGS IN THE AS-BUILT REPORT.

- 8. IMPLEMENT IRRIGATION SYSTEM PROGRAM.

CHANGES

ANY REQUESTED CHANGES IN MATERIALS DEFINED HEREIN, INCLUDING PLANT SPECIES AND PLANT STOCK SIZE, SHALL BE APPROVED IN WRITING BY THE QUALIFIED CRITICAL AREA PROFESSIONAL AND/OR THE ENGINEER PRIOR TO DELIVERY TO THE SITE.

MAINTENANCE

THE SITE WILL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING GUIDELINES FOR A PERIOD OF FIVE YEARS FOLLOWING ACCEPTANCE OF THE AS-BUILT CONDITIONS, OR TO THE END OF THE MODIFIED MITIGATION AND MONITORING PERIOD.

- 1. FOLLOW PUNCH LIST ITEMS GENERATED DURING SITE MONITORING.
- 2. GENERAL WEEDING FOR ALL PLANTED AREAS:
 - a. AT LEAST TWICE YEARLY, REMOVE ALL COMPETING WEEDS AND WEED ROOTS BY HAND FROM THE BUFFER MITIGATION AREA.
 - b. NO LINE TRIMMERS SHOULD BE USED INSIDE OF THE MITIGATION AREA AS THEY WILL DAMAGE NATIVE VEGETATION.
- 3. REPLACE ANY PLANT THAT DIES WITHIN ONE YEAR OF AS-BUILT ACCEPTANCE.
- 4. THE APPLICANT WILL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 1 INCH OF WATER PROVIDED PER WEEK FROM JUNE 15 THROUGH SEPTEMBER 30 FOR AT LEAST THE FIRST THREE YEARS FOLLOWING INSTALLATION THROUGH THE OPERATION OF A TEMPORARY IRRIGATION SYSTEM.

MONITORING PLAN

THIS MONITORING PLAN IS INTENDED TO ENSURE SUCCESSFUL ESTABLISHMENT OF THE MITIGATION PLAN. LASTING FOR A PERIOD OF AT LEAST FIVE YEARS, THE PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE SITE OVER TIME AGAINST THE PERFORMANCE STANDARDS OUTLINED ABOVE AND PROVIDE A REPORTING MECHANISM TO THE CITY OF KIRKLAND.

AS-BUILT DOCUMENTATION

FOLLOWING INSTALLATION OF THE MITIGATION PLAN, THE QUALIFIED CRITICAL AREA PROFESSIONAL WILL MAKE A SITE INSPECTION VISIT AND PREPARE AN AS-BUILT DOCUMENT THAT CONFIRMS SUCCESSFUL INSTALLATION OF THE PLAN, RECORDS ANY APPROVED CHANGES IN PLANT SPECIES, QUANTITIES, PLANTING AREAS AND LOCATION OF LARGE WOODY DEBRIS. THE AS-BUILT DOCUMENT WILL ALSO RECORD THE LOCATIONS OF MONITORING TRANSECTS AND PHOTO POINTS. THE MONITORING PERIOD BEGINS ONCE KIRKLAND HAS ACCEPTED THE AS-BUILT REPORT. MONITORING TRANSECTS SHALL BE ESTABLISHED DURING THE AS-BUILT SITE VISIT. A MINIMUM OF 50 LINEAR FEET OF MONITORING TRANSECT (FOR LINE INTERCEPT VEGETATION ASSESSMENT) SHALL BE ESTABLISHED USING FIXED, NUMBERED POSTS. TRANSECTS CAN BE BROKEN INTO 25-FOOT SEGMENTS TO FIT INTO THE MONITORING AREAS AS NEEDED.

SPRING SITE VISIT

THE LANDSCAPE RESTORATION SPECIALIST WILL MAKE A SITE INSPECTION VISIT IN THE SPRING, AHEAD OF THE GROWING SEASON IN ORDER TO GENERATE A PUNCH LIST FOR THE MAINTENANCE CREW AND NOTE ANY DEFICIENCIES WITH THE SITE.

ANNUAL FALL SITE VISIT

THE PRIMARY MONITORING VISIT AND REPORT WILL BE DONE IN LATE SUMMER OR FALL TO CAPTURE THE GROWTH OF THE PRECEDING GROWING SEASON. THE VISIT SHOULD BE DONE PRIOR TO LEAF DROP SO THAT COVER CAN BE ACCURATELY MEASURED. THE PRIMARY MONITORING VISIT WILL NOTE THE FOLLOWING ITEMS:

- 1. ESTIMATE OF NATIVE WOODY COVER
 - a. USING LINE INTERCEPT METHOD
- 2. ESTIMATE OF NOXIOUS WEED COVER
 - a. USING LINE INTERCEPT METHOD
- 3. COUNT OF ESTABLISHED NATIVE SPECIES PER STRATUM
- 4. PLANT COUNT AFTER YEAR 1
- 5. PHOTOGRAPHS OF THE SITE FROM ESTABLISHED PHOTO POINTS. THESE POINTS CAN BE FROM THE TRANSECT END POINTS.
- 6. OTHER RECOMMENDATIONS

PERFORMANCE AND MAINTENANCE FINANCIAL SECURITY

ACCORDING TO THE KIRKLAND ZONING CODE, STATE AGENCIES AND LOCAL GOVERNMENTAL BODIES, SUCH AS THE CITY OF KIRKLAND PUBLIC WORKS DIVISION, ARE NOT REQUIRED TO PROVIDE A PERFORMANCE OR MAINTENANCE SECURITY.

CONTINGENCY PLAN

THE FOLLOWING PROTOCOL WILL BE FOLLOWED IF DEFICIENCIES ARE NOTED AT ANY POINT DURING SITE MONITORING. THIS PLAN IS TO ALLOW THE SITE MANAGER FLEXIBILITY TO RESPOND TO PROBLEMS THAT MAY ARISE DURING THE MAINTENANCE AND MONITORING PERIOD.

- 1. PROVIDING ADDITIONAL SUPPLEMENT WATERING IF DROUGHT CONDITIONS ARE PRESENT, OR PLANTS ARE SHOWING SIGNS OF DROUGHT STRESS.
- 2. REPLACING ANY UNSUCCESSFUL SPECIES THAT EXHIBITS HIGH MORTALITY WITH A DEMONSTRABLY MORE SUCCESSFUL SPECIES.
- 3. ADDING PLANTS TO THE SITE IF COVER PERFORMANCE STANDARDS ARE NOT BEING MET.
- 4. EMPLOYING OTHER ADAPTIVE MANAGEMENT STRATEGIES AS NECESSARY TO ACHIEVE SUCCESS.

REPORTING

ONE ANNUAL REPORT DETAILING THE RESULTS OF EACH MONITORING SITE VISIT WILL BE PREPARED AND PROVIDED TO THE CITY OF KIRKLAND WITHIN 30 DAYS OF THE FALL SITE VISIT. THE MAIN ANNUAL MONITORING REPORT WILL CONTAIN AN EVALUATION OF THE SITE USING EACH OF THE STATED PERFORMANCE STANDARDS.

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CITY OF KIRKLAND

MITIGATION PLAN NOTES

SHEET:
SCALE: 1" = 20'-0"
FILENAME: P19-10634_Notes

Appendix B - Wetland and Stream Reconnaissance Study

August 9, 2019

Carla Talich
 Project Manager
 BHC Consultants
 1601 Fifth Avenue, Suite 500
 Seattle, WA 98101
 Phone: (206) 357-9957
 Email: Carla.Talich@bhccconsultants.com

**Subject: Wetland and Stream Reconnaissance Study
 Finn Hill Flood Reduction Project
 Kirkland, Washington**

Dear Carla:

O'Neill Service Group (OSG) is pleased to present you the results of our wetland and stream reconnaissance study for the Finn Hill Flood Reduction Project (Project). OSG was hired to screen for the presence of critical areas including wetlands, streams and critical habitat on a small parcel near NE 142nd Street and 77th Avenue in the City of Kirkland, King County, WA (Figure 1). You are currently considering designs for a flood reduction strategy for the stormwater system in the area; this study is intended to identify potential critical areas in the area and summarize potential regulatory implications. The subject parcel is situated in the southeastern quarter of Section 24, Township 26 North, Range 3 East (King County Tax Parcel Number 6599500310). The adjacent portion of the neighboring property, owned by the Inglewood Presbyterian Church (Parcel Number 2426049077), was also screened for the presence of wetlands and streams.

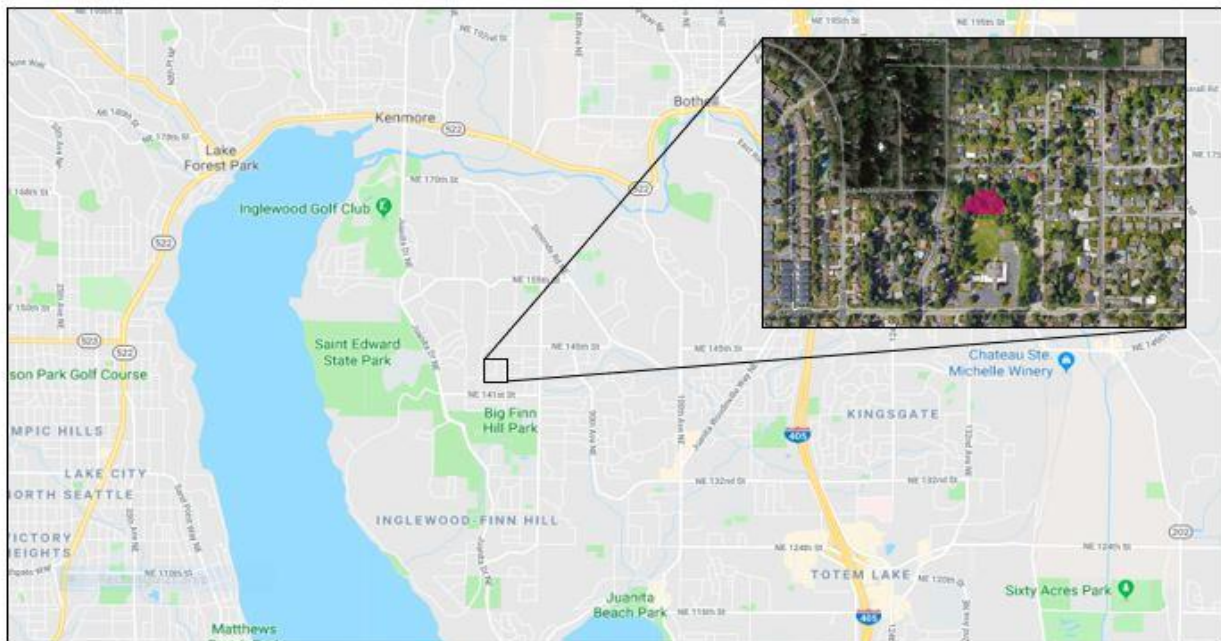


Figure 1 - Vicinity map of project location (Image courtesy of Google Earth; 2019)

The subject area was investigated for the presence of wetlands, streams by OSG Environmental Scientists Shannon Ingebright and Alyssa Jacobs on July 23, 2019 with oversight provided by OSG Wetland Scientist Mike Foster, PWS. A summary of the assessment efforts and results are presented in the following sections. This letter also details applicable local, state and federal regulations. The following attachments are included:

- Wetland and Stream Reconnaissance Sketch
- Wetland Determination Data Forms
- 2014 Western Washington Wetland Rating Form

METHODS

Public-domain information on the subject properties was reviewed for the study. These sources include United States Department of Agriculture (USDA) Natural Resources Conservation Service Soil maps, U.S. Fish and Wildlife Service National Wetland Inventory maps, Washington State Department of Fish and Wildlife interactive mapping programs (PHS on the Web and SalmonScape); King County's iMap, and Washington State Department of Ecology's Water Quality Atlas interactive mapping tool.

Wetland determination was performed using the routine methods described in the United States Army Corps of Engineers (Corps) *Wetlands 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) (Environmental Laboratory, 2008). The 2016 National Plant List was used to determine plant indicator status (Lichvar et al. 2016). The presence or absence of hydrophytic plants, wetland soils and the presence of hydrologic indicators was used to determine if any given area was considered wetland. Biologists sampled soil, vegetation, and hydrologic parameters at various locations within the vicinity of the subject parcel and adjoining church property to support the conclusions of this letter.

Wetlands were classified using Department of Ecology's 2014 Washington State Wetland Rating System for Western Washington (Ecology, 2014) (Form).

The regulatory status of wetlands, streams and trees was determined by reviewing Kirkland Zoning Code (KMZ) in August of 2019. Relevant data was gathered from Chapter 90, *Critical Areas*, for the purpose of evaluating the proposal.

MAPPING

The Wetland Reconnaissance Figure is a sketch and is for discussion purposes only. OSG's AutoCAD technician used open-source geographic information system (GIS) geometry from the City of Kirkland website to develop elements in the figure.

LANDSCAPE SETTING

The subject property is in the East Lake Washington Kenmore sub-basin in the Cedar Sammamish Water Resources Area (WRIA 8). A tributary to Denny Creek outfalls to the Church property just east of the subject property from a storm system draining the broader residential neighborhood. The tributary flows southward to Denny Creek and eventually discharges into Lake Washington. The surrounding land use is predominately residential. However, two large parks consisting of forested open space are within one kilometer of the subject parcel; Saint Edward State Park to the northwest and Big Finn Hill Park to the south.

FINDINGS

A small Category III wetland and Type Ns stream are located east of the subject property on the parcel owned by the Inglewood Presbyterian Church. No wetlands or streams are located on the small subject property; however, regulatory buffers may encumber some of the parcel.

Wetland A

Wetland A is a forested depressional wetland located entirely on the adjacent Church property (See the attached Wetland and Stream Reconnaissance Sketch). The wetland receives water from the stream, stormwater and precipitation. The wetland exhibits depressional hydrogeomorphic class as water appears to be slightly impounded.

Vegetation in the wetland consists of hydrophytic species. Red alder (*Alnus rubra*, FAC) and Black Cottonwood (*Populus balsamifera*, FAC) dominate the overstory while Red-osier Dogwood (*Cornus sericea*, FAC) and Twinberry (*Lonicera involucrata*, FAC) are dominant in the understory (see Data Point 4). The herbaceous layer is composed of Small-fruited Bulrush (*Scirpus microcarpus*, OBL), Reed Canarygrass (*Phalaris arundinaceae*, FACW) and Creeping Buttercup (*Ranunculus repens*, FAC). Other vegetation included Giant Horsetail (*Equisetum tolmetea*, FACW), Ladyfern (*Athyrium filix-femina* ssp *Cylcosorum*, FAC) and Himalayan Blackberry (*Rubus armeniacus*, FAC).

The diagnostic soil is a nine-inch layer of brownish black (2.5Y 3/1) and yellowish gray (2.5Y 4/1) silty clay loam, with 5 to 15 percent comprised of dark yellowish brown (10YR 4/6) redoximorphic features (RMFs). This condition meets the depleted matrix (F3) criterion of the Manual. RMFs were in the form of concentrations and depletions found in the soil matrix and pore linings. No restrictive layer was present.

Wetland hydrology is primarily supported by precipitation and stormwater/stream flow from the upstream culvert described under the Stream A description. The soil was saturated at the time of the site visit in early summer, meeting hydrologic criterion A3, and drift deposits (B3) were observed at the data plot, evidence of the presence of surface water earlier in the season.

The non-wetland area north of Wetland A (see DP-5), consists of a mixed overstory of Western Red Cedar (*Thuja plicata*, FAC), Black Cottonwood and Bigleaf Maple (*Acer macrophyllum*, FACU) with an understory of Osoberry (*Oemleria cerasiformis*, FACU) and Sword fern (*Polystichum munitum*, FACU). Soil outside of the wetland boundary does not match any hydric soil criteria; it is a very dark brown (7.5YR 2.5/3) sandy loam with no RMFs present. No hydrologic indicators were observed at the time of the site visit at Data Point 5.

Wetland A is a Category III wetland. It scores a total of 19 points; five points for hydrologic function, seven points for improving water quality and four points for habitat function.

Stream A

Stream A is an unnamed tributary to Denny Creek. The stream daylights on the Church property adjacent to the subject parcel by way of a 12-inch concrete culvert that is part of the City's stormwater infrastructure. At the time of the visit, water was ponded to a depth of approximately six inches at the culvert outfall with ponding extending downstream in the channel for approximately 15 feet. There was no observable flow at the time of the study; the water was ponded in a low portion of the channel below the culvert opening. Between the culvert and Wetland A the channel is relatively defined with bed and bank and is approximately four to six feet wide. The channel loses definition as it moves into Wetland A where no defined bed and bank are present. Although no surface flow was observed in the wetland at the time of the site visit, it appears, from water marks on the trees, that a surface connection through Wetland A may be intermittently present during the rainy season.

According to the City of Kirkland Sensitive Areas Map, Stream A originates at the concrete culvert outfall described above and continues down to the confluence with Denny Creek. Water feeds into the creek from the upstream stormwater system; the City does not identify any of the upstream pipe network as a jurisdictional stream on its GIS database. The City's Critical Area Map shows the origin in the Church parcel. Based on review of online resources, no channel appears to be daylighted upstream of the observed outfall.

The origin of Stream A appears to be from stormwater infrastructure only. However, some online resources such as King County's iMap also map the stream above the subject area, suggesting that the origin of the stream could be further upstream. As water appears to be completely confined in the stormwater system above the study area, the author agrees with the City's critical area map that the beginning of the regulatory stream is at the concrete outfall. However, this conclusion is preliminary and

should be confirmed with regulatory agencies that may be involved with permitting any forthcoming proposal.

The Stream channel is broad as it exits Wetland A, but narrows to an approximately four-foot channel downstream of the wetland boundary. The tributary to Denny Creek is not considered a shoreline of the state, according to the Washington State Coastal Atlas (Ecology, 2014).

LOCAL REGULATIONS

Standard Buffers Required

Critical areas within the City of Kirkland are regulated under Chapter 90 – *Critical Areas* of the Kirkland Zoning Code (KZM). According to KZM Chapter 90.55 wetlands are classified into four possible categories based on the Form, from Category I (the highest functioning wetland) to Category IV (the lowest functioning wetland). Standard buffer widths imposed by the City are determined based on the wetland Category and the habitat function value. Wetland A, a Category III wetland with four points for habitat function requires a 60-foot buffer measured horizontally from the edge of the wetland boundary in all locations.

In the City of Kirkland, streams are classified into three possible habitat types according to Table 90.65.1 – *Streams and Associated Buffer Standards* of the KZC. The unnamed tributary to Denny Creek (Stream A), is presumed to be a seasonal non-fish bearing stream, a Type Ns stream and requires a 50-foot buffer. All stream buffer widths are measured horizontally from the ordinary high-water mark (OHWM).

The 60-foot standard buffer extending from Wetland A appears to impinge on the subject property (note; this is preliminary only). A wetland delineation study, with flagging located by professional land surveyors, is needed to determine the precise location of the critical area buffer.

Buffer Modifications

Some limited wetland and wetland buffer modifications are allowed under KZC Section 90.60 (3.). Public agency and public utility projects may also be excepted from the strict application of Chapter 90 development standards as outlined in KZC 90.45. Generally, any proposal that includes modification to a critical area and/or its buffer (except those exempted) must have a critical area report prepared pursuant to KZC 90.35. The critical area report should evaluate impacts that will result from the project and outline the process of mitigation sequencing followed by the applicant. The following alterations may be allowed by the City.

Buffer Averaging

Pursuant to KZC 90.115, averaging may be used to modify the outer portion of a wetland or stream buffer provided the following criteria are met:

- a. The buffer is not reduced to below 75 percent of the standard buffer width (For wetland A, that would be 45 feet),
- b. The total area contained in the buffer is not less than the buffer area under a non-modified scenario,
- c. The proposal will provide additional protection to the wetland or stream, and
- d. The proposal is designed in a manner that benefits the physical, topographical and vegetative characteristics of the critical area and its buffer.

Utility Projects

The planning official may also allow relief from the strict application of this chapter for public utility projects. The applicant must demonstrate that there is no other practical option that would result in less impact to the critical area, that strict application of the Chapter would prohibit the ability to provide services to the public, that the proposal minimizes impacts by designing to avoid, minimize and compensate for any impact to critical areas, and the proposal enhances the critical area or its buffer to provide no net loss of function.

Stream Modification

Any proposed work that could alter the physical characteristics of a stream may be allowed pursuant to KZC 90.70 and are generally subject to the mitigation sequencing provisions described above. Proposals that will alter a stream will likely require a Stream Modification Assessment per Subsection 5 of KZC 90.70.

STATE AND FEDERAL REGULATIONS

Wetlands are also regulated by the Corps of Engineers (Corps) under Section 404 of the Clean Water Act. Any filling of Waters of the U.S., including wetlands (except isolated wetlands), would require notification and permits from the Corps. Federally permitted actions that could affect endangered species (i.e. salmon or bull trout) may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology. Depending on the final project design, a Corp permit can take up to 8-9 months or longer to be approved.

Wetland A and the unnamed creek ultimately drain to Lake Washington which is a Water of the U.S. and potentially regulated under Section 404 of the Clean Water Act (CWA). Placing any fill material in either of these features would likely require State and Federal permit approval.

In general, neither the Corps nor Ecology regulates wetland buffers, unless direct wetland impacts are proposed. When direct impacts are proposed, mitigated wetlands may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

DISCLAIMER

The conclusions contained above are based on currently accepted technical guidance and best available science as outlined in the literature cited in the methods section. All conclusions are based upon information available to us at the time of the study and reflect best professional judgment of the author(s). All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification by the appropriate local, State and Federal regulatory authorities.

CLOSURE

We appreciate the opportunity to present this letter and look forward to supporting your project. If you have any questions regarding the findings of this study or require additional information, please call Shannon Ingebright at (570) 351-1333.

Sincerely,



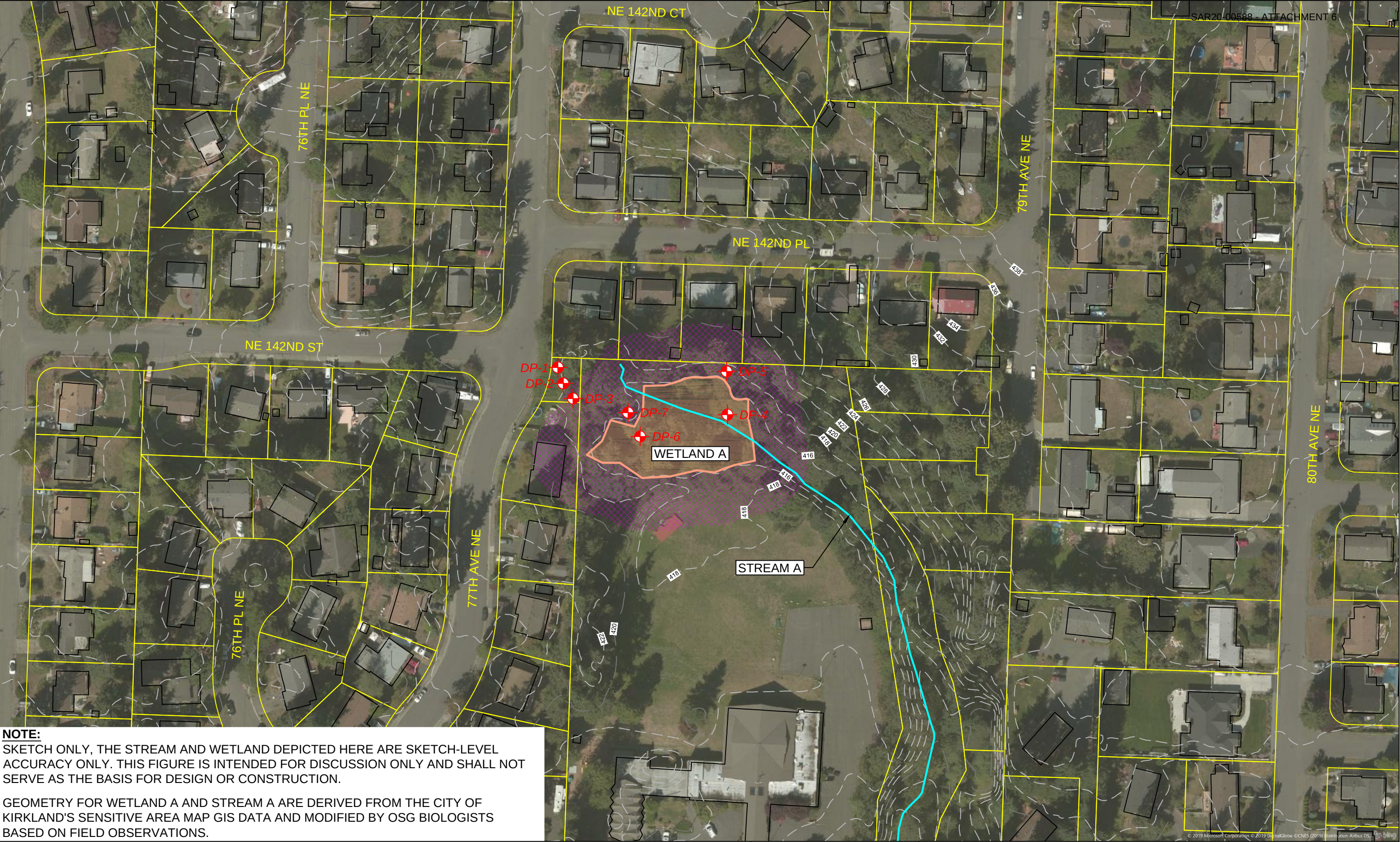
Shannon Ingebright

Under the direction of:



Mike Foster, CPESC, PWS

August 9, 2019



NOTE:
SKETCH ONLY, THE STREAM AND WETLAND DEPICTED HERE ARE SKETCH-LEVEL ACCURACY ONLY. THIS FIGURE IS INTENDED FOR DISCUSSION ONLY AND SHALL NOT SERVE AS THE BASIS FOR DESIGN OR CONSTRUCTION.

GEOMETRY FOR WETLAND A AND STREAM A ARE DERIVED FROM THE CITY OF KIRKLAND'S SENSITIVE AREA MAP GIS DATA AND MODIFIED BY OSG BIOLOGISTS BASED ON FIELD OBSERVATIONS.



- LEGEND**
- APPROXIMATE CENTERLINE OF STREAM A (SEASONAL NON-FISH BEARING)
 - APPROXIMATE WETLAND A BOUNDARY (CATEGORY III)
 - APPROXIMATE CATEGORY III WETLAND 60' BUFFER PER KZC 90.55.1
 - DP-X DATA POINT



BHC CONSULTANTS
NE142nd PLACE
KIRKLAND, WASHINGTON

WETLAND AND STREAM SKETCH

Drawn By:	J. Stewart
Reviewed By:	S. Ingebrigt
Approved By:	M. Foster
Date:	August 2019
Project No.:	2030

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

Project/Site: Finn Hill Stormwater Improvements NE 142nd Street City/County: City of Kirkland/King County Sampling Date: 7/23/2019
 Applicant/Owner: BHC Consultants/ City of Kirkland State: WA Sampling Point: DP-01
 Investigator(s): Shannon Ingebright & Alyssa Jacobs Section, Township, Range: S24, T26, R04E
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Convex Slope (%): 0
 Subregion (LRR): Northwest Forest Lat: 47.729712 Long: -122.237944 Datum: WGS84
 Soil Map Unit Name: Alderwood Gravelly Sandy Loam 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? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>		
Wetland Hydrology Present?	Yes _____	No <u>X</u>		
Remarks:				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5-meter</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Black cottonwood (Populus Balsamifera)</u>	<u>15</u>	<u>No</u>	<u>FAC</u>	
2. <u>Red Alder (Alnus rubra)</u>	<u>75</u>	<u>Yes</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
90% = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>3-meter</u>)				Total % Cover of: _____ Multiply by: _____
1. <u>Vine maple (Acer circinatum)</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	OBL species <u>0</u> x 1 = <u>0</u>
2. _____	_____	_____	_____	FACW species <u>5</u> x 2 = <u>10</u>
3. _____	_____	_____	_____	FAC species <u>185</u> x 3 = <u>555</u>
4. _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
5. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
10% = Total Cover				Column Totals: <u>190</u> (A) <u>565</u> (B)
Herb Stratum (Plot size: <u>1-meter</u>)				Prevalence Index = B/A = <u>2.97</u>
1. <u>Giant Horetail (Equisetum telmateia)</u>	<u>5%</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
5% = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Woody Vine Stratum (Plot size: <u>1-meter</u>)				
1. <u>Himalayan Blackberry (Rubus armeniacus)</u>	<u>85%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
85% = Total Cover				
% Bare Ground in Herb Stratum <u>60%</u>				
Remarks:				

SOIL

SAR20-00588 - ATTACHMENT 6
Sampling Point: DP-01**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/1	100%	-	-	-	-	LOAM	
7-10	10YR 3/2	100%	-	-	-	-	Sandy Loam	Pebbly

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: Cobble
 Depth (inches): 10-inches

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Restrictive layer of cobble at 10-inches; largest individuals 1-1.5 inches in diameter. Roots throughout soil profile. Soil crumbly throughout soil profile.

HYDROLOGY

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No hydrology observed.

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

Project/Site: Finn Hill Stormwater Improvements NE 142nd Street City/County: City of Kirkland/King County Sampling Date: 7/23/2019
 Applicant/Owner: BHC Consultants/ City of Kirkland State: WA Sampling Point: DP-02
 Investigator(s): Shannon Ingebright & Alyssa Jacobs Section, Township, Range: S24, T26, R04E
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Convex Slope (%): 0
 Subregion (LRR): Northwest Forest Lat: 47.729769 Long: -122.237942 Datum: WGS84
 Soil Map Unit Name: Alderwood Gravelly Sandy Loam 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? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>		
Wetland Hydrology Present?	Yes _____	No <u>X</u>		
Remarks:				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5-meter</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Red Alder (Alnus rubra)</u>	<u>85%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	<u>85%</u>	<u>= Total Cover</u>		Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: <u>3-meter</u>)				
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3. _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4. _____	_____	_____	_____	FAC species <u>170</u> x 3 = <u>510</u>
5. _____	<u>0%</u>	<u>= Total Cover</u>		FACU species <u>5</u> x 4 = <u>20</u>
Herb Stratum (Plot size: <u>1-meter</u>)				UPL species <u>0</u> x 5 = <u>0</u>
1. <u>Herb Robert (Geranium robertianum)</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	Column Totals: <u>175</u> (A) <u>530</u> (B)
2. _____	_____	_____	_____	Prevalence Index = B/A = <u>3.02</u>
3. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 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.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	<u>5%</u>	<u>= Total Cover</u>		
Woody Vine Stratum (Plot size: <u>1-meter</u>)				
1. <u>Himalayan Blackberry (Rubus armeniacus)</u>	<u>85%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>60%</u>				
Remarks:				

SOIL

SAR20-00588 - ATTACHMENT 6
Sampling Point: DP-02**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/2	100%	-	-	-	-	LOAM	
7-10	10YR 4/4	100%	-	-	-	-	Sandy Loam	very pebbly

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: Cobble
 Depth (inches): 10-inches

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Restrictive layer of cobble at 10-inches; largest material 1-1.5 inches in diameter. Roots throughout soil profile. Soil crumbly throughout profile. Evidence of dumping; coarse material on soil surface however soil profile looks unaltered and horizons are evident.

HYDROLOGY

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No hydrology observed.

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

Project/Site: Finn Hill Stormwater Improvements NE 142nd Street City/County: City of Kirkland/King County Sampling Date: 7/23/2019
 Applicant/Owner: BHC Consultants/ City of Kirkland State: WA Sampling Point: DP-03
 Investigator(s): Shannon Ingebright & Alyssa Jacobs Section, Township, Range: S24, T26, R04E
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Convex Slope (%): 0
 Subregion (LRR): Northwest Forest Lat: 47.729670 Long: -122.237854 Datum: WGS84
 Soil Map Unit Name: Alderwood Gravelly Sandy Loam 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? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5-meter</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Red Alder (Alnus rubra)</u>	<u>15%</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Black cottonwood (Populus balsamifera)</u>	<u>75%</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
	<u>90%</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>3-meter</u>)				Total % Cover of:
1. <u>Vine maple (Acer circinatum)</u>	<u>20%</u>	<u>Y</u>	<u>FAC</u>	0 x 1 = 0
2. <u>Black cottonwood (Populus balsamifera)</u>	<u>15%</u>	<u>Y</u>	<u>FAC</u>	0 x 2 = 0
3. _____	_____	_____	_____	135 x 3 = 405
4. _____	_____	_____	_____	0 x 4 = 0
5. _____	_____	_____	_____	0 x 5 = 0
	<u>35%</u>	= Total Cover		Column Totals: <u>135</u> (A) <u>405</u> (B)
Herb Stratum (Plot size: <u>1-meter</u>)				Prevalence Index = B/A = <u>3.0</u>
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> _____ 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.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: <u>1-meter</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. <u>Himalayan Blackberry (Rubus armeniacus)</u>	<u>10%</u>	<u>N</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
	<u>10%</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>70%</u>				
Remarks: Black cottonwood in sapling shrub stratum looks like it has been repeatedly coppiced.				

SOIL

SAR20-00588 - ATTACHMENT 6
Sampling Point: DP-03**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	100%	-	-	-	-	LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: Pan
 Depth (inches): 4-inches

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Restrictive layer of cemented pan at 4-inches. Roots throughout soil profile. Soil crumbly throughout profile.

HYDROLOGY

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No hydrology observed.

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

Project/Site: Finn Hill Stormwater Improvements NE142nd Street City/County: City of Kirkland/King County Sampling Date: 7/23/2019
 Applicant/Owner: BHC Consultants/ City of Kirkland State: WA Sampling Point: DP-04
 Investigator(s): Shannon Ingebright & Alyssa Jacobs Section, Township, Range: S24, T26, R04E
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR): Northwest Forest Lat: 47.729685 Long: -122.237025 Datum: WGS84
 Soil Map Unit Name: Alderwood Gravelly Sandy Loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5-meter</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Black cottonwood (Populus balsamifera)</u>	<u>25%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	<u>25%</u>	<u>= Total Cover</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>107</u> x 3 = <u>321</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>147</u> (A) <u>391</u> (B) Prevalence Index = B/A = <u>2.6</u>
Sapling/Shrub Stratum (Plot size: <u>3-meter</u>)				
1. <u>Red osier dogwood (Cornus sericea)</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 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.
5. _____	<u>10%</u>	<u>= Total Cover</u>		
Herb Stratum (Plot size: <u>1-meter</u>)				
1. <u>Creeping buttercup (Ranunculus repens)</u>	<u>80%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Small-fruited bullrush (Scirpus microcarpus)</u>	<u>10%</u>	<u>No</u>	<u>OBL</u>	
3. <u>Field horsetail (Equisetum arvense)</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Reedcanary grass (Phalaris arundinaceae)</u>	<u>20%</u>	<u>No</u>	<u>FACW</u>	
5. <u>Climbing nightshade (Solanum dolcamara)</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	<u>112%</u>	<u>= Total Cover</u>		
Woody Vine Stratum (Plot size: <u>1-meter</u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>0%</u>	<u>0%</u>	<u>= Total Cover</u>		
Remarks:				

SOIL

SAR20-00588 - ATTACHMENT 6
Sampling Point: DP-04**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10Y 2/1	100%	-	-	-	-	silty loam	slippery; very silty
9-12	2.5Y 4/1	95%	7.5YR 4/6	5%	C	PL	SANDY LOAM	
9-18	2.5Y 3/1	75%	10YR 4/6	15%	C/D	PL/M	silty clay loam	small amount of grit

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils³:

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

³Indicators 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:

Very soft soils. No restrictive layer. Layer at 9 to 12 inches and 12 to 18 inches treated like one layer since matrix color is very similar.

HYDROLOGY

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

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

Secondary Indicators (2 or more required)

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

Field Observations:Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☒ No ☐ Depth (inches): To surface
(includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Areas of sparsely vegetated concave surface present within the wetland.

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

Project/Site: Finn Hill Stormwater Improvements NE 142nd Street City/County: City of Kirkland/King County Sampling Date: 7/23/2019
 Applicant/Owner: BHC Consultants/ City of Kirkland State: WA Sampling Point: DP-05
 Investigator(s): Shannon Ingebright & Alyssa Jacobs Section, Township, Range: S24, T26, R04E
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Convex Slope (%): 0
 Subregion (LRR): Northwest Forest Lat: 47.729712 Long: -122.236860 Datum: WGS84
 Soil Map Unit Name: Alderwood Gravelly Sandy Loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>		
Wetland Hydrology Present?	Yes _____	No <u>X</u>		
Remarks:				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5-meter</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Black cottonwood (Populus balsamifera)</u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Western red cedar (Thuja plicata)</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. <u>Big leaf maple (Acer macrophyllum)</u>	<u>15%</u>		<u>FACU</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60%</u> (A/B)
4. _____				Prevalence Index worksheet:
	<u>95%</u>	<u>= Total Cover</u>		
Sapling/Shrub Stratum (Plot size: <u>3-meter</u>)				Total % Cover of:
1. <u>Osoberry (Oemleria cerasiformis)</u>	<u>15%</u>	<u>No</u>	<u>FACU</u>	0 x 1 = 0
2. _____				0 x 2 = 0
3. _____				80 x 3 = 240
4. _____				105 x 4 = 420
5. _____				0 x 5 = 0
	<u>26%</u>	<u>= Total Cover</u>		Column Totals: <u>105</u> (A) <u>660</u> (B)
Herb Stratum (Plot size: <u>1-meter</u>)				Prevalence Index = B/A = <u>6.2</u>
1. <u>Sword fern (Polystichum munitum)</u>	<u>75%</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 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.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
Woody Vine Stratum (Plot size: <u>1-meter</u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
	<u>0%</u>	<u>= Total Cover</u>		
% Bare Ground in Herb Stratum <u>45%</u>				
Remarks: Restoration plants present. Data point located in non-wetland restoration area.				

SOIL

SAR20-00588 - ATTACHMENT 6
Sampling Point: DP-05

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5YR 2.5/2	100%	-	-	-	-	sandy loam	
3-12	7.5YR 2.5/3	100%	-	-	-	-	sandy loam	

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

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

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

Indicators for Problematic Hydric Soils³:

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

³Indicators 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 X

Remarks:

Root material present through entire soil profile. Very dry and crumbly through soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No hydrology observed.

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

Project/Site: Finn Hill Stormwater Improvements NE 142nd Street City/County: City of Kirkland/King County Sampling Date: 7/23/2019
 Applicant/Owner: BHC Consultants/ City of Kirkland State: WA Sampling Point: DP-06
 Investigator(s): Shannon Ingebright & Alyssa Jacobs Section, Township, Range: S24, T26, R04E
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR): Northwest Forest Lat: 47.729525 Long: -122.237300 Datum: WGS84
 Soil Map Unit Name: Alderwood Gravelly Sandy Loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5-meter</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)														
1. <u>Red Alder (Alnus rubra)</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	<u>40%</u>	<u>= Total Cover</u>		Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>145</u></td> <td>x 3 = <u>435</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>155</u> (A)</td> <td><u>465</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.0</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>145</u>	x 3 = <u>435</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>155</u> (A)	<u>465</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>5</u>	x 2 = <u>10</u>																	
FAC species <u>145</u>	x 3 = <u>435</u>																	
FACU species <u>5</u>	x 4 = <u>20</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>155</u> (A)	<u>465</u> (B)																	
Sapling/Shrub Stratum (Plot size: <u>3-meter</u>)																		
1. <u>Twinberry (Lonicera involucrata)</u>	<u>85%</u>	<u>Yes</u>	<u>FAC</u>															
2. <u>Salmonberry (Rubus spectabilis)</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	<u>90%</u>	<u>= Total Cover</u>																
Herb Stratum (Plot size: <u>1-meter</u>)																		
1. <u>Giant horsetail (Equisetum tolmetea)</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>															
2. <u>Ladyfern (Athyrum filix-femina)</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>															
3. <u>English ivy (Hedera helix)</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	<u>15%</u>	<u>= Total Cover</u>																
Woody Vine Stratum (Plot size: <u>1-meter</u>)																		
1. <u>Himalayan blackberry (Rubus armeniacus)</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>															
2. _____	_____	_____	_____															
% Bare Ground in Herb Stratum <u>70%</u>																		
Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>5</u> - Wetland Non-Vascular Plants ¹ <u>Problematic Hydrophytic Vegetation¹ (Explain)</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																		
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																		
Remarks:																		
Stachys cooleyae and Spirea douglasii rooted just outside plot.																		

SOIL

SAR20-00588 - ATTACHMENT 6
Sampling Point: DP-06

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/2	80%	2.5YR 3/6	20%	C	M	Loam	organic detritus
10-14	10YR 4/1	93%	7.5YR 4/6	7%	C	PL	sandy clay loam	

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

No restrictive layer present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____
Saturation Present?	Yes ☒ No ☐	Depth (inches): To surface

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Drift deposits caught in woody vegetation at three-inches above soil surface.

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

Project/Site: Finn Hill Stormwater Improvements NE142nd Street City/County: City of Kirkland/King County Sampling Date: 7/23/2019
 Applicant/Owner: BHC Consultants/ City of Kirkland State: WA Sampling Point: DP-07
 Investigator(s): Shannon Ingebright & Alyssa Jacobs Section, Township, Range: S24, T26, R04E
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Convex Slope (%): 0
 Subregion (LRR): Northwest Forest Lat: 47.729653 Long: -122.237641 Datum: WGS84
 Soil Map Unit Name: Alderwood Gravelly Sandy Loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>		
Wetland Hydrology Present?	Yes _____	No <u>X</u>		
Remarks:				

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>5-meter</u>)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:
1. <u>Black cottonwood (Populus balsamifera)</u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	<u>60%</u>	<u>= Total Cover</u>		Prevalence Index worksheet:
<u>Sapling/Shrub Stratum</u> (Plot size: <u>3-meter</u>)				
1. <u>Red osier dogwood (Cornus sericea)</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Western red cedar (Thuja plicata)</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Ninebark (Physocarpus capitatus)</u>	<u>15%</u>	<u>No</u>	<u>FACW</u>	FACW species <u>5</u> x 2 = <u>10</u>
4. <u>Salmonberry (Rubus spectabilis)</u>	<u>45%</u>	<u>Yes</u>	<u>FAC</u>	FAC species <u>110</u> x 3 = <u>330</u>
5. _____	_____	_____	_____	FACU species <u>10</u> x 4 = <u>40</u>
<u>70%</u> = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
<u>Herb Stratum</u> (Plot size: <u>1-meter</u>)				Column Totals: <u>125</u> (A) <u>380</u> (B)
1. <u>English ivy (Hedera helix)</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	Prevalence Index = B/A = <u>3.0</u>
2. <u>Cherry laurel (Prunus laurocerasus)</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 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.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>10%</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>1-meter</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>70%</u>				
Remarks: Restoration plantings present. Ninebark planted.				

SOIL

SAR20-00588 - ATTACHMENT 6
Sampling Point: DP-07**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/2	100%	-	-	-	-	sandy loam	
7-12	10YR 3/2	100%	-	-	-	-	sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

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

Indicators for Problematic Hydric Soils³:

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

³Indicators 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 X

Remarks:

Root material present in top portion of soil profile. Soils very dry and crumbly throughout profile.

HYDROLOGY

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

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

Secondary Indicators (2 or more required)

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

Field Observations:Surface Water Present? Yes _____ No X Depth (inches): _____Water Table Present? Yes _____ No X Depth (inches): _____Saturation Present? Yes _____ No X Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No hydrology observed.

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 7/23/2019

Rated by S. Ingebright Trained by Ecology? ☐ Yes ☒ No Date of training N/A

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☒ No

NOTE: Form is not complete with out the figures requested (figures can be combined).

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (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
 X Category III - Total score = 16 - 19
 Category IV - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>List appropriate rating (H, M, L)</i>				
Site Potential	M	L	L	
Landscape Potential	H	H	L	
Value	H	H	M	
Score Based on Ratings	8	7	4	19

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	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

- ☒ 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.*

NOTES and FIELD OBSERVATIONS:

Multiple HGM classes within wetland boundary; depressional and riverine along stream within boundary of depression. D 2.3: Only 5-10% of City of Kirkland residents have septic tanks. Sewer extension most likely funded by developers under the Emergency Sewer program (Kirkland Comprehensive Plan 2009 revision) D 2.4: Pesticides, fertilizers, etc. D4.3: Based on sub-basin. approximately 73 acres of upstream basin to 1/2 acre wetland unit. H1.3: Ranunculus repens, Lonicera involucrata, Scirpus microcarpus, POBA, Glyceria elata, Equisetum giganteum, Spirea douglasii, Stachys cooleyae, Cornus sericea, ALRU.

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions** - Indicators that the site functions to improve water quality**D 1.0. Does the site have the potential to improve water quality?****D 1.1. Characteristics of surface water outflows from the wetland:**

- Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3
- Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2
- ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1
- ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1

2

D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions).

Yes = 4 No = 0

0

D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):

- Wetland has persistent, ungrazed, plants > 95% of area points = 5
- Wetland has persistent, ungrazed, plants > 1/2 of area points = 3
- Wetland has persistent, ungrazed plants > 1/10 of area points = 1
- Wetland has persistent, ungrazed plants < 1/10 of area points = 0

5

D 1.4. Characteristics of seasonal ponding or inundation:*This is the area that is ponded for at least 2 months. See description in manual.*

- Area seasonally ponded is > 1/2 total area of wetland points = 4
- Area seasonally ponded is > 1/4 total area of wetland points = 2
- Area seasonally ponded is < 1/4 total area of wetland points = 0

0

Total for D 1

Add the points in the boxes above

7

Rating of Site Potential If score is: ☐ 12 - 16 = H ☒ 6 - 11 = M ☐ 0 - 5 = L Record the rating on the first page**D 2.0. Does the landscape have the potential to support the water quality function of the site?****D 2.1. Does the wetland unit receive stormwater discharges?** Yes = 1 No = 0

1

D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?

Yes = 1 No = 0

1

D 2.3. Are there septic systems within 250 ft of the wetland?

Yes = 1 No = 0

0

D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3?

Source Yes = 1 No = 0

1

Total for D 2

Add the points in the boxes above

3

Rating of Landscape Potential If score is: ☒ 3 or 4 = H ☐ 1 or 2 = M ☐ 0 = L Record the rating on the first page**D 3.0. Is the water quality improvement provided by the site valuable to society?****D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?** Yes = 1 No = 0

0

D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

Yes = 1 No = 0

1

D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?

Yes = 2 No = 0

2

Total for D 3

Add the points in the boxes above

3

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

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS

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

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

D 4.1. Characteristics of surface water outflows from the wetland:

- | | | |
|---|------------|---|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | 2 |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | |

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

- | | | |
|---|------------|---|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 0 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | |
| ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | |
| ☐ The wetland is a "headwater" wetland | points = 3 | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | |

D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.

- | | | |
|---|------------|---|
| ☐ The area of the basin is less than 10 times the area of the unit | points = 5 | 3 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | |
| ☐ Entire wetland is in the Flats class | points = 5 | |

Total for D 4 Add the points in the boxes above **5**

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

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

D 5.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0 1

D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0 1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0 1

Total for D 5 Add the points in the boxes above **3**

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

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

D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.

- | | | |
|--|------------|---|
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): | | 2 |
| ☐ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | |
| ☐ • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | |
| ☐ Flooding from groundwater is an issue in the sub-basin. | points = 1 | |
| ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why | points = 0 | |
| ☐ There are no problems with flooding downstream of the wetland. | points = 0 | |

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 0

Total for D 6

Add the points in the boxes above

2

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

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 | 1 |
| ☐ 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 | |
| <i>If the unit has a Forested class, check if:</i> | | |
| ☒ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon | | |

H 1.2. Hydroperiods

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

- | | | |
|---|-------------------------------------|---|
| ☐ Permanently flooded or inundated | 4 or more types present: points = 3 | 1 |
| ☐ Seasonally flooded or inundated | 3 types present: points = 2 | |
| ☒ Occasionally flooded or inundated | 2 types present: points = 1 | |
| ☐ Saturated only | 1 types 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 | |

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft². Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle**

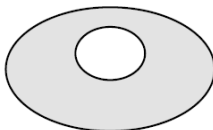
- | | | | |
|-----------------|----------------|------------|---|
| If you counted: | > 19 species | points = 2 | 1 |
| | 5 - 19 species | points = 1 | |
| | < 5 species | points = 0 | |

H 1.4. Interspersion of habitats

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



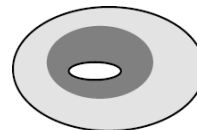
None = 0 points



Low = 1 point

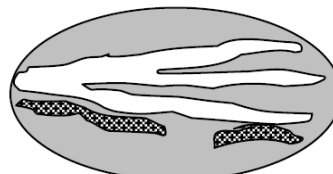
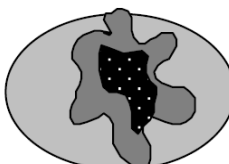
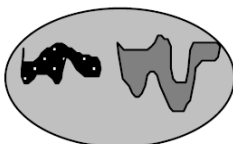


Moderate = 2 points



0

All three diagrams in this row are
HIGH = 3 points



H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i>		2
☒ 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)		
Total for H 1 Add the points in the boxes above		
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 function of the site?		
H 2.1 Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). Calculate: 2 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 2%		
If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0		0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: 20 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 20%		
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 1km 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		1
Site has 1 or 2 priority habitats (listed on next page) within 100m points = 1		
Site does not meet any of the criteria above points = 0		

Wetland name or number

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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

Wetland name or number
addressed elsewhere.

SAR20-00588 - ATTACHMENT 6

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ 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	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or 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	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to SC 2.2 ☐ No - Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = Category I ☐ No = Not WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - Contact WNHP/WDNR and to SC 2.4 ☐ No = Not 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 WHCV	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ 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**

SC 4.0. Forested Wetlands Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> ☐ 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	
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 (<i>needs to be measured near the bottom</i>) ☐ 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 ft²) ☐ Yes = Category I ☐ No = Category II	
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i> 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	
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	



July 7, 2022

I-Wen Yang
Senior Project Engineer
City of Kirkland
123 5th Avenue
Kirkland, WA 98034

RE: NE 142nd St Stormwater Improvements Critical Areas Determination
Parcel #2426049077
SAR20-00589

Hello,

The City of Kirkland, with the assistance from our consulting biologist (The Watershed Company) has completed the determination of the on-site critical areas located on parcel #2426049077 (subject property). Based on the available information, the applicable codes, and data gathered from the field, the City of Kirkland has made a determination of the presence of 1 stream and 1 wetland on the subject property. It was determined that the Wetland is a Category III with a habitat score of 4, meaning a standard buffer of 60'. Stream A is typed as a Type F stream with a 100' buffer.

The location of the stream, wetland, and associated buffer and buffer setback locations will need to be incorporated into an initial survey and any future development plans. A final survey showing the location of the stream, wetland, and associated buffers must be submitted to the City to close out the determination case.

This determination is valid for five (5) years from the date of the decision pursuant to KZC 90.105.4. The Planning Official's final determination regarding the existence of a stream or wetland and the proper classification of that stream or wetland may be appealed pursuant to the provisions of KZC 90.220.

Please let me know if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "I-Wen Yang", is written over a large, faint, light-blue graphic of a sailboat that serves as a background for the lower half of the letter.

Enclosures:

1. Critical Areas Report prepared by The Watershed Company, dated Jan 6, 2022



January 6, 2022

Jennifer Anderer
Planning and Building Development
City of Kirkland
123 Fifth Avenue
Kirkland, WA

Re: NE 142nd Street Stormwater Improvements, Environmental Peer Review

The Watershed Company Reference Number: 200134.12

Dear Jennifer,

This letter presents our peer review findings for the wetland determination study by O'Neill Service Group (OSG) at 141XX NE 142nd Street within the City of Kirkland (parcel #6599500310). The neighboring parcel to the east (parcel #2426049077) occupied by the Inglewood Presbyterian Church was also screened during the study. The determination has been reviewed for accuracy and compliance with the Kirkland Zoning Code (KZC) Chapter 90 (Critical Areas Regulations), the Corps of Engineers 1987 Wetlands Delineation Manual, and 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). A site visit was conducted on November 29, 2021, to verify the site conditions. The following documents were reviewed as part of this study:

- O'Neill Service Group. (OSG). 2020, September 24. *Critical Area Report NE 142nd Street Surface Water Drainage Improvements Kirkland, WA.*

OSG Report Summary

OSG documents one wetland and one stream on the church property to the east of the subject property (parcel #2426049077). Access permission was granted from the church and a delineation of Wetland A and Stream A was conducted on encumbering boundaries. The wetland is rated by OSG as Category III with a depressional hydrogeomorphic (HGM) class, total score of 19, and habitat score of 4. A 60-foot buffer is indicated for this feature.

OSG has identified the stream as Type Ns based on the intermittent flow, channel dimensions less than 2 feet in width, and absence of fish supporting habitat. A 50-foot buffer is indicated for this feature.

Review Findings

Wetland

We concur with OSG that there are no wetlands or streams on the subject parcel. All identified wetlands and streams are located off-site on the private property to the east. Access permission was granted on that parcel; a wetland and stream delineation was conducted in July of 2020.

Wetland A flags one through 15 were found during our site visit. Wetland flags were generally appropriately located. One area between Stream A and the delineated wetland boundary had a water table at two inches below the ground surface at the time of our site visit and may meet wetland criteria (Appendix A). It appears that changes to the wetland boundary in this area will not result in an increase to project impacts; verification may not be required.

We agree with the wetland's depressional HCM class, although there is a riverine component included along Stream A. Some discrepancies were noted within the wetland rating forms provided by OSG. Chiefly among them, no rating figures were included in the rating form documentation provided. Per Washington Department of Ecology, the rating system author, rating forms are incomplete without supporting figures. In order to confirm point allocations for select questions, the rating figures are required.

Question D 2.4 indicated that there are other sources of pollutants coming into the wetland, but no source is listed on the rating form. No other sources of pollutants were noted at the time of our site visit; the source observed by OSG should be listed in order to count this point. If no source is provided, this would change the rating score from 19 to 18. This would not change the overall category of wetland or standard buffer.

Stream

Fifteen stream flags in total were located, primarily in the area outside of the wetland; some flags were missing. Stream flags present were generally correct. Some flags were within the stream channel at the time of the site visit, but most of these flags were on vegetation that could have moved or shifted in the period between the delineation and our review. We agree with the surveyed stream ordinary high water mark (OHWM) as documented.

Stream A is an unnamed tributary to Denny Creek and is mapped as originating from a pipe, flowing through the wetland and eventually into Denny Creek in Big Finn Hill Park. Prior to entering Big Finn Hill Park, the stream is piped beneath NE 140th Place and NE 140th Street. The stream continues to flow under Juanita Drive, to the southwest to O.O. Denny Park, where it enters Lake Washington. No natural barriers to fish migration are documented down gradient, although downstream culverts could act as a partial or total artificial barriers.

OSG asserts in their report that Stream A is a seasonal, non-fish bearing stream that requires a 50-foot buffer. KZC 90.65 requires the use of WAC 222-16-130 (which relies on WAC 222-13-031) for stream classification. WAC 222-16-031 considers streams greater than 2 feet in width and with a gradient less than 16% to have the potential to support fish and warrant a classification of Type F, regardless of constructed fish barriers downstream. Distance between the confirmed stream flags was more than two feet. Additionally, the BHC survey included in the submittal shows the stream is wider than two feet. As noted in *Fish Passage at City of Kirkland Road and Trail Stream Culverts* (The Watershed Company 2014) the culvert crossing off of NE 135th Place “is a relatively high priority for providing fish passage due to the size of the stream and the lack of barriers below.” Wetland A was ponded at the time of the site visit where Stream A flows through the wetland. The depth of ponding within Wetland A, along with the size of the stream channel and connection to mapped downstream connection to known Type-F segments, indicate that this channel is likely suitable to support fish passage.

In the mitigation plan provided, Stream A’s buffer is shown extending west from the end of the newly proposed culvert location. However, pursuant to KZC 90.95.7.c, stream buffer widths are to be measured perpendicular to a pipe opening anywhere a stream enters or exists a pipe.

Buffer Conditions

The conditions of wetland and stream buffers in Kirkland may affect buffer widths and mitigation requirements for certain types of land use and building applications. As described in KZC 90.130.3, the vegetated buffer standard applies when impervious surface for projects exceed 50 square feet. In these circumstances the applicant must comply with buffer vegetation requirements in KZC 90.130.

It is unclear as to whether vegetated buffer standard requirements apply to this project; 1,463 square feet of impacts are proposed but impervious surface impacts are not outlined. Additionally, OSG states that the critical area buffer is in somewhat degraded condition but does not specify whether the buffer meets vegetated buffer standards. A detailed description of how the vegetated buffer applies to this project should be included.

Recommendations

1. Revise the Wetland Rating Form to include wetland rating figures. Additionally, include a source of pollution for D 2.4.
2. Change Stream A from a Type Ns stream to a Type F stream. This will change the required buffer from 50 feet to 100 feet. Alternatively, if other agencies (Corps, WDFW, etc.) have already determined a lack of fish use, please provide that documentation.
3. Modify Stream A's buffer to be measured perpendicular to the culvert.
4. Include a discussion of how the vegetated buffer applies to this project should be included, pursuant to KZC 90.130.

Please contact is with any questions or request for additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Grace Brennan', with a stylized, cursive script.

Grace Brennan
Ecologist

Photos



Photo 1. Stream A's connection to Wetland A.



Photo 2. Buffer area on subject parcel; presumably does not meet vegetated buffer standards for the shrub strata.

Critical Area Report

**NE 142nd Street Surface Water Drainage Improvements
Kirkland, Washington**

Please refer to Appendix E: Critical Areas Report
in
City of Kirkland Project Specifications
of the
NE 142ND STREET SURFACE WATER
DRAINAGE IMPROVEMENTS
for a copy of the final critical areas report.

Critical Area Report

April 6, 2022

REV 01

Prepared by:



O'Neill Service Group, LLC
17619 NE 67th Ct, Suite 100
Redmond, WA 98052

Prepared for:



BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle Washington 98101



June 22, 2022

Jennifer Anderer
Planning and Building Development
City of Kirkland
123 Fifth Avenue
Kirkland, WA

Re: NE 142nd Street Stormwater Improvements, Environmental Peer Review

The Watershed Company Reference Number: 200134.12

Dear Jennifer,

This letter presents our peer review findings for the wetland and stream mitigation portion of the critical area report by O'Neill Service Group (OSG) at 141XX NE 142nd Street within the City of Kirkland (parcel #6599500310). The mitigation plan has been reviewed for consistency with the Kirkland Zoning Code (KZC) Chapter 90 (Critical Areas Regulations), specifically KZC 90.145 and 90.160. The following documents were reviewed:

- O'Neill Service Group. (OSG). 2022, April 6. *Critical Area Report NE 142nd Street Surface Water Drainage Improvements Kirkland, WA, Rev 1*

This is the second review of the project by The Watershed Company; an initial review of the wetland and stream delineation segments of the Critical Area Report was conducted in the NE 142nd Street Stormwater Improvements, Environmental Peer Review (The Watershed Company, 2022). This study includes a review of the updated report for compliance with recommendations for that report along with a review of the mitigation plan.

OSG Report Summary

OSG documents one wetland and one stream on the church property to the east of the subject property (parcel #2426049077). Access permission was granted from the church and a delineation of Wetland A and Stream A was conducted on encumbering boundaries. The

wetland is rated by OSG as Category III with a depressional hydrogeomorphic (HGM) class, total score of 19, and habitat score of 4. A 60-foot buffer is indicated for this feature.

OSG has identified the stream as Type F per recommendation as outlined in the Environmental Peer Review Report for the wetland and stream delineation (The Watershed Company, 2022). A 100-foot buffer is indicated for this feature.

Total impacts proposed under this project include a reported 3,393 square feet of impacts, including 3,034 square feet of temporary buffer impact and 321 square feet of buffer to stream channel. Since this project is a public utility job, this project will be permitted as an exception under Kirkland Zoning Code (KZC) 90.45.

Review Findings

Wetland and Stream Delineation Comment Response

OSG addressed comments 1-2 and 4 in their updated report. However, recommendation three, requesting the buffer be perpendicular to the culvert end, was not addressed.

Mitigation Plan

The plan proposes 3,034 square feet of mitigation to compensate for temporary buffer impacts and 321 square feet of conversion from buffer to stream channel. This lengthening of the stream channel represents an overall enhancement of the stream system; however, the new channel may result in an expansion of stream buffer on adjacent private properties. KZC 90.70.5.b.14 requires that a signed statement from each owner of all adjacent affected properties consent to this modification. Most of the adjoining properties are already encumbered by existing stream/wetland buffers, but one area of parcel 6599500300 appears to have significant buffer expansion. The plan also proposes a woodchip mulch trail extending along the northern edge of proposed mitigation. Trails are included as a permitted activity under KZC 90.40, provided they meet the requirements outlined in KZC 90.40.6.b.

According to King County Critical Areas Mitigation Guidelines (King County, 2012), a mitigation area of 3,034 square feet requires approximately 36 trees, 85 shrubs, and 1,553 groundcover species for sufficient coverage. The proposed mitigation plan specifies 12 trees, 74 shrubs, and 121 groundcover plants, which is significantly below the recommended amount for every stratum. Plant numbers should be increased to meet King County guidance, which will improve chances of meeting performance standards within the monitoring timeframe.

A small area in between the woodchip mulch trail and the mitigation area is not proposed as an area of additional enhancement. It is unlikely this area will remain free from temporary

construction impacts and may unnecessarily hinder the contractor's access. Also, this area will be a continual source of weeds if left to remain unplanted. Therefore, this area should be proposed for additional vegetation enhancement.

Pursuant to KZC 90.145.5.a, on-site mitigation must be completed immediately before or following a disturbance. For best plant success, installation should take place during the first dormant season following construction. Additionally, Kirkland mitigation plan standards requires that the seed source is as local as possible, and nursery propagated. An irrigation system that provides one inch of water per week is specified in the plan, as required in KZC 90.145. However, the specifications of the plan state that the irrigation system can be removed after three years. Kirkland requires that the irrigation system remain in place until the final year of monitoring. Finally, the plan should specify that the irrigation system will be used with automatic timers.

Mulch specifications meet requirements and, pursuant to KZC 90.160.3, no permanent fencing is needed for public utility projects. However, signage requirements are determined by planning officials on a case-by-case basis for public agency activities. Since the project is immediately adjacent to a public trail signage is warranted and fencing may help reduce maintenance costs by limiting plant damage from foot traffic.

Recommendations

1. Modify the stream buffer to be displayed perpendicular to the culvert for both the existing and proposed conditions of the stream.
2. Verify there is no buffer expansion on private properties or otherwise demonstrate compliance with KZC 90.70.5.b.14.
3. Demonstrate compliance with code trail provisions in KZC 90.40.6.b.
4. Increase number of plants in planting plan to meet King County Mitigation Guidance.
5. Include the space between the mulch trail and mitigation area in the enhancement plan.
6. Add a timeline in the mitigation plan that shows that mitigation will be completed either immediately before or following disturbance.
7. Add specifications for plants, including that they will be a local seed source and nursery propagated.

8. Specify that the irrigation system will be an above-ground system with automatic timers.
9. Revise irrigation plan to state that irrigation will be removed in the final year of monitoring.
10. Confirm with City Planning Official that no signage will be required.

Please contact is with any questions or request for additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Grace Brennan', with a stylized, cursive script.

Grace Brennan
Ecologist



CITY OF KIRKLAND

123 Fifth Avenue, Kirkland, WA 98033 425.587.3000
www.kirklandwa.gov

MEMORANDUM

To: Jennifer Anderer, Associate Planner
From: Aimee Allcock, Project Coordinator
Date: 10/3/2022
Subject: Critical Area Report Revisions

Dear Jennifer,

The information requested from the fourth review round of the Critical Area Report on the NE 142nd Street Drainage Project is enclosed in this report addendum for your evaluation.

This includes:

- 1) A draft of the written letter of notice that will be provided to the owners of the affected properties, including:
- 2) The new stream buffer drawn with all available survey data.

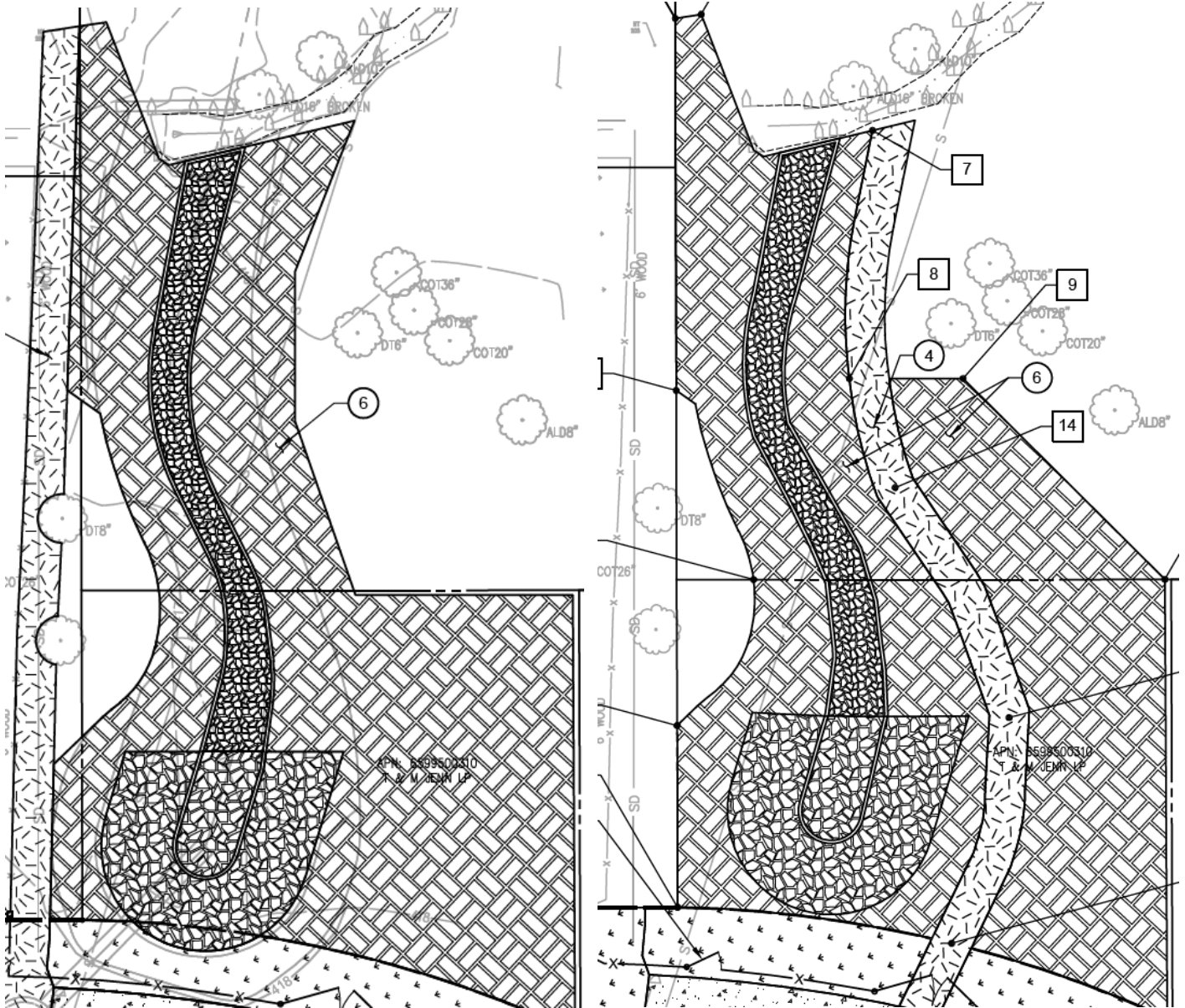
The third component of this addendum includes:

- 3) A narrative describing what planting guideline method was used and why.

The fourth component of this addendum includes:

- 4) The final design plans, stamped by the Engineer of Record (see separate attachment).

The final update to the project plans includes a relocation of approximately 73 SF of mitigation planting area from its previous location on private property. To account for all of the previously agreed upon SF of mitigation area, this area was moved to the southern border of the project. A wood chip path was also previously located on private property. To direct foot traffic away from the plantings, the path was relocated south of the stream. To visually summarize these changes, a side-by-side illustration of the 90% to 100% plans are depicted in the following images.



It is my understanding that the updated CAD files will be the last submittals required for the Critical Area Report. Please inform me if you need any other information to finish the report. If you have questions about the information provided, please do not hesitate call Cody and myself.

Sincerely,
Aimee



CITY OF KIRKLAND

Department of Public Works

123 Fifth Avenue, Kirkland, WA 98033 425.587.3000

www.kirklandwa.gov

RESIDENT NOTIFICATION - DRAFT

To: This letter will notify property owners at the following addresses:
14152 77TH AVE NE
7703 NE 142ND PL
7711 NE 142ND PL
7717 NE 142ND PL

From: Public Works – CIP Department

Date: 10/##/2022

Subject: Notification of Stream and Wetland Buffer

A stream and wetland are located near your property. The City is installing a culvert to increase stormwater drainage capacity and reduce the risk of flooding.

The attached document shows the corresponding area of the stream buffer and wetland buffer. The stream buffer is measured out 100 feet from the stream, the wetland buffer is measured 60 feet from the wetland borders.

If you have questions about what this means on your property, please contact the City of Kirkland Planning Department at 425-587-3600.

Thank you,

CIP Outreach Team



CITY OF KIRKLAND

Department of Public Works

123 Fifth Avenue, Kirkland, WA 98033 425.587.3000

www.kirklandwa.gov

City Response to the Environmental Report Peer Review prepared by The Watershed Company dated June 22, 2022.

Recommendations:

1. Modify the stream buffer to be displayed perpendicular to the culvert for both the existing and proposed conditions of the stream.

The buffer has been revised to reflect a perpendicular.

2. Verify there is no buffer expansion on private properties or otherwise demonstrate compliance with KZC 90.70.5.b.14.

A buffer waiver notice and appropriate survey showing existing and proposed buffers will be mailed to the property owners of those properties impacted by an increased buffer due to the daylighting of the stream. The notice and survey will be recorded on the title of the properties who wish to opt into the waiver.

3. Demonstrate compliance with code trail provisions in KZC 90.40.6.b.

N/A

4. Increase number of plants in planting plan to meet King County Mitigation Guidance.

The project will be held to the vegetative buffer standards identified in KZC 90.130.

5. Include the space between the mulch trail and mitigation area in the enhancement plan.

The project design has been revised to shift the mulch access trail to the south side of the new stream channel.

6. Add a timeline to the mitigation plan that shows that mitigation will be completed either immediately before or following disturbance.

Mitigation will be completed following construction.

7. Add specifications for plants, including that they will be a local seed source and nursery propagated.

The contract for installation will specify the correct plans which will be nursery propagated and sourced locally if possible pursuant to KZC 90.145.



CITY OF KIRKLAND

Department of Public Works

123 Fifth Avenue, Kirkland, WA 98033 425.587.3000

www.kirklandwa.gov

City Response to the Environmental Report Peer Review prepared by The Watershed Company dated June 22, 2022.

Recommendations:

8. Specify that the irrigation system will be an above-ground system with automatic timers.

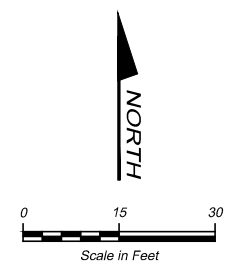
The Critical Area Report prepared by OSG was updated to note the watering system will be above-ground, but in the absence of a reliable or practicable water source an alternative may be use.

9. Revise irrigation plan to state that irrigation will be removed in the final year of monitoring.

The Critical Area Report prepared by OSG was updated to note that watering will occur for the first three years at a minimum. The contract for installation will ensure performance specifications are met.

10. Confirm with City Planning Official that no signage will be required.

According to KZC 90.40 signage may be waived for public utility projects.



SHEET:
SCALE: 1" = 20'-0"
FILENAME: P19-10634 Impact



NO.	DATE	BY	APPR.	REVISION



BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101

206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

M. Foster 07-2022
DESIGNED BY: DATE

J. Stewart 07-2022
DRAWN BY: DATE

A. McDonald 07-2022
CHECKED BY: DATE

CITY OF KIRKLAND

PROPOSED CRITICAL AREA BUFFERS

Critical Area Report Addendum No. 1

To: Carla Talich, PE, Project Manager, BHC
Date: July 25, 2022
Project Name.: City of Kirkland Finn Hill Flood Reduction Project
Subject: Mitigation Planting Plan Justification

This Addendum was prepared upon the request of the City to respond to one of several comments provided in The Watershed Company (TWC) Critical Area Review letter (Review Letter) dated June 22, 2022. The subject comment is regarding the planting plan submitted to the City of Kirkland as part of the Critical Area Report (Submittal). The comment suggests the Submittal plant quantities are insufficient, citing recommended plant quantities based on King County guidance. This addendum describes the methods followed in the preparation of the proposed planting plan for the project. In addition, this addendum demonstrates that the King County guidance is not binding for mitigation sites in the City of Kirkland, the planting design criteria used for the Submittal is taken from a regional authority, and the area used in the Review Letter for comparison quantities appears to be inaccurate. The comment and our response are provided below.

The Review Letter comment in question is as follows:

According to King County Critical Areas Mitigation Guidelines (King County, 2012), a mitigation area of 3,034 square feet requires approximately 36 trees, 85 shrubs, and 1,553 groundcover species for sufficient coverage. The proposed mitigation plan specifies 12 trees, 74 shrubs, and 121 groundcover plants, which is significantly below the recommended amount for every stratum. Plant numbers should be increased to meet King County guidance, which will improve chances of meeting performance standards within the monitoring timeframe. The current critical area report proposes 3,034 square feet of mitigation to compensate for temporary buffer impacts and 321 square feet of conversion from buffer to stream channel.

Project facts and regulatory code references related to the project are as follows:

1. The subject planting area is 2,397 square feet (It appears that TWC used *total temp buffer impact* [3,034SF] instead of *planting area* to develop the comparison numbers).
2. Kirkland Zoning Code Chapter 90 is the authority over the critical area elements (including mitigation planting) for projects within the City of Kirkland, such as this project.
3. Kirkland Zoning Code Section 90.145(6.)(b.)(1) references the "City of Kirkland's Critical Area Plant List and standards" as the authority for plant sizing and spacing.
4. No document entitled "City of Kirkland's Critical Area Plant List" is available online at the time of this project. The only available online guidance for City of Kirkland plant spacing comes from the document entitled "Kirkland Do it Yourself Native Landscaping Guide" (City of Kirkland, date unknown), which lists spacing for trees at 15 to 20 feet on-center (o.c.), shrubs at 6 to 8 feet o.c., and groundcover at 3 to 4 feet o.c.
5. Kirkland Zoning Code does not establish King County guidance as an authority.

Submittal plant spacing was based on guidance from a “Calculating Plant Quantities” worksheet from Sound Native Plants, a regional critical area restoration expert and former native plant supplier (Sound Native Plants, date unknown). The goal for spacing was average density (rather than dense or sparse). The Submittal plant quantities are derived from the *average* density for trees and shrubs as follows:

Trees: 15-foot on-center, triangular spacing ($2,397 \text{ SF} \times 0.00513 \text{ plants/SF} = 12 \text{ plants}$)

Shrubs: 6-foot on-center, triangular spacing ($2,397 \text{ SF} \times 0.0321 \text{ plants/SF} = 77 \text{ plants}$)

Groundcover: 5-foot on-center, triangular spacing. ($2,397 \text{ SF} \times 0.0462 \text{ plants/SF} = 111 \text{ plants}$)

The final plant numbers deviate slightly from the guidance to accommodate site conditions, including planting area shapes, anticipated microclimate due to topography or proximity to stream edge, and adjacent existing plants.

The Review Letter quantities differ from the Submittal quantities for two reasons. First, the Review Letter used 3,034 SF to calculate plant quantities, which is a 25 percent larger area than the actual planting area. Second, King County guidance promotes dense plant spacing – 9-foot on-center spacing for trees, 6-foot o.c. for shrubs and 4-foot o.c. for groundcover. The Review Letter even used a much denser, 1.5-foot o.c., spacing for the groundcover target, a density King County suggests for wetland emergent plants (such as rushes or sedges). The Submittal designers chose wider spacing to promote healthy tree growth and allow for light penetration to the shrub and groundcover strata as the trees mature.

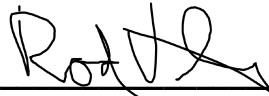
Very dense plantings can help mitigate the effects of plant mortality during the maintenance and monitoring period. But other authoritative guidance for plant spacing were judged to be suitable for this project.

If you need any further information, please do not hesitate to contact Mike Foster, PWS (206) 755-5816.

Sincerely,



Aimee Allcock, Project Coordinator



Rod Steitzer, P.E., Capital Project Manager